Education [Bildung]–Literality–Competence: On Competing Tasks of Public Schools and the Need for New Links Between Teaching and Educational Research

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Abstract

Purpose: The article distinguishes between the three concepts of standardization of the tasks of pedagogical action in modern educational systems:

- the traditional concept of standardizing educational goals through curricula,

- the literacy concept of psychometric standardization,

- and the concept of competence, which can be developed in different ways.

Design/Approach/Methods: I examine these concepts and show

- that traditional curricular orientations suffer from the fact that they have not developed controls over the achievement of objectives,

- that literacy concept allows for psychometric measurement, but this is not coordinated with the actual teaching and its goals,

- and that competence models only offer further possibilities if their subject-specific requirements are aligned with the educational theoretical and didactic teaching objectives.

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Findings: Instead of replacing traditional input control with output measurements, it is important to link teaching and educational research in such a way that competence measurements not only measure the levels of demands achieved by learners but also the quality and effectiveness of teaching. **Originality/Value:** The train of thought overcomes the juxtaposition of philosophy of education and empirical research and shows how the two can cooperate theoretically and empirically.

The article centers on three concepts associated with different task descriptions of public education [Erziehung and Bildung]. The first ascribes to the educational system the task of providing and securing basic education for everyone [Grundbildung] (see Tenorth, 2004; for the genesis of Comenius's concept, see Tenorth, 1994; for the problem of the Comenian "omnino," cf. Benner & Stępkowski, 2012); the second is drawn from the English word "literacy," which undoubtedly originally referred to the ability to read and write, which pertained to basic education [Grundbildung] and which has recently been expanded to include "literalities" from other domains (see Baumert et al., 2001; Tillmann, 2017); the third stands for attempts to change the control of the education system from traditional input control using educational plans to a new type of output control based on measurements of competence (see Bellmann, 2006; Fend, 2011; Programme for International Student Assessment [PISA], 2000).

None of these concepts is undisputed, each having its strengths and weaknesses, which are not reciprocally counterbalanced, and all of them have the problem that they cannot be used as a basis for a comprehensive determination of teaching methods in the education system. In a first step, the article introduces the approaches behind the concepts, goes on to examine their benefits and limitations, and, in so doing, identifies a blind spot that clearly limits their suitability for didactic and evaluative purposes. The result is a plea for a new link between teaching and educational research [Bildungsforschung], which ties the quality assurance options to the observance of three causalities in education and "Bildungs" processes (see Benner, 2019).

Education—Basic education [Bildung]

A long-standing dispute exists concerning the quality of education-theoretical definitions [Bildungstheorie] and lesson descriptions in the field of public education. The main focus of the dispute is that educational theory [Bildungstheorie] develops idealized aims but does not make

statements as to how these aims can be implemented and achieved. The dualisms in present-day educational theory [Bildungstheorie] are also the object of criticism, as they only provide limited description of the tasks of the joint education of the next generations in public schools. These dualities include the classic comparisons between general and vocational education, as well as between general and professional education. At first glance, these distinctions may seem plausible, but on closer inspection, they actually complicate any possible general agreement on what basic education [Grundbildung] consists in. Today, general education [Allgemeinbildung] can no longer be considered under one substantial general heading (cf. the articles in Pleines, 1987) and was, in addition, never focused on a school education [Bildung] to be provided during childhood and adolescence, but always related to the entire life span. The education [Bildung] to be provided by schools also does not lie in the medium of a general education, which could be differentiated from a special education, but rather in transitions that take place between supported educational "Bildungs" processes and those taking place beyond the confines of pedagogical interaction [Erziehung].

These transitions vary from familial education and socialization to nonfamilial learning situations and learning processes currently promoted through professionalized preschool education or transitions from familial education to teaching/learning processes that are educationally organized to prepare children and adolescents to enter societal fields of activity and to participate as independent persons in society. These transitions are completed once adolescents are able to choose a profession and to become useful members of society in this respect, providing for themselves, developing morals and a sense of social norms, participating in shaping the future politically, interpreting the state constitution, and becoming active participants in the social practice of education, the arts, and religion (cf. Benner, 2015, p. 30 ff, p. 118 ff, p. 303 ff).

In view of these aims, basic education [Grundbildung] seems to be the more appropriate concept than general education [Allgemeinbildung]. The concept "basic education" [Grundbildung] helps to prevent the often ideologically established dichotomies and provides a justification for public education that is tailored to the context of school education. If one asks what basic education [Grundbildung] includes and what it does not include, various demarcations present themselves. First, basic education [Grundbildung] includes everything that cannot be learned and passed on directly through human coexistence but is necessary for living in a society and therefore needs to be taught in schools. In addition to this difference between facts that can be handed down through society and those that depend on school-based forms of instruction; second, basic education [Grundbildung] can be defined as public education [öffentliche Bildung] that is oriented toward ideas of a common life of members of society. Even before the emergence of public schools, Aristotle stated that everything that should be practiced together must also be taught and learned together (Aristotle, *Politics* 1336a 20–27). Under this definition, basic education [Grundbildung]

is not a matter of individual preference but is related to something in which everyone participates or should participate. A third demarcation places further education [Bildung] before basic education [Grundbildung]—though in terms of time, not principle.

When it comes to the definition of the content of a basic education [Grundbildung] understood in this way, a high degree of historical constancy can be observed (see Tenorth, 1994, pp. 122–141). While some tasks have always been an integral part of the canon of a basic education [Grundbildung] provided by teachers, others were only adopted within modern societies and others still have only recently become an integral part thereof. Already Aristotle regarded the tasks of transmitting writing, algebra, and geometry and the introduction of gymnastics and music as tasks for school education [Erziehung and Bildung]. He also stipulated that the education of young people organized in families by private teachers should be replaced by a public and joint education, which would enable young people to learn "the necessary" from the "useful" that cannot be learned in society itself, such as the cultural techniques of reading and writing, arithmetic, and geometric drawing, as well as common gymnastic and musical education (Politics 1337 a 38–1337 b 3; 1338 a 16–19). He argued that while the former was useful for many things, the latter belonged to the canon of basic education [Grundbildung] to counteract harmful influences of society. He did not include other subjects that today are considered part of basic education [Grundbildung], such as foreign languages, literature, history, natural and social sciences, ethics, and religion. He attributed the task of imparting basic knowledge and skills within these areas to the community as well as to special adult education institutions (on the socially organized "Paideia," see Ruhloff, 2015).

The later inclusion of subjects that Aristotle excluded as part of the canon of a common basic education [Grundbildung] followed the logic of the three basic theoretically relevant demarcations. Before new content could be included in the curriculum, it first had to be generated, gain significance for the continued existence of society, and, in terms of individual transmission, needed to be factitiously conveyed and imparted in schools. In the area of science, this happened when the monopoly position of the ancient scientific paradigm, which was oriented toward knowledge of order and purpose in nature and society, was shaken by the emergence of calculation-based science in the Renaissance. The mathematical orders in the field of astronomy and mechanics could not be attained by mimicking natural orders but had to be designed, judged, and technically interpreted in a rational way. It only became necessary to communicate and incorporate them into the school curriculum as life and work became increasingly science-oriented. This led to the inclusion of the new mathematics and natural sciences—initially in the secondary school system, then becoming more widespread in the last third of the 20th century when traditional education was replaced by a science-based basic education [Grundbildung] (see Benner, 2020).

The inclusion of scientific history in the school curriculum is comparable to the integration of science and mathematics. In traditional societies, history was largely passed on by word of mouth

and in line with accepted customs. If it was taught in schools, it was taught for ideological and system-stabilizing reasons. Scientifically researched history was only integrated into the canon of public schools once the historical humanities emerged as a result of the progressive scientification of the whole of civilization. Eventually, history in that sense had to be included in the canon of basic education [Grundbildung] to counteract the ahistorical nature of the modern world (cf. Ritter, 1961). From the inclusion of the historical humanities, comprising not only history but also literature and living foreign languages also resulted a shift in moral and religious education. Today there are research-based school subjects for this purpose, intended to provide future generations with a basic historical education that enables them to make informed judgments; distinguishes between their own, foreign, and public morals and religious beliefs; and prepares them to participate in public debates on these issues.

The reformed school subjects of ethics and religion are the most recent additions to the school curriculum. They serve a protective purpose that is not unlike that of gymnastics and music within the Aristotelian curriculum. The role of both of these subjects in Aristotle was to counter fundamentalistic interpretations and ethical–moral and theological–religious issues and to place morality, custom, and religion under public and civil control (for the area of morality, see Benner et al., 2015; Benner & Nikolova, 2016; for the area of religious education [Bildung], see Benner et al., 2011; Schieder, 1996).

A key strength of the concept of basic education [Grundbildung] is that it locates the task of school education [Erziehung und Bildung] to foster the participation of individuals in society in the classroom, understanding it as a pedagogical educational task that goes beyond the mere imparting of functional elementary subjects. Therein it recognizes its own limitation: Although it is developing a knowledge-based order of the curriculum for the joint education of future generations in schools, it does not have any concept of its own that could define the measures and practices required to implement them in the classroom. There exists a hiatus between the education theoretical definition [bildungstheoretischen Definition] and the teaching of basic education [Grundbildung], which cannot be filled solely by educational theory [Bildungstheorie]. Given that modern and contemporary basic education [Grundbildung] does not automatically emerge from the way people coexist in society, it is only logical that it must be artificially taught in schools, but not to be taught and assimilated like something that cannot be learned in life itself through experience and contact.

The aforementioned hiatus is even greater today than in the past, when there was a school culture in which some of the arts included in the canon were to some degree naturally handed down to the younger generation. But this is no longer the case today. In recent decades, misguided scientific developments in educational research, teacher training, and education policy have resulted in the teaching and learning from kindergartens, primary schools, and secondary schools

to universities being largely replaced by teaching and learning based on self-education concepts [Selbstbildungskonzepts]. This has led to a deprofessionalization of the pedagogical professions, which is difficult to reverse today (for a critique of this development, see Benner, 2020; Biesta, 2008; Meyer, 1998; Prange, 2000; Reinmann, 2018; Trautmann & Wischer, 2016; for preschool education, see Piper, 2018).

Let us now consider the second concept to identify its achievements and limitations and examine the extent to which it can address the shortcomings of the basic education concept [Grundbildungskonzept].

Literacy–literality–literalities

The term "literality" is derived from the English word "literacy," for which there are several definitions. With respect to the aforementioned tasks of public education and instruction, it deals first with written literacy, which has always relied on artificial mediation and acquisition guided by teachers, and second with the process of general and comprehensive alphabetization, which took place in modern Europe in the transition from the 19th to the 20th century and has since led to the introduction of elementary schools worldwide. One of the most important insights that the term "literacy" brought to light is that even within literate societies, the transmission of the written language cannot be provided by the family alone but remains dependent on school teaching. In addition, "literacy" not only refers to the ability to read and write resulting from the process of alphabetization, which elementary schools must ensure in every generation, but also to a literary and aesthetic cultural background that is closely linked to this. It encompasses experiences with narrative and poetic language and was formulated under the basic education [Grundbildung] framework as an educational task [bildende Aufgabe] of the historical humanities [Geisteswissenschaften].

Meanwhile, the course that the concept of basic literacy has taken in educational science [Bildungswissenschaft] and research [Bildungsforschung], and in the reform pedagogies initiated therefrom, is closely linked to this conceptual ambiguity that has contributed to "literality" replacing the concept of education [Bildung] in many areas. The terms "literacy"/"literality" are no longer merely used to describe reading, writing, and media skills but also in preschool education to describe "literacy education" and to develop "literacy offerings," and are also used to describe mathematical and scientific competence profiles and in combination with almost any content field (cf. Baumert et al., 2001).

The development outlined above shows that basic education can no longer be defined in terms of educational theory alone, but that it is also important to ensure the conditions for its employability and to develop concepts that allow for the evaluation of teaching-learning processes. The literality concept promises to fulfill all of this. It is different from the concept of basic education

[Grundbildung] in that it defines literality in terms of a psychometric measurability, which is admittedly not already established by using the term "literacy" but must be substantiated in all areas by educational research. Over the past two decades, psychometrically-based empirical educational research [Bildungsforschung] has successfully developed measurement methods for testing written language competence with an emphasis on reading skills, as well as for testing skills in mathematics, science, and English as a foreign language which now enable comparisons to be made of the required levels achieved by pupils at the end of full-time schooling at around 16 years of age.

The literacy-based approach has come under increasing scrutiny not only due to its claims but also due to its psychometric justification of domain-specific requirement levels. This scrutiny comes from challenges under educational theory [bildungstheoretische Problematisierungen] of the content-related suitability of competences, empirical studies questioning the validity of the literacy concept, as well as school education objecting to neglecting a developmental task accompanying the teaching and learning processes for academic instruction, individual learners, school classes, individual schools, and educational systems within individual countries and entire peoples and nations.

As early as a report published in 2000, I highlighted the need for an education-theoretical framework [bildungstheoretische Rahmung] for large-scale research projects such as PISA and many others and critically examined the restriction of psychometry on the basis of psychological arguments (Benner, 2000/2002). Usually, literacy-based competences are defined without any reference to educational plans [Bildungspläne] for school teaching or educational theory-based [bildungstheoretische] traditions of pedagogy and didactics. Moreover, they often refer to social, economic, and political needs, rather than education theory-based [bildungstheoretische] aspects of the respective domain, which they reflect only marginally. Recently, Kai S. Cortina urged empirical educational research to abandon this "too narrow Procrustean bed of the literality model" (Cortina, 2016, p. 37) and to no longer interpret the results obtained thereby as valid findings for the entire life span (Cortina, 2016, p. 29; with respect to Germany, see also Cortina, 2015, pp. 239–240). Other empirical educational researchers, in an attempt to gain wider acceptance in educational science, have highlighted the possibility of expanding their competence models theoretically and examined the success of such attempts in surmounting the fruitless duel of humanities didactics and empirical educational research [Bildungsforschung] (cf. Benner, 2000, 2005; Messner, 2003, 2016).

In addressing these positions, it would be absurd to sacrifice the richness and diversity of pedagogical models of education [Bildung] and competence for a literacy concept that focuses on the so-called core subjects and only omits them psychometrically. Rather than rejecting psychometrics on account of its limited perspective, however, it is important first to acknowledge the

successes and returns of psychometry-based empirical educational research [Bildungsforschung] (cf. Benner, 2018) and to use this as an incentive to ensure the fruitfulness of the statistical model used and refined by it, which originates from the Danish mathematician Georg Rasch, for the development of competency measurement methods based on educational theory [bildungstheoretisch basiert], which may complement but do not replace the literacy-based methods.

Together with colleagues from the Humboldt University of Berlin, I have made initial attempts to this end in two DFG (German Research Foundation)-financed projects on modeling and testing religious and ethical–moral education and competence, the latter of which is currently in the internationalization phase (cf. Benner et al., 2011; Benner & Nikolova, 2016; Peng, 2018). The method developed by Rasch enables competence measurements to be carried out for the first time not merely by calculating average values, which do not have any significance for individual test subjects, but by measuring domain-specific competences differentiated according to requirement levels, which in turn means that reliable statements can be made about the probability of individual test subjects achieving certain requirement levels.

The potential performance of Rasch-based psychometrics could lie in its ability to overcome the dichotomy of quantitative and qualitative research, both of which tend to abstract from the three main causalities in educational processes [Erziehungs- und Bildungsprozessen] discussed below, and to quantify qualitative data and qualify quantitative data. Thanks to the procedures developed by Rasch, it has become possible to measure both domain-specific requirement levels and the competence levels achieved by individual test subjects, thus providing information on the order of the requirement levels in one- or multi-dimensional competence scales and probability with which test subjects achieve these requirement levels on the same scale (see Ivanov, 2016; Nikolova, 2011). This marks the first time that the hierarchy of testing tasks arranged according to statistically determined levels of difficulty and the education-theoretical hermeneutic [bildungstheoretisch-hermeneutischen] order according to competence levels concurred with the psychometrically calculated probability with which specific test subjects could solve difficult versus relatively easy test tasks.

It is not possible to ensure the intended quality in terms of empirical and education-theoretical proven competence measurements solely on the basis of literacy models and psychometric calculations. The quality of the measurement also relies on the quality of the test items, which is a fundamental prerequisite for education-theoretical-based and individually significant competence measurements. Currently, the results of empirical educational research are primarily used in policy consultancy. The comparative national and international measurements are presented and understood as statements about the success or failure in optimizing the performance of individual schools or entire education systems. However, such interpretations are controversial, in part due to the fact that they do not allow for pedagogical feedback that could indicate ways in which the

pedagogical work could be improved. Contextual variables—collected or not—together with the mix of test subjects on site are important for the interpretation of the measurement results. The significance of the measurements can be considerably compromised by a lack of information on, for example, the number of lessons per week in a subject, the absence of lessons in a school or region, the level of professional qualifications of the teachers, or the exact composition of the school population. Furthermore, in Germany, individual federal states are reluctant to provide information regarding the actual cancellation of classes and the professional qualifications of teachers because poor test results might then point to shortcomings in educational policy and school reform.

In addition, the concepts of competence used in national education plans are at times trivial, under-complex, or even misleading. The German federal states, for instance, have made a distinction between methodological and technical competence as well as individual and social competence of school-children, as if they could be detached from one another and measured and compared. But this is clearly not the case for the four subcompetences referred to above. The lack of methodological competence in differentiating between inductive-scientific or hypothetical-deductive scientific correlations, as an example, invariably also impairs the competence to adequately capture material correlations. Technical competence cannot be assessed in the area of scientific propaedeutics without methodological competence, and methodological competence is never merely a formal competence but always constitutes the matter itself. The same applies to the differentiation and delimitation of individual and social competence. Any social competence that is not the competence of an individual is just as absurd as any self-competence that does not include social skills (see Oelkers, 2003, pp. 112–116).

In summary, it follows that the literacy concept, both at the content level and with regard to the feedback function of the measurements carried out in relation to it, is unable to close the gaps left by the basic education [Grundbildung] concept. In terms of content, it is dependent upon an education-theoretical framework, which is incorporated into model development and measurements as well as into the delimitation of domain-specific requirement levels on the basis of the work carried out on test items. The literacy concepts even exceed the shortcomings of the basic education [Grundbildung] concept in terms of feedback to individual school classes and teachers as well as individual schools and regions. However, it simultaneously creates new opportunities to differentiate between domain-specific levels of requirements, as identified by education theory and education science, enabling the empirical quality control of teaching, reform measures, and continuing education, as identified by education theory, wherever pursued.

On the illusions of a change from the input control of education systems by education plans to an output control by measuring competences

This part of the article examines in three steps whether the traditional input control of the education system can really be transformed into output control based on competence theory using curricula and

educational plans, as advocated by the education policy in part and at least tolerated by empirical educational research (see the paper "Change of Perspective in the Education System," n.d.; see also Bellmann, 2006). First, it is examined whether, in view of the past, one can actually refer to an input control of the education system. Second, it is shown that many output measurements work with concepts of competence that are only suited to assessing and controlling the development of educational systems within very narrow limits. In conclusion, it is argued that output control by measuring competences would only amplify the deficits revealed in Parts 1 and 2 and that real quality control can only be expected through pedagogically meaningful links between didactic tasks and test tasks, necessitating new collaborations between teaching and educational research.

Ever since public schools were established under state supervision, efforts have been made to control education systems using guidelines, without, however, claiming to be able to standardize the entire input. Input, after all, consists not just of educational plans but also of teachers and learners and the historically evolved school structures. The state has no influence on any of these input factors to determine the output. Competence measurements do not change anything in this respect. Their potential for change lies in feedback to teachers, school supervisors, and educational policymakers, rather than state influence. Competence measurements provide ideas for changes in teaching-learning situations, the revision of educational plans, and the reform of teacher training and continuing education.

The effectiveness of this feedback is conveyed via complex causalities in educational [Erziehungs- und Bildungs-] processes lying outside the potential reach of input or output control. Processes of education [Erziehungs- und Bildungsprozesse], teaching, and learning cannot be controlled like administrations and do not function according to a supply-benefit model, which some empirical educational research has adopted as a model for teaching. From an education theoretical perspective, teaching cannot be interpreted as an activity that provides offerings, any more than learning can be interpreted as a utilization of offerings.

This does not mean, however, that the distinction between what is offered in the classroom and how it is used is entirely without pedagogical significance. Such a distinction was made by Helmut Fend in the late 1970s and early 1980s to compare the development of pupils at grammar schools and comprehensive schools in consideration of the range of courses offered and the actual teaching methods used. In Fend's study, this was accomplished without resorting to any illusions of input or output control or even interpreting the connections between teaching and learning according to the model of offering and use. Fend sought to determine how grammar schools and comprehensive schools developed the educational careers of adolescents from educated or educationally disadvantaged backgrounds (see Fend, 1982). However, even in the sense in which Andreas Helmke (2012) uses the concept of "offering-use model," it would make sense not to interpret the offering and its use in terms of market categories, but instead refer back to causalities in educational

[Erziehungs- and Bildungs-] processes, as it would then be necessary to relate the so-called offering side in Helmke's model to the educational influences of pedagogical players and the so-called use side to the created interactions that result from the learners' immersion in the factual connections to be learned (see Benner, 2018, p. 113).

The cover of the volume with the name *PISA 2000* states that the literacy-based understanding of competencies that the German PISA Consortium combined with PISA (2000, outer cover of the belt) is "centered" on "not the factual knowledge of students inside but rather the analysis of basic competencies that are necessary in modern societies for participation in social, economic and political life." What the authors of the volume emphasize as an achievement of PISA, however, points to a specific limit of literacy-based output measurements. These measurements abstract from the school curriculum and the intraschool teaching-learning processes to measure competences for participating in social, economic, and political life, which are very often not aligned with the guidelines of the educational plans. In consequence, the measured competences do not allow conclusions to be drawn about the degree of dependence between the test results and the quality of the previous teaching-learning processes and are, therefore, unsuitable for formulating recommendations in line with correlations among educative, educational, and methodological causalities in educational [Erziehungs- and Bildungs-] processes.

In PISA, 2000, for example, reading-related competence measurements were carried out without measuring the spelling skills of the students or considering the amount of lessons they actually attended or their subsequent reading practice (see Student Performance in International Comparison, 2000). As a result, test results were compared nationally and internationally without any conclusions being drawn from the comparisons for improvement of teaching reality.

In conclusion, it is clear that a change from a supposed input control to a supposed output control of education systems cannot be assumed in every sense. First, education systems have never been completely controlled by guidelines; second, current output measurements do not yet enable individualized feedback to be gathered, which could provide information on the effectiveness of reform measures implemented in individual school classes, schools, and regions; and third, new links between education and teaching research [Erziehungs- und Unterrichtsforschung] must be developed, bearing in mind that education systems achieve their educational [erziehenden and bildenden] effects by enriching experience and contact rather than by teaching output competences. This brings us to the final section of this article.

The requirements of educational research based on educational and competence theory and its relationship to classroom research

Important changes have been made to the procedure chosen in PISA with regard to the projects discussed above for developing testing instruments to measure basic religious and ethical–moral

competencies. These competency models and testing instruments have been designed in line with the educational task [Bildungsauftrag] and the effectiveness of public schools, with the purpose of enabling conclusions to be drawn for improving pedagogical work in schools (see Ivanov, 2016; Nikolova, 2011; Nikolova & Ivanov, 2016). It is particularly significant that the modifications did not relate to research using the Rasch model, which has proven to be instrumental in all respects in making the necessary changes. First, they referred to the psychological concept of competence used in PISA and developed by Franz Weinert, second to a pedagogical differentiation of domain-specific competences according to didactically and school-theoretically proven subdimensions, and third to a didactically compatible question structure within the test tasks themselves (see Benner & Nikolova, 2016).

Weinert's concept of competence contains three defining features that characterize competences as "abilities and skills" identifiable as "learnable" and "cognitive," which enable a distinction to be made of "motivational," "volitional," and "social" readiness and which are necessary and useful "in order to solve certain problems" or "in order to be able to implement problem solutions successfully and responsibly in varying situations" (Weinert, 2001, p. 65 ff). We sought to adhere to all three characteristics, but at the same time build into them considerations in terms of education [Erziehungs- and Bildungs-] and schooling theory, which should ensure adaptation to pedagogical-didactic issues. We transformed the psychological terms "learnable" and "cognitive" into the pedagogical terms "teachable-learnable" as well as "expanding world experience and interpersonal interaction through teaching"; the references to "motivational," "volitional," and "social" readiness we changed into interests to be developed and promoted, which center the attention of teachers and learners on teaching content and strengthen the social readiness of learners to participate in society. Where necessary, we changed the reference to "competencies to solve problems" into an understanding of competencies "to work on problems" (for details, see Benner, 2020, Chapter 5, Section 5).

Finally, with respect to competences to be fostered in the classroom, we made a subject-oriented differentiation based on three subdimensions, with a distinction between domain-specific basic knowledge as well as domain-specific judgment and participation competence. While the first of these subject-oriented differentiations emphasizes the dependency of the promotion of competence in the classroom on the imparting of domain-specific basic facts, the second focuses on the instructional processing of judgment-forming questions, and the third ascertains the domain-specific quality of problem-solving.

These definitions were not based on psychological models but on domain-specific discourses within the technical and didactic reference disciplines. In projects concerning the development of a test instrument for the recording of ethical–moral subcompetences, this was carried out in accordance with the classical ethics of tradition, proceeding from Socratic aporetizations of ancient

morality to the teleological ethics of Aristotle and the categorical ethics of Kant, all the way to the socially and ideology-critical as well as pragmatic ethical approaches of the 20th century.

These modifications made it possible to construct test tasks in the ETiK projects that are compatible with the didactic tasks of the teaching of ethics and that can be evaluated in such a way that the dependency of ethical–moral judgment competence on basic ethical–moral knowledge becomes apparent. Furthermore, the ethical–moral participation competence and plans for action competence can be understood as a problem-solving competence that, without abstracting from the classical content of ethics teaching, provides information about the level of requirements at which students can assess and work on ethical–moral problems in terms of reflective participation in society. We have selected the term "ethical–moral action design competence" to refer to the subcompetence related to coping with life situations. The intention is to avoid attributing to competence measurements a validity over the entire life span, which is undesirable in terms of basic theory and cannot be empirically verified. In societies with democratic constitutions and ways of life, the way in which adolescents judge and act as adults should not be the result of education; rather, it should stem from their actions over the life span itself and remain open to interpretation and, if necessary, correction (see Benner et al., 2015; Benner & Nikolova, 2016).

There is a final modification. The tasks for capturing domain-specific forms of judgment and participation competence were designed in such a way that the test subjects who achieve the highest level of requirements reflect on and assess inconsistencies among their own, external, and public morals. This characteristic, just like the others, is applicable to all teaching domains. It suggests, for example, that in mathematics lessons and in the construction of test tasks to measure mathematical subcompetences, mathematical problem-solving should be based on metacognitive reflections and linked to different social problems (see Neubrand & Xu, 2018; see also the example in the German PISA Consortium, 2001, p. 54). Within the areas of natural science and technology, the task is to combine teleological with scientific as well as hermeneutic, historical, and phenomenological forms of knowledge and thereby ensure that the measured competences are multi-dimensional rather than one-dimensional and become didactically compatible with the questions mentioned in the educational plans (see Benner, 2020, Chapter 5, Section 4).

Wherever this is successful, empirical educational research [Bildungsforschung] can make an important contribution to the evaluation of the specialized teaching that test subjects have previously received and will also be used to examine reform measures in teaching and the school system that were previously based on didactic and specialized teaching as well as educational [bildungstheoretischen] and competence-theoretical issues. Should it be possible to draw conclusions in this way concerning corrections required in the area of the educative [erziehenden und bildenden] as well as methodological causalities of pedagogical action that mediates between these (cf. Benner, 2020, Chapter 2, Section 4, and Chapter 5), then education [Bildung], literality, and

competence are no longer three mutually exclusive concepts that fulfill debatable policy functions without enabling differentiated feedback to the schools attended by the test subjects. It is likely that further progress will depend upon collaboration between basic research in educational science and didactics as well as specific projects in teaching and educational research [Bildungsforschung], involving experiments with a pluralization of forms of knowledge in teaching and a differentiation of domain-specific competences according to subcompetences.

Author's note

In the original German, Benner distinguishes between "Erziehung" and "Bildung." He uses the term "Erziehung" to refer to the educational impact of pedagogical actors on the learning processes of children and youth, and by "Bildung" he means a human educative formation that happens through their interactions with the world. To make this distinction visible in English, the word "education" is sometimes followed by [Erziehung] or even [Erziehung and Bildung]. Where "education" is written without an addition, in German "Erziehung" is meant. The same applies to the term educational theory. If "educational theory" is meant, this term is added in [. . .]. The German version of the article is published in Böttcher, W., Heinemann, U., and Priebe, B. (Eds.). (2019). *Allgemeinbildung im Diskurs*, pp. 72–90. Friedrich. The content of this article is identical with that of the original German version. The use of Benner's article (2019) has been authorized by Friedrich Verlag and acknowledged by *ECNU Review of Education*.

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