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Introduction

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Conceptual frameworks in didactics – learning and teaching: Trends, evolutions and comparative challenges

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Abstract
This special issue of the European Educational Research Journal presents a series of research papers reflecting the trends and evolutions in conceptual frameworks that took place within the EERA 27 'Didactics – Learning and Teaching' network during its first ten years of existence. Most conceptual tools used in this field were elaborated in different socio-historical contexts for education and schooling delineated by nations and/or linguistic regions in Europe. This issue suggests possible integrative paths between certain frameworks debated in the Network 27 through co-authored papers. Crossed perspectives on the papers highlight certain important *foci* in the study of learning and teaching processes: (i) 'Bildung' discussed within didactics as a European research field; (ii) Educational goals, content and teaching methods expressed in curricula; (iii) Curriculum making processes; (iv) Teaching qualities, teaching (joint) actions and classroom discourses; and (v) Collaborative practices in teacher professional development. Finally, two strands of comparative research in didactics are sketched for increasing synergies in the field.

Keywords
Bildung, curriculum, didactics, educational content, knowledge, learning, school subjects, teacher professional development, teaching

This special issue of the European Educational Research Journal presents a series of research papers reflecting the trends and developments in conceptual frameworks that took place within the EERA 27 'Didactics – Learning and Teaching' network during its first ten years of existence.

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Launched in 2006 at the ECER in Geneva, this network[1] offers a space for dialogue about the many research traditions in Europe for conceptualizing the relations between learning, teaching and knowledge content, which shape education and training for the new generations. Most conceptual tools used in this field were elaborated in different socio-historical contexts for education and schooling delineated by nations and/or linguistic regions in Europe. As a result the conceptual frameworks for 'Didactics – Learning and Teaching' tend to be culturally and regionally dependent. An important purpose of the work in the special issue is the introduction and the discussion of the original concepts, opening the way to some possible transfer or integration processes.

Based on the collection of contributions in this issue, we can say that the field of 'Didactics – Learning and Teaching' ranges from discourses on the purposes and the methods for teaching knowledge and educational content to debates on the conceptual frameworks for characterizing the content-related social practices occurring in the classrooms and beyond, in the curriculum construction process. The field appears as a complex relation between a professional science developed by (and for) the practitioners[2] and an academic science about the teaching and learning practices that develop in the classrooms and the educational systems at large, each one contributing to the other. This relation lies at the core of the structuration of the field, and this structuration is fiercely debated. As a professional science, the field tends to be segmented by the school subjects or knowledge domains organized in the curricula, and it is often termed as 'subject didactics' (e.g. 'Fachdidaktiken' in German speaking-countries, 'Didactique des disciplines' in French-speaking countries, and so on). However, the structuration of 'didactics' as an academic science is not so clear-cut. The tendency to keep the subject specificity as a core principle is often opposed to the conceptualization of the teacher–learner–content relation as a more general unit of analysis.

Far from being unified by any specific theories, the field of didactics includes philosophical and historical studies on the meaning and purposes of teaching and learning, its evolution and transformation in different countries with respect to curricular reforms, and the empirical analyses of classroom practices focusing on the content taught and learnt. It explores the transformation of the learner based on their learning experiences – i.e. 'Bildung', as the German tradition describes it – and the possible re-organization of teaching practices in a teacher professional development perspective.

Beyond the diversity of approaches that were identified and gathered as a possible 'platform in the search for common ground' (Hudson and Meyer, 2011: 9), work carried out in Network 27 has strengthened the mutual understanding of the conceptual frameworks used in Europe for studying teaching and learning in the classrooms from the perspective of the educational content. This EERJ issue offers certain possible integrative paths between different conceptual frameworks presented in the network, through co-authored papers. It also introduces emergent research questions in the study of learning and teaching processes, which goes beyond the classical categories in the field such as subject didactics versus general didactics; didactics versus curriculum theory approaches; and so on.

In this introduction, we first offer a brief reminder of the construction of 'Didactics – Learning and Teaching' as a research field in Europe. We present the main research topics that are represented by the collection of contributions, and we discuss the relations between the papers for the following *foci*:

(i) Bildung discussed within didactics as a European research field;
(ii) Educational goals, content and teaching methods expressed in curricula;
(iii) Curriculum-making processes;
(iv) Teaching qualities, teaching (joint) actions and classroom discourses; and
(v) Collaborative practices in teacher professional development.

Finally, we highlight how different comparative approaches could play a catalytic role for increasing synergies in the field.

Didactics: learning and teaching as a research field

Following the opening symposium of Network 27 at ECER in Geneva (in 2006), Brian Hudson and Bernard Schneuwly co-edited a special issue of this journal to provide a record of the starting points of the network. They wrote:

> Whilst issues related to teaching, learning and subject content are central to pedagogical practices, associated discussions tend to be fragmented. This fragmentation can be reinforced by institutional structures, particular policy initiatives, the strength of some discourse communities and the relative weaknesses of other. The EERA network on Didactics – Learning and Teaching has been established with the aim of providing a space of dialogue for integrating such discussions (…). (Hudson and Schneuwly, 2007: 106)

Looking back, the space of dialogue opened in the EERA Network 27 may be seen, at least in part, as a continuation of the international dialogue that took place in the 1990s between European and North American researchers, about the differences between the 'Didaktik' field elaborated in German-speaking and Northern countries with a strong philosophical perspective, and the 'Curriculum theory' studies conducted in English-speaking countries from an institutional perspective. Through this dialogue, Gundem and Hopmann (1998) and associated researchers characterized the mutual influences between these two traditions across the 20th century, while at the same they time shed light on the plural aspects of what is encompassed in 'Didaktik' by the German-speaking and Northern researchers: taken together, a reflective practice by the teachers about selecting, organizing and planning of knowledge content, and a research field devoted to the theorization of the relations between the teacher, the learner and the knowledge content contributing to the personal development of the learner (Bildung). At this time, Gundem and Hopmann (1998) also pointed out the potential difficulty of labelling this field of research 'Didactics' in the academic communications in English because it has no historical roots in Anglo-Saxon countries.

The work carried out in Network 27 has contributed to taking the debate forward. The opening of a space of dialogue related to learning, teaching and educational content brings us now to an examination of the conditions for setting up a research domain that takes into consideration the systemic relations between each of these components, in order to grasp the complexity of the classroom practices in their broader socio-historical context. This new space of dialogue has also initiated some new 'language games' (as Wittgenstein describes it) in the field of research on learning and teaching, in which the word 'didactics' and the associated phrases – didactic/didactical, subject didactics, comparative didactics, etc. – are used as a 'world English vocabulary' for talking about the set of the many research traditions about teaching, learning and knowing, at least in Europe.

Relying on Hofstetter and Schneuwly's (2007) socio-historical analysis of the development of educational sciences in Western countries since the mid-19th century, Schneuwly (2014) suggested that the emergence of scientific research domains can be characterized by:

(i) The elaboration of specific theoretical models and research methods;
(ii) The professionalization of research through institutional structures;
(iii) The construction of specialized communication networks; and
(iv) The organization of socializing activities, and particularly the training of emergent researchers through graduate schools and doctoral programs.

Using these criteria, there is much evidence to support the view that 'Didactics – Learning and Teaching' has become a scientific research field within the broader field of educational sciences. Institutional evidence may be found in the national and international scientific societies and networks, scientific journals and academic chairs in many European countries, whether or not the word 'didactics' is used explicitly; for example, 'Subject education' is often used to favor the relations with the English-speaking countries, whereas 'General didactics' may be claimed as a historical and philosophical inheritance of a humanistic vision of instruction. Meyer (2012) wrote:

> Didactics is an established educational discipline in continental Europe. It is often found as domain-specific didactics, also labelled subject didactics: in Scandinavia, Germany, Switzerland, France, Spain, Russia and other countries. Less often can it be found as general didactics: in Finland, Norway, Denmark, Germany, Spain, Russia, and other countries. It does not exist in the United Kingdom, although some fields of didactics do: curriculum theory, instruction research, etc. This means that certain fields that can be found in continental general and domain-specific didactics are well established in English-speaking countries and in the UK in particular. (Meyer, 2012: 450)

Conceptual evidence of 'didactics' as a research domain may be found in the many theoretical and methodological approaches used for making sense of the material, social and historical conditions in which knowledge content is taught to and acquired by the young generation. Since the 2010s, several symposia, papers, multi-author books and thematic journal issues have reviewed the conceptual development of the field on the basis of multi-national perspectives (e.g. Hudson and Meyer, 2011; Meyer, 2012; Dorier et al., 2013; Ligozat et al., 2014; Ligozat et al., 2015; Wickman, 2012); and the list could of course be extended further by considering reviews of the field from single national perspectives. Interestingly, even in the case of reviews gathering multi-national perspectives, the reviews remain mostly dependent on certain research traditions, in which the overall reflection is worked out.

An important dimension of 'didactics' as a research field in recent years is characterized by the growth of empirical research on classroom actions and discourses, classroom practices in relation with the national curriculum requirements in terms of subject and/or competences, and teachers' professional development through the reflexive analyses of classrooms practices. This type of empirical research is often carried out from the multiple perspectives of the subject didactics (or subject domains research in education). The creation of the EERA Network 27 at the European level has triggered a new research perspective that takes into account the many subject specificities in relation with the more generic features of the classroom practices.

In a programmatic paper on 'Curriculum and pedagogy' – although not often quoted in the field of didactics in Europe – Walter Doyle (1992) deplored the methodological divide between curriculum studies and classroom studies, at least in North American research. He called for 'useful theoretical and methodological tools' allowing a better understanding of the structures and processes by which knowledge is experienced and constructed by teachers and students in classroom settings. He wrote:

> The central message of this chapter is that the study of teaching and curriculum must be grounded much more deeply than it has been in the events that students and teachers jointly construct in classroom settings. (Doyle, 1992: 509)

In our view, this is an important dimension that is investigated and discussed in 'didactics' as a European research field on teaching and learning. The growth of empirical research in didactics relates also to the 'operational shift' that has taken place in the social and human sciences at large. The elaboration of certain specific theoretical frameworks and methodological paths enabling the

studying of the classroom events, and the paths through which the content develops within these events lies at the core of many contributions in the network. In particular, much of the Swedish research presented in the network suggests a pragmatic approach to classroom discourses in which the practical epistemologies in learning and the epistemological moves by the teacher are analyzed (Lidar et al., 2006; Lundqvist et al., 2009; Wickman and Östman, 2002; Wickman, 2006). The French-speaking research presented in the network features a joint action framework in didactics as a situated and an institutional analysis of the content taught and learnt in the classroom from the perspectives of both the teacher and the student (Ligozat and Schubauer-Leoni, 2010; Sensevy, 2012; Sensevy and Mercier, 2007; Sensevy et al., 2005; Venturini and Amade-Escot, 2014). In addition to the development of specific theoretical frameworks, certain methodological paths to characterize the teachers' instructional practices and their effects on students' learning are explored through the use of standardized categories for classroom observations in mathematics and language arts and science (Klette et al., 2016).

In the following section, we present certain convergent *foci* emerging from the papers in this EERJ issue, and we discuss how they contribute to didactics as a European research field dealing with learning and the teaching of content tied to the curriculum.

Contributions to this special issue

Bildung discussed within didactics as a European research field

The concept of 'Bildung' has a prominent place in the German tradition of 'Didaktik' – as one of the research traditions encompassed by the word 'didactics' in this issue. Contributions by Meinert Meyer and Anatoli Rakhkochkine on the one hand, and Bernard Schneuwly and Helmut Johannes Vollmer on the other, discuss how different didactical models address the Bildung taking place in and resulting from the learner's experience. The latter article also addresses the problems of the transfer and transformation of didactical models from the German context to that of Russia.

The contribution by Meyer and Rakhochkine discusses Bildung from the perspective of Wolfgang Klafki's models of categorical didactics and critical–constructive didactics (Klafki, [1959], 1964; [1985], 1991). The first model is based on a 'categorical Bildung theory'; that is, the idea that the transferability of a competence results from a learning content that is both concrete and general, through the study of elementary and exemplary phenomena. The second didactical model offered by Klafki is the critical–constructive one, based on key problems representing the objective part of learning that should be stable for an entire era, and relevant to social demands. The subjective part relates to self-determination, critical competence and development of empathy, solidarity and morale. Both models are discussed not only in terms of their philosophical foundations, but also in terms of the pitfalls arising when these models are implemented in the empirical world of the classroom. From this, Meyer and Rakhkochkine discuss the new interest in Klafki's models in Russia, competing with the local didactical traditions influenced by Vygotsky's ideas on the instructional process as a means to accelerate a student's development. Klafki's critical constructive model seems particularly relevant in higher education, where key problems may address the challenge of educating responsible experts taking an active role in civil society. From the authors' perspective, the scrutiny of the foundations and pitfalls of the didactical models developed in a country is a means by which to achieve the transformations needed to support the transfer of Klafki's models into a different national educational context.

Challenging the general perspectives on the relationships between teaching, learning and Bildung, Schneuwly and Vollmer rely on the writings of Wilhelm von Humboldt – and the role of 'branches' of human knowledge in connecting the self to the world – to explore how the teaching

of specific subjects may foster the learners' Bildung. In the first part, an historical analysis of the formation of grammar as school subject is carried out in both the German and the French-speaking parts of Switzerland. The concept of 'didactic transposition' from the French-speaking tradition of 'Didactique' (Chevallard, [1985], 1991) emerges as an interesting candidate for the analysis of the subject taught and the correlative transformation of the learners according to the social aims of the curriculum. Shifts in the overarching purposes of grammar teaching reveal how the school subject drifts away from the inner structure of scientific knowledge and addresses certain aspects of Bildung (e.g. learning to think, ennoblement of the heart and life, development of humanity, etc.). In the second part of the paper, the authors suggest a threefold model of the learner's transformation through the learning of specific subjects: learning *of* or *within* a subject, learning alongside *with* a subject and learning *through* a subject. The authors argue that this hypothetical model could serve the identification of commonalities and differences between subjects, and it is intended for consideration in the perspective of establishing a 'generalized Fachdidaktik', i.e a meta-theoretical structure beyond the subject didactics.

Both contributions show how the configuration of the concept of Bildung in an international debate builds new insights beyond the classical scopes of 'general didactics' (*Allgemeine Didaktik*) and 'subject didactics' (*Fachdidaktiken*) in the German tradition. As Meyer and Rakhkochkine expressed it, knowledge transfer and knowledge transformation are challenges in the international landscape of the research in didactics. Both philosophical and historical investigations, as different research traditions in the field, may inspire a new wave of empirical research about the form that Bildung takes in concrete human activities.

Educational goals, content and teaching methods expressed in curricula

One of the central issues dealt with in the research field of didactics is the selection of educational goals, content and teaching methods expressed in curricula. In this special issue, this is studied in the contributions by Laurence Marty, Patrice Venturini and Jonas Almqvist, and Emmanuelle Forest, Benoît Lenzen and Marie Öhman. Both articles relate to previous research on 'teaching traditions' in the field of science education (cf. Lundqvist et al., 2012). The concept formulated in this line of research is that teachers in one way or another relate to some specific selections of educational goals, content and methods – namely a teaching tradition – in order to build lessons and orient the content that is taught. Using a comparison of the curriculum texts and resources in different countries, didactic research may clarify what is expressed and taken for granted in curricular texts and, hence, help develop an understanding of the variations in teaching practices relating to a single national curriculum.

In their study, Marty et al. describe and discuss teaching traditions in science curricula texts for compulsory schooling in France, Sweden and Western Switzerland. In the analyses they investigate how the selection of goals and educational content, as well as the expected learning outcomes, are made. In the article, Marty et al. identify commonalities and specificities between the science curricula in the three countries and analyze them in terms of three teaching traditions: 'academic', 'applied', and 'moral'. The study shows, among other things, that in two of the countries there is an inconsistency between the initial recommendations, expressed in terms of educational goals, and what the teachers are more specifically expected to teach. The article also includes a discussion of challenges that may arise when teaching in accordance with each teaching tradition.

With a similar ambition, Forest et al. clarify different teaching traditions expressed in physical education (PE) in the curricula, also for compulsory schooling in France, Sweden and Western Switzerland. They identify and discuss four different teaching traditions: teaching PE (1) as sport-techniques; (2) as health education; (3) for values and citizenship; and (4) as physical culture

education. The comparative study shows that the curricula in the three countries differ in goals and content. In the article the authors not only compare the teaching traditions in PE between the three countries, but they also discuss them with respect to the teaching traditions in science education. As such, the fourth tradition in PE (physical culture education) is very interesting because it appears to be qualitatively different to the traditions found in science education curricula.

The work by Marty et al. and Forest et al. suggests that international comparisons about teaching and learning could be improved by taking into account different goals, content and related teaching and learning patterns that are specific to the national educational contexts, beyond the mere results from written tests achieved by the students. The two papers in this section both analyze tensions between teaching traditions. It is to be hoped that this may lead to further interesting and fruitful studies and international discussions based on comparisons of teaching and learning in different contexts, beyond the discourse of competition often expressed in international comparisons – for example PISA or TIMSS.

Curriculum-making processes

As hinted above, teachers need, somehow, to relate their teaching to a curriculum. In the French didactics tradition the concept of 'transposition' is used to study this process and the resulting knowledge content that is shaped in the classrooms actions. In other traditions, the concept of an 'enacted curriculum' is used. The articles in this section by Michael Håkansson, Leif Östman and Katrien van Poeck, and by Carol Taylor and Catherine Bovill, discuss the content enacted in teaching and learning practices; however, both groups of authors are specifically interested in curriculum-making processes as a result of the interactions in the classroom.

Håkansson et al. investigate the political tendency as constituted in classroom discourses. More specifically, they pay attention to the political dimension of teaching and learning in the context of environmental and sustainability issues. In their study they relate to the conceptual diversity and different views on the political dimension and how it appears in educational practices in classrooms. The empirical material used was collected in Belgium and Sweden: it consisted of recordings from teaching issues of political importance. The authors clarify and discuss four categories in a typology of ways in which the political factor is constituted in practice: (1) democratic participation; (2) political reflection; (3) political deliberation (with three sub-categories); and (4) political moments. These categories can be used as conceptual tools for reflection, discussion and a more nuanced understanding of the political dimension of environmental and sustainability issues in teaching. In addition, the authors discuss them in terms of consequences for preparation, socialization and personality formation in education.

In a study of higher education teaching in the UK, Taylor and Bovill investigate teachers' co-construction, with students, of curricula. Using the framework of Whitehead's process philosophy (Whitehead, 1985), the authors build their study on two case studies from teaching practice that are used to develop the concept of ecology of participation in order to consider co-created curricula. The first empirical example concerns issues about engaging undergraduate students as curriculum partners, and the other is about staff participation in a Postgraduate Certificate in Academic Practice, a compulsory program for new academic staff with teaching responsibilities. The results from the study consist of descriptions and discussions of three interrelated dimensions involved in the co-creation of curricula: (1) a process of becoming: recasting subjectivity; (2) the process of acting well in relationships: enacting concern; and (3) an orientation to harmony in which difference in equality is valued.

Both articles in this section address questions about curriculum-making processes, but in slightly different ways. Håkansson et al. clarify and discuss a typology of views on the political

element constituted in practice. These views are not expressed in any way in the written curriculum, and hence are not transposed in any direct or uncomplicated way, but rather are enacted in practice and with consequences for new challenges and ways of doing and being. Taylor and Bovill's focus on higher education leads them to suggest a model for understanding the co-construction of curricula and to discuss the dimensions of this process that are not expressed in a preformulated curriculum, but which are crucial for understanding meaning-making in practice.

Teaching qualities and teaching (joint) actions in classroom practices

Observing, describing and analyzing how teaching influences learning in day-to-day classroom practices have become matters of increasing concern in the field of didactics. However, studies in this realm tend to be scattered as a result of the use of a wide range of models and categories that can be based on different theoretical foundations as well as bottom-up generalizations of empirical evidence found in specific instructional contexts. The two contributions by Kirsti Klette and Marte Blikstad-Balas, and Florence Ligozat, Eva Lundqvist and Chantal Amade-Escot, examine and compare different frameworks to address this issue.

Arguing that video-recording techniques of classroom practices provides reliable and durable observatory material for multiple analyses with different lenses, Klette and Blikstad-Balas describe, compare and contrast four coding manuals widely used in North American research on teaching and learning: CLASS (Classroom Assessing Scoring System); FFT (Framework for Teaching); PISA+ manual; and PLATO (Protocol for Language Arts Teaching Observation). Each coding manual is discussed in terms of the learning epistemologies upon which it relies; the subject-content covered in the teaching practice investigated; the scoring systems; and the certification requirements for using it. The authors suggest that the selection and use of such standardized categories for analyzing instructional patterns in different subjects enables quantitative measures of teaching qualities for different subjects and in different educational contexts. However, they also show that, for the time being, not all coding manuals seem to be suitable for studying *any* subject-content; they are tailored to certain specific contexts from which they were elaborated, and the complexity of teaching becomes reduced to a set of decontextualized codes. As a result there are unavoidable normative and reductionist effects that have to be taken seriously into account when using these tools.

Ligozat et al. study the continuity between teaching and learning that can be observed when classroom participants have to overcome the unavoidable contingencies in meaning-making occurring in classroom transactions. As a point of departure, they identify certain 'breaches in the didactic contract' according to the French-speaking research tradition (Brousseau, 1997), i.e. the discrepancies between the teacher's and the students' lines of action in classroom events. The authors use both the Swedish pragmatic approach to classroom discourses (Practical Epistemology and Epistemological Moves Analyses – PEA and EMA) and the French-speaking Joint Action framework in Didactics (Didactic contract, Milieu, Mesogenesis, Topogenesis, Chronogenesis – MTC) to analyze how new contents are built from the breaches in teaching and learning of different knowledge domains (integrated science, physical education and physics). By means of this double analysis the authors explore the conceptual relationships between the two frameworks that were elaborated in the Swedish research on science education and in the French speaking research on mathematics education respectively. Whereas the practical epistemology analysis and the mesogenetic analysis are two similar ways in which to feature the contents formed in the classroom transactions, the epistemological moves analysis is a categorization of the variations in teaching actions. The chronogenetic shifts and the topogenetic rises reflect the variations of how the content is moved over time and shared in the teacher's and the students' joint actions.

While Klette and Blikstad-Balas strive to develop 'a shared vocabulary in the research of classroom teaching in learning' based on standard categorizations of teaching qualities, Ligozat et al. highlight not only the differences, but also the conceptual relations between the two frameworks that they explored, in order to help in choosing among them and/or possibly to suggest integrative ways to pursue them. Both contributions thus rely upon two different epistemologies that can facilitate the analysis of classroom practices across school subjects and educational contexts.

The joint action framework in didactics is also used in the paper by Joffredo-Lebrun et al., which is presented in the following section.

Collaborative practices in teacher professional development

In the fifth and last section, the conditions for producing and fostering didactic knowledge and professional development, together with teachers, are explored. Articles by Karim Hamza, Ola Palm, Jenny Palmqvist, Jesus Piqueras and Per-Olof Wickman, and by Sophie Joffredo-Lebrun, Mireille Morellato, Gérard Sensevy and Serge Quilio, address questions about bridging the gap between educational research and teachers in the production of knowledge about teaching and learning. These authors thus contribute to a line of research that includes educational design research and learning studies.

In their article about the conditions and the outcomes of teacher–researcher collaboration in science education, Hamza et al. show how the gap between educational research and teaching can be productively handled and reduced when teaching and research are treated as two equal practices. Using the framework of 'didactical modeling', which involves the organization of different levels of purposes pursued in teaching, the authors show (1) that the teachers have used the model to develop the teacher and student agency in the classroom; and (2) that the transformation of a teaching practice in the classroom results from exchanges between the teachers' practices and the researchers' practices, producing a hybridization of the two. This exchange also means that both practices – not teaching practice alone – change in the common work. The changes that take place in teaching and research become visible in the teacher–researcher collaboration when it is approached as an encounter between two practices. The changes in the two practices include (1) joint experience of concrete practice, (2) recognition of salient outcomes, and (3) risk-taking and responsibility.

Joffredo et al. use and develop the framework of 'cooperative engineering' in their study of the dialogues between teachers and researchers during the implementation of a teaching unit in mathematics. They use the didactic joint actions analysis of classroom events to document the transformation of the teaching practices in a teachers–researchers, cooperative design-based research program. The authors build their study on empirical material gathered in French elementary schools in a project concerned with the topic of construction of number concepts in first and second grade. They show how the so-called 'cooperative engineering' process has strong potential for supporting teacher professional development and informing the need for curriculum customization or reconstruction from a bottom-up perspective. In other words, it deals with the twofold nature of participation of teachers and researchers and how they successively come to share a common style of thought about teaching and learning.

In both articles, teaching actions are analysed from a situated perspective, which relates both to the learning actions and the content. Both frameworks offer generic categories for describing what happens in classroom discourse, but these categories can only make sense when they are related to the specific content in the situations and its evolution in time. They also include issues about how educational research is influenced by the teaching practices studies, and vice versa.

Comparative challenges and future work

From these brief presentations of the papers in this issue, it seems that didactics as a research field in Europe has the potential to go beyond the divide between general didactics (*Didaktik*) and subject didactics (*Fachdidaktik*) in German and Eastern countries, beyond the fragmentation of the subject didactics (or subject domains education) that exists in most countries, and – possibly – beyond the divides between curriculum theories and classroom studies often debated in English-speaking countries. In our view this potential could be fostered by the development of comparative research on the conditions in which teaching and learning is done and conceptualized in the various European countries. In what follows, we sketch two possible strands of comparative research in didactics which, we argue, could be explored within the EERA network 27.

One strand of comparative research in didactics would be to discuss the relationships between the theoretical constructions developed within the research traditions that may be influenced to greater or lesser extents by the subjects, curriculum goals, schooling structures and teacher education systems. As mentioned by Meyer and Rakhkochkine (in this issue), theoretical approaches and research practices on teaching and learning are rooted in the socio-historical and the philosophical backgrounds of the national contexts of education. These frameworks may be expressed with similar English words that are embedded in different research epistemologies (e.g. curriculum, learning environment, competences, etc.) and/or with unique words that have a particular meaning in the language in which they emerged and that cannot be translated easily into another language (e.g., 'Bildung' in German; 'transposition' and 'contrat didactique' in French, etc.). Thus the comparison of the theoretical frameworks and concepts (and their possible use by other European researchers) requires a double kind of process: (i) examination of the historical and philosophical roots of the emergence as carried out by Meyer and Rakhkochkine about Klafki's didactic models, and by Schneuwly and Vollmer about Bildung; and (ii) empirical examination of how these concepts operate through the analysis of teaching and learning practices in different subjects, at different school levels and in different national contexts. For instance, Ligozat et al. (in this issue) use symmetrical analyses of a set of classroom events in science and physical education with two conceptual frameworks. They acknowledge that these frameworks are brought together on the basis that they share some common roots in a socio-interactionist perspective of human actions. In their comparison of the coding manuals for classroom observation – as samples of 'grounded theories' on teaching and learning – Klette and Blikstad-Balas (in this issue) also made clear that three of the manuals embed different 'views of learning'; that is, interactionism for CLASS, socio-constructivism for FFT and instructional scaffolding for PLATO.

To summarize, both approaches – the historical and philosophical, and the empirical – are needed to reveal the implicit epistemologies, goals and values that the theoretical frameworks and concepts convey. In addition to the comparison and relations between frameworks, there remains, of course, a stringent need for explaining concepts, goals and methods of didactic research that are elaborated in certain national contexts and that borrow from philosophical and social 'grand theories' (Mills, 1959). In this way, Taylor and Bovill (in this issue) use Whitehead's process philosophy to illuminate a curriculum co-construction process in the British higher education context. Joffredo-Lebrun et al. (in this issue) refer to the concept of joint action in the social sciences in order to adapt a didactic framework – the 'didactic contrat–milieu' couple – for analyzing a cooperative engineering process in France. Hamza et al. (in this issue) present a didactic model stemming from Dewey's philosophy of inquiry, namely the 'organizing purposes', to support science teachers in developing a new curriculum in Sweden.

A second strand of comparative research in didactics concerns the crossed perspectives on educational contexts, school subjects, curricula, and classroom practices. At recent ECERs in the network

27, there has been increasing interest in comparing classroom practices observed in different countries and in different subjects taught at school. This type of research is relatively new in the field of 'Didactics – Learning and Teaching'. To date the international comparisons in education have focused mainly on the structures and policies in the schooling systems, the curriculum and the teaching resources in different national contexts, and students' results achieved in various international tests. The articles by Marty et al. (in this issue) and by Forest et al (in this issue), comparing three national curriculum texts (France, Western Switzerland and Sweden) in the light of the selective teaching traditions that are specific to science and physical education respectively, are both part of this research trend. Interestingly, however, these comparisons at the level of the curriculum texts are made with the aim of pursuing the inquiry in classroom practices, relying in particular on video-recording of the actions and discourse between the teachers and the students. For example, Håkansson et al. (in this issue) provide an interesting analytic sample of how some political moments take place in the course of classroom actions. The study of the expressions of the curricula in classroom practices from a bottom-up perspective is of primary importance with regard not only to understanding what meanings are actually offered to the students (cf. Englund, 1998), but also to examining the practical applicability of the curriculum requirements in the lesson plans and teaching habits, as suggested by Hallitzky et al. (2016).

On the basis of this inquiry of the classroom practices, it is possible to grasp what the contents transmitted, constructed or shaped in the classroom are, what the patterns of the teachers' intervention are, what is expected from the students in the classroom activities, and so on. However, more precisely, the relationships between the school subject or knowledge domains may be investigated: what are the similarities and differences in these patterns when teaching mathematics, sciences or language arts?; and what similarities and differences between the practices are observed in different countries?

These questions could be the driving force of comparative research in 'Didactics – Learning and Teaching', which should not be confused with the methodological use of comparison that is common to any research process. The comparison in the field of didactics is more than a methodological device. We conceive of it as an epistemological approach seeking to identify some generic models of teaching and learning from the diversity of its occurrences (within school subjects, curriculum patterns, national contexts, etc.). For instance, in comparing classroom practices for different subjects, one may ask: What is compared? Which conceptual tools are used for looking at different kinds of content? How could these conceptual tools be connected to each other with respect to the patterns of teaching and learning practices?

If the development of comparative research in didactics has strong potential for bridging the gaps between the classic theoretical and epistemological divides in the field, inquiry into the rationales for developing comparative research in didactics should not be neglected. For instance, in comparing classroom practices (about subjects) in different countries, one may ask: What is expected from the comparison of the cultural diversity of classroom practices? How are specificity, diversity, and complexity, handled from the different national contexts, examined? What are the potential or real consequences of international comparisons for the classroom participants, and for national education structures?

Didactics as a European research field in the educational sciences cannot be blind to the debates that have already taken place about what is at stake regarding the 'Europeanization' of education (Lawn and Sotiria, 2012) and the purposes of comparative education in this context. In the early 2000s, Nóvoa and Yariv-Mashal (2003) featured the ambivalent condition of comparative educational research: on the one hand, comparative studies in education tend to be used more and more as political tools in the development of standardized educational policies; on the other hand, comparative education has the potential to develop new meanings through the reconceptualization of

the 'space–time' relationships. Pleading for comparison as an effort to multiply (spaces) and to unfold time (times) opening up visions towards new understandings, Nóvoa and Yariv-Mashal wrote:

> In a certain sense, one can argue that the interest of the field resides precisely in the presence of several and distinct traditions. But these various traditions need to be analytically separated. Otherwise, we are bound to be entangled in an amalgamation of principles and concepts, a mixture that is the main reason for the depreciation of comparative education and for its transformation into an 'academic folklore'. (Nóvoa and Yariv-Mashal, 2003: 436).

As a 'new kid on the block', comparative research in didactics will certainly have to clarify its relationships with the field of comparative education at large; and, in particular, the relationships between the subjects – educational content structures in the curriculum and meanings made in the classroom practices are of paramount importance in the field of didactics. Nóvoa and Yariv-Mashal's contention helps us to understand that striving for a common 'big theory' that could unify the landscape of didactics as a European research field does not seem desirable. Nevertheless, we believe that it is possible to create a common ground of scientific discussions and common research questions on teaching, learning and the contents shaped in this relation, as a point of departure for comparative research in didactics in Europe. For this purpose, we have highlighted in the introduction of this EERJ special issue a common ground of *foci* that are explored by the invited authors. These *foci* feature both the trends and evolutions of the concerns in the EERA network 27 over recent years, and some future challenges that have to be addressed in the field of 'Didactics – Teaching and Learning'.

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Notes

1. See: http://www.eera-ecer.de/networks/didactics/
2. It includes teachers, school leaders, teacher-trainers, curriculum makers, etc.; that is, all the actors of the educational practices.

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