

Education as language and communication (L&C)

A blindness in didactics and curriculum theory?

Sigmund Ongstad

Introduction

Language awareness?

Language awareness appears at life's many crossroads. Can the new-born make sounds? What is the child's first word? Should pupils start school with the letter A? What is pupils' text competence at the end of schooling? What should teachers do with students' misconception of disciplinary genres? L&C – here spelt *languageandcommunication* – seems omnipresent but is not always at the mind's forefront. In fact, it is mostly tacit, implied, taken for granted, silenced, forgotten, or ignored. In one word, it is about blindness, except when it is focused. Blindness of focusing means that what is won in focused clarity could be lost in obscured context. Languageandcommunication in one word looks like a mistake, but it is a deliberate construction. Although there are historical reasons for arguing that language is one thing and communication something else, and that they should therefore be kept separate, there are just as good reasons for handling them as one, as a whole. A clash creates epistemological turmoil, as will be seen.

This mini-introduction illustrates and implicitly initiates a first problematising of two main aspects of this chapter's two sub-theses – the 'separable inseparability' of L&C as a whole with parts, and an assumed general blindness to L&C's crucial role in constructing knowledge ('disciplining'). The main hypothesis, reflected in the title, is that such a blindness, somewhat surprisingly, may concern two major 'worldwide' well-established educational and academic fields – didactics and curriculum theory – which seemingly refrain from see education *as* L&C.

I am not the first to claim the omnipresence of L&C. In his seminal book *Education and Democracy*, Dewey writes: "Not only is social life identical with communication, but all communication (and hence all genuine social life) is educative" (1916, p. 6). Further, he holds that, in an advanced culture, which necessarily moves from life as education to education as formal schooling, "much of that which has to be learned is stored in symbols" (p. 10). While

Dewey, in this book, just sketches communication and semiotics but elaborates deeply on education, Habermas (1987), by contrast, theorises communication in-depth and just sketches its systemic connection to institutionalised knowledge and thus to education at large (Murphy and Fleming, 2010). However, his theories of how communicational acts relate to institutionalised knowledge can be combined with the work of theorists such as Bakhtin, Bühler, and Halliday to form an overarching framework that can help in discussing the language and/as communication paradox, as well as recognising the principle connections between knowledge forms and communicational acts (see Figure 12.1). This ‘bringing-together’ is the key issue addressed in this chapter.

Structuring the chapter

These views have several implications for the structuring of the chapter. A first is to increase the likelihood of there being little concern about the issue in the fields mentioned. A second is to show in what sense education *is* L&C, which, as a third, calls for an explanation of why L&C should be seen as a whole. Finally, the context of the chapter is a book comparing two educational fields and aiming for a dialogue between them. Hence, the fourth implication should be to look for inherited issues in other contributions.

In order to support these assumptions and hypotheses, the chapter is structured as follows. It first focuses on adequate fields and subfields within education, inspected by means of simple content analyses of how these selected data sources have handled L&C. Further, some ‘neighbouring fields’ with seemingly growing awareness are highlighted to serve as a contrast. Some key trends regarding L&C awareness are then briefly summarised. Further, main elements of an overall framework based on utterance/genre theory are outlined. Elements are used as simple analytic tools and categories for communicational positioning, applied to didactic challenges related to L&C blindness. Positioning here implies perspectives on three levels. First, it can reveal backgrounding of certain communicational aspects in teaching and learning (educational practice). Second, it can help describing ideological positions in educational studies. Third, it can, on a meta-level, be used as a self-/critical methodological tool in educational sciences.

The chapter deals with various fields. At this stage, a common-sense, everyday understanding of language and of communication could be that language is a whole, a system, combining grammar (syntax) and vocabulary (semantics). Communication is hence language used in context (pragmatics). This view separates them. There are disturbingly many variations, though, of both. Beaugrande (1982) found more than 80 kinds of grammar, and Wikipedia (2020) lists close to 100 types, fields, and theories of communication. Yet, utterly simplified, both can basically be reduced to complex interplays of different versions of syntax, semantics, and pragmatics (Morris, 1946).

Further on the matter of fields: although I have mentioned Dewey's broad conception of education, this chapter confines itself to institutionalised education. What is meant by *didactics* and *curriculum theory*, including disciplinary didactics, I leave to this volume's introduction and other chapters where these fields are clarified (Krogh, Qvortrup and Graf, this volume; Vollmer, this volume; Schneuwly, this volume). These fields are now often termed educational sciences. In addition, I touch upon particular school subjects where awareness of L&C has been studied. In the Anglo-Saxon world, curriculum studies and curriculum theory are more prominent (Pinar et al., 1995; Pinar, 2013). However, Gundem (1995, 2011) has shown that Norwegian and European didactics received strong impulses from curriculum theory, which implies that they may be blurred. In the following section, though, I keep them separate.

Finally, it should be made clear that even if the chapter begins with empirical text studies, it is mainly theoretical, focusing on how L&C is amalgamated and how aspects of this 'whole' can be seen as elements in disciplinarity of school subjects and academic fields and disciplines.

Inspected sources

Out of the vast field of curriculum studies and theories, only two texts have been inspected, first 39 contributions in the *International Handbook of Curricular Research* (IHCR) (Pinar, 2013), and second the entry 'Curriculum Theory' in Wikipedia (2020). A Swedish contribution in IHCR does mention topics such as frame factor theory (used by Bernstein and Lundgren), the notion of the linguistic turn, different studies of language in classrooms, and poststructuralist critique of educational texts. Wikipedia does not mention communication: 'language' is mentioned twice but is not an issue. The outcome of the inspection is clear – neither language nor communication is an issue in these sources.

Googling the Danish term *didaktik* and the Norwegian term *didaktikk* on Wikipedia (2020), and *didaktikk* in SNL (2020), there is no mention of L&C. From the didactic field, Imsen (2016) and Imsen (2014) have been chosen. These two textbook volumes are of course not 'representative'. Both books are re-edited, based on earlier versions, the first stemming from the 1980s. They are chosen as 'Norwegian' examples of influential textbooks read by generations of student teachers.

Imsen's *Lærerens verden* (The Teacher's World; 2016) was simplistically content checked. The following topics associated with L&C were found (my translations): "the frame factor theory" (pp. 170–179), "language in curricula" (pp. 291–293), "situated learning" (p. 366), and "knowledge and codes" (pp. 375–377). To conclude, this much-used textbook does touch upon some few aspects, but L&C as such and how L&C might relate to education and didactics is not an issue.

In Imsen's 2014 book, *Elevers verden* (The Student's World), Chapter 6 describes the 'constructivist theory of learning' (pp. 145–182), Chapter 7

“socio-cultural perspectives of learning” (pp. 183–214), and Chapter 8 “language, thinking, and communication” (pp. 217–240). Since the book is within the field of pedagogical psychology, it does mention the traditional discussion of different theories of thinking, such as Piaget versus Vygotsky, which contains L&C topics. Nevertheless, an overall conclusion is that, although language and communication are topics, there is no problematisation of education as C&L.

Roger Säljö's *Läring i praksis* (Learning in Practice; 2001) could be placed within the realm of pedagogy and didactics, as learning is the key issue. Although it too focuses on the inevitable issue of Piaget versus Vygotsky, it extends the horizon by adding important topics such as communication situatedness (context), de- and re-contextualisations, written language as a tool, and learning in new communicative practices. Yet, even this book does not question how pedagogy or didactics as fields and disciplines may be formed by L&C.

Didaktikk for grunnskolen (Didactics for Primary School/Education; Halvorsen, 2008) is a textbook for teacher education combining didactics and disciplinary didactics. Neither language nor communication are keywords in the register. The didactic models presented incorporate neither language, semiotics, nor communication. The book *Språk, kommunikasjon og didaktikk* (Language, Communication, and Didactics; Ongstad, 2004a) appears in the references, but not in the text. A key text by Mellin-Olsen (Mellin-Olsen, 1989) is mentioned, but not his radical claim for new discourse for disciplinary didactics (Mellin-Olsen, 1989, p. 4). A conclusion is that issues of L&C have not had a significant impact either on the editor's article on didactics or on articles covering school subjects.

Taken together, these text inspections in three interrelated fields indicate that discussions of relationships between education and L&C are scarce or non-existent. Even within disciplinary didactics, problematisation seems unusual, although there exist early scattered signs of dealing with the issue, such as Mellin-Olsen, mentioned earlier (1989) and Ongstad (2004a). With some exceptions, there is hardly any mention of L&C as posing challenges in the study of curriculum and didactics, or of how L&C is part of their disciplinarity. L&C seems taken for granted. To conclude – L&C awareness in educational sciences is low.

Signs of awareness of education as L&C in other texts

Taken as a whole, the chapter's main assumption seems to hold, at least regarding the texts inspected, albeit they are admittedly not the newest. A search in neighbouring fields reveals a growing concern with the role of language, for teaching, for learning, and for shaping knowledge. An interesting case of awareness is a rearrangement found in Svein Sjøberg's model of science studies. In a much-used textbook in science studies, *Naturfag som allmenndannelse* (Natural Science as General Education), a flowchart model of science studies places

education in the middle, with various elements of science to the left and elements of pedagogy to the right (Sjøberg, 1998, p. 31). The elements are drawn as 'boxes' connected by lines, and the 'divide' is kept rather strict. However, in a research article published three years later, a minor box/element entitled "language theory, rhetoric, and semiotics" has been added. This points directly to science studies and is not related to science or pedagogy (Sjøberg, 2001, p. 14). The crucial L&C issue is brought to the fore, but not further problematised. However, it did represent a possible shift in the air.

A field of increased importance both for didactics and for curriculum theory is the implementation of curricular reforms. A second case stems from the Council of Europe project, Language(s) of Schooling, which investigated the role of language in European curricula for school subjects (CoE, 2009; Beacco et al., 2016). This comprehensive project documented that different school subjects were constructed rather differently linguistically and that such differences mostly were not addressed. Silencing has made possible decades of increased curricular homogenisations and thus a convenient simplification of curriculum challenges, turning school subjects to plain content (Sivesind, 2013; Ongstad, 2010b, 2014b). National curricula in Europe treat school subjects as compatible and equal entities, repressing the importance of disciplinary difference and a need for differentiation. The role of L&C in constructing school subjects has mainly remained inherent.

A third example is the Norwegian reform Knowledge Promotion, launched in 2006 (UF, 2006). All school subjects for years 1–13 in this radical reform had to clarify, within each written curriculum, what role the five basic competencies – oral skills, reading, writing, numeracy, and digital skills – should have for learning in each school subject. Of these five, the first three clearly concern L&C. All school-subject teachers are expected to integrate the skills. This somewhat invasive grip by the ministry has made the role of three language modes explicit. Language as disciplinarity has at least become an implicit issue. Yet, still there is no mention in national, written curricula of how a school subject or a scientific discipline may work *as* communication, or of how disciplinarity may be constituted by L&C (Ongstad, 2010b).

Hence, there is a growing concern among researchers in some fields about low awareness. More recently, the intimate and complex relationship between disciplinarity and discursivity, for example, has been problematised (Kelly, Luke and Green, 2008; Krogh, 2015; Langer, 2011; Ongstad, 2014b; Vollmer, 2006; Beacco et al., 2016). So, there are, in various fields, signs of change. Initiatives mainly stem from L&C fields, often L1 research.

First, in communicational theory one can, from time to time, register claims that disciplinarity cannot exist outside communication (Habermas, 1987; Ongstad, 2014a; Vollmer, 2007; Christie and Maton, 2011). Key elements of communication such as utterances, texts, genres, and discourses are in these works

seen as key aspects of constructing disciplinarity. As hinted, a key pattern is to see communication as a meeting between syntax, semantics, and pragmatics (Morris, 1946). This triadic view of both language and on communication as well as semiotics makes possible a necessary first clarification of what is ‘language’ and what is ‘communication’, and hence how they are related and can form a whole. So far, traditional views have kept them apart simply by defining language as a quite closed system. Consequently, communication is perceived as language *in use*, much in line with Saussure’s discrimination between *la langue* and *la parole* (Saussure, 1916/1974). There are reasons to believe that this divide has inhibited L&C awareness within education, supported by national school grammars which cement this perception and by influential Chomskyan perceptions of language as a (closed) system (Chomsky, 1965).

Second, disciplinarity in school and curricula is questioned, both in curriculum studies (Pinar, 2013; Deng and Luke, 2007; Kelly, Luke and Green, 2008) and in communication theory and literacy studies (Ongstad, 2007a; CoE, 2009; Christie and Maton, 2011; Langer, 2011; Krogh, Christensen and Jakobsen, 2015). Third, since 2006, disciplinarity in Norwegian school has, as we have seen, been ‘invaded’ by three components traditionally significant for L1: reading, writing, and ‘oral’. They are given a role as disciplinary means, or modes, by which a school subject expresses itself and develops. The new 2020 reform continues to insist on this idea (Ongstad, 2020). Fourth, as shown in Table 12.1, didactic triads, for instance teacher–content–learner, could be seen as versions of communicational triads: in an utterance someone will utter something to someone. By uttering, one combines form, content, and use *at once* in context (Smidt, 2007).

Uttering in contexts = communication

Classical triads in didactics and L&C

A challenge when coming to terms with L&C awareness in education is how to position L&C relative to, for instance, disciplinary and general didactics. Strangely enough, there is a rather low awareness of similarities between particular historical triadic sets, both of didactic concepts and of values on the one hand and L&C concepts on the other. Through history, several sets have occurred. They are ‘inherited’ by lines that can be drawn horizontally and vertically between various key concepts.

The double systemness arises mainly from a combination of two basic views, first education *as* communication (Dewey, 1916), and second utterance as basic for communication (Bakhtin, 1986; Ongstad, 2004b). Sentence is language, utterance communication. Applying a framework described as communicative positioning (Ongstad, 2007b), which builds on the triadic nature of utterances shown in Table 12.1, enables some general didactic priorities to be analysed as

Table 12.1 Overview over epistemologically related triads in different fields and disciplines

<i>L&C Key Aspects</i>	<i>Form</i>	<i>Content</i>	<i>Act</i>
Rhetoric::	pathos	logos	ethos
Classical Bildung:	beauty	truth	goodness
Pedagogical philosophy:	aesthetics	epistemology	ethics
Pestalozzi's metaphors:	heart	head	hand
Common didactic concerns:	feelings	thought	will
Didactics:	teacher	subject	student
Linguistics and semiotics:	syntax	semantics	pragmatics
Utterances:	structure	reference	act
Communication:	utterer	content	receiver

communication. A major question is, at the next step, *where* in a triad a focus may be placed or positioned – on students/learning, content/disciplines, or teacher/teaching (see Friesen, this volume).

If triadic aspects in the work of Bühler (1934/1965), Bakhtin (1986), Halliday (1994), Habermas (1987), Martin (1997), and many others are combined, positioning(s) can be given both broad and more specific analytic functions. The framework is seen as semiotic and hence multimodal (Kress, 2010) and is not restricted to verbal language (Morris, 1946). Methodologically, this may work as a tool for operationalising various methods, approaches, and designs. Finally, it is a crucial tool for validation of research (Ongstad, 2015).

All kinds of research will have to deal with the question of essence, a challenge closely related to shifts of paradigms and battles over dominance in scientific fields over time. Posner (1984) claimed that in the 1930s many theorists turned away from essentialisms. Against atomism and mechanism, they developed a holistic approach; against formalism, they investigated sign function; against psychologism, they showed the possibility of an inter-subjective analysis of meaning; against biographism and historicism, they favoured synchronic studies; against academic conservatism, they introduced criteria for the criticism of sign behaviour; against the self-isolation of the academic disciplines, they practised interdisciplinarity. Later studies of knowledge regimes through history have switched between a search for generalisations and for differentiations. Without ending in grand theory, it seems necessary to generalise, searching for possible kinds of L&C wholeness.

Utterances and genres as disciplinaries

Utterance is the key to L&C seen as a whole. It moves the perception from a dyadic sign, defined by Saussure (1916/1974) as opposition between and

integration of signifier and signified, over to a triadic understanding. Utterance, as defined by Bakhtin (1986), is seen as opposition between and integration of structure, reference, and action, and implies a shift of perspective from language to communication by incorporating language (Ongstad, 2004b). Utterances in, for example, teaching, school subjects, and learning can be studied as simultaneous form, content, and action (and thus as aesthetics, epistemology, and ethics). Triadic theories tend to forget that utterances are both produced and perceived in contextual time and space, sometimes termed *chronotope* (Ongstad, 2014a). These two inseparable aspects are both incorporated *in* utterances and exist *as* context.

Therefore, it seems adequate to extend the key set of components from three to five (see Figure 12.1) to reach a more holistic view, keeping in mind that to clarify how the three and the two are integrated has proved to be a demanding intellectual task (Ongstad, 2014c).

The five basic aspects can be integrated and further related to different academic fields and school subjects. Somewhat stereotypically modelled, form is at the forefront in art, reference in science, action in communicational studies, time in history, and place/space in geography. To this double set of fives can be added five key fields of knowledge: aesthetics, epistemology, ethics, chronology, and topology. Just to make the point clear – all aspects are found in all utterances, and thus in all school subjects and academic disciplines. The result of these coincidences can be pinpointed as *disciplinarity as discursivity* (or in German, *Fachlichkeit als Sprachlichkeit* (Vollmer, 2006). A special case of this systemness then is education *as* C&L.

However, utterance as such is insufficient to explain educational disciplinarity. There are kinds of utterance, and thus kinds of educational, didactic, professional, and disciplinary genre (see Figure 12.2).

A consequence of seeing utterances as dialogical with genres, marked by arrows pointing both ways, is that even genres should be defined by their balance and the priority of the five basic aspects. This further implies that genres will play a crucial role in establishing specific disciplinarity within different fields of knowledge. Finally, disciplinary genres and research genres are crucial for methodologies and validation (Ongstad, 2014c).

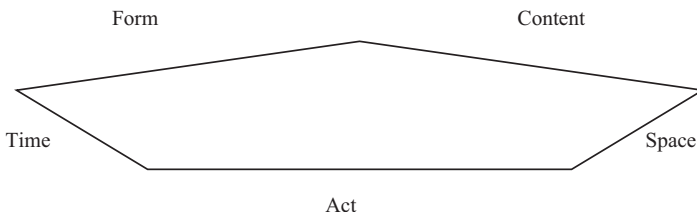


Figure 12.1 Utterance in context as a combination of five constituents

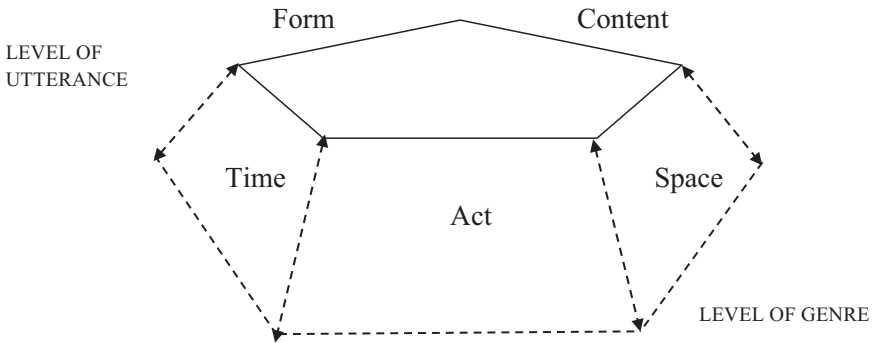


Figure 12.2 Five basic aspects constituting utterance as communication. Utterance and genre are modelled as a shortened or cut pentagonal pyramid with utterance as a concrete surface plane and genre as an underlying abstract part, marked by dotted lines. The pentagonal relationship between the five basic aspects applies for both levels. The double-headed arrows between the two planes symbolise the dynamic, dialogical, reciprocal relationship between of utterance and genre. These processes work both in the moment of uttering and of interpreting (seen synchronically) and over time through communicational development of utterers/interpreters (seen diachronically).

Source: © The Author

Positioning L&C in educational texts

This section of the chapter exemplifies the different roles that key aspects can be given in educational texts and contexts. The first of four concerns a national L1 curriculum, and the second some national curricula in mathematics education. The third and fourth cases exemplify what could be called critical positioning of discourses in didactics and education. Examples of other studies of different fields based on versions of the framework, are Ongstad (2014a, 2014b) and Smidt (2007, 2008).

The national curriculum for Norwegian (as L1) in Norway from 1997 structured its introduction in a significant way (see Table 12.2). The first six sections describe the essence of Norwegian as a school subject, each ending with a slogan-like conclusion (the Norwegian originals are put in brackets). The ministry later published a translation in English.

Based on this clarity and precision about just what school-subject Norwegian (L1) should be, one could claim that the L1 curriculum in the L97 curriculum had a high disciplinary (self-)consciousness. However, there is an interesting hidden connection between these descriptions of key elements of the school-subject Norwegian. Given some rewriting and paraphrasing of these six text elements, or slogans, the subject Norwegian could first be said to be about identity and experience, foregrounding form, and structure, connected

Table 12.2 The national curriculum for Norwegian (as L1)

<i>The official English of the curriculum</i>	<i>The official, original version in Norwegian</i>
The subject Norwegian, then, is about identity	[Norsk er eit identitetsfag]
The subject Norwegian, then, is about experience	[Norsk er eit opplevingsfag]
The subject Norwegian, then, is about becoming educated	[Norsk er eit danningfag]
The subject Norwegian, then, is about culture	[Norsk er eit kulturfag]
The subject Norwegian, then, is about skills	[Norsk er eit dugleiksfag]
The subject Norwegian, then, is about communication	[Norsk er eit kommunikasjonsfag]

Source: To the left KUF (1999, pp. 121–123), to the right KUF (1996)

to the learning self or person. Second, it could be about Bildung (becoming educated) and culture, foregrounding content and knowledge connected to the world as subject matter. Third, it could be said to be skills and communication, foregrounding act, use, and function, connecting to others as society. As a whole, these aspects are what Habermas terms *life-world* (Habermas, 1987; Ongstad, 2010a).

The notion *foregrounding* is used deliberately to make explicit that *all* discursive key aspects would be involved in the disciplinary key elements/curricular goals mentioned (along with time and space), not just the focused ones. L1, as responsible for much explicit L&C knowledge in school, is the school subject above all that one could expect to have developed a meta-understanding. Yet the systemic discursive and disciplinary coincidences that actually do exist in this L1 curriculum are still not seen. These striking coincidences have (therefore?) silently vanished from later L1 curricula (MER, 2010; NDFT, 2013).

A second example can be found in Ongstad (2020), which studies the disciplinarity of all national L1 curricula since 1939. The last, in use from 2020, is characterised by long rows of bullet points, mostly one-liners with a particular mix of epistemological verbs and disciplinary nouns. These one-liners are hidden speech acts, establishing a regime for the assessment of student disciplinarity termed ‘competence’. The pattern is global and international – the structure of each point is dominated by a certain verb–noun connection. Verbs are expected to have performative character, being doings (competences). Nouns are disciplinary content sub-elements or knowings. Together they form (expected) competences. Within the set of competences or bullet-point lists, there lurks a potential tug of war between different forms or aspects of disciplinarity. What is L&C and what is education is hard to say.

Further, a similar and extensive study was, as mentioned, undertaken by the CoE in 2007 (CoE, 2009). Researchers studied the role of language in national school-subject curricula in Europe. Examples can be given from a comparative study of some national curricula in mathematics (Ongstad, 2007a). Taking the

point of departure in form prioritises aesthetics. The Swedish curriculum, for example, stressed the importance of mathematics as aesthetics (Hudson and Nyström, 2007). Since aesthetics was valued and prioritised, form, structure, and syntax were foregrounded. Taking the point of departure in knowledge prioritises epistemology. Singer (2007) pointed to less weight being given in the new Romanian curricula to memorising and reproducing mathematical terminology (formal content and knowledge elements). This represented a conscious shift within semantic and epistemological aspects of the school subject. Departing from action prioritises ethics. Pepin (2007) showed how newer UK curricula in mathematics repeatedly underlined the importance of interpreting, discussing, and synthesising, almost at every course level. The weight placed on such processes represented a strengthening of the pragmatic action aspects of mathematical language.

An overall conclusion after studying these written curricula was that mathematics education had not yet really taken on the challenge of clarifying intimate relationships between the school subject's disciplinarity and discursivity (*Fachlichkeit und Sprachlichkeit*; Vollmer, 2006; Ongstad, 2007a). One reason might be that language is still being objectified as a closed system, rather than seeing L&C as semiotic, relational, and contextual (Ongstad, 2006, 2007b). Another reason could be that linguistic scholars, pointing out the patterns, may not yet have enough disciplinary insight to be able to achieve a fruitful dialogue with educators in other disciplines. (In Ongstad (2006) *Mathematics and Mathematics Education: Language and/or Communication?* a framework is outlined and exemplified in detail.)

Schools of thought, ideologies in disciplines, trends in understanding knowledge, and differing research designs often encounter critique from other directions. Such criticisms may find the theoretical bases for projects and theories too focused or too narrow. Taking the point of departure in the main aspects of the utterance, one can do critical positioning of fields, research, and projects within education. One can search for possible imbalances between said and unsaid, and further try to make explicit communicational patterns in disciplinary utterances and genres that are characteristic of certain didactic discourses. To illustrate rather simplistically: if the utterer's or the text's perspective or personal style is exaggerated, the approach can be criticised of subjectivism, expressivism, or formalism. If exact content seems excessively stressed or exaggerated, theories can be criticised of objectivism, positivism, or essentialism. Overstressing use aspects can lead to criticisms such as activism, functionalism, or pragmatism. As can be seen, such characterisations parallel communicational triads, echoing some of the shifts in trends in the 1930s that Posner (1984) pointed to.

As stated earlier, a restricted theory of utterance is insufficient to explain disciplinarity and concurrences between education and L&C. The level of genre, hence context, is needed (Ongstad, 2010b, 2013). According to Bakhtin (1986), there exists a dialogical relationship between utterances and genres.

Different kinds of utterances can be perceived as (different) sub-genres. Hence, different speech-act verbs will play an important role for establishing research discourses, for instance in academic texts: document, argue, present, compare, comment, evaluate, claim, refer, admit, hypothesise, discuss, suggest, define, problematise, operationalise, exemplify, focus, deduce, indicate, exclude, illustrate, show, . . . and so on (Ongstad, 2014b). These speech acts, verbs, and functions may, when repeated, structured, and formalised, function as research (sub-)genres and (sub-)discourses.

I end this section by stressing that what has been outlined is a framework, not a method. The main line of argument has been to make likely, describe, and exemplify close connections between L&C on the one hand and education and educational sciences on the other by means of key concepts from the framework.

Educational sciences and the L&C challenge

Points of tangency

It has not been within the scope of this chapter to analyse possible similarities and differences between didactics and curriculum theory, or their disciplinarity and methodologies, in the light of L&C. However, there are possible contact points with relevant issues in other contributions in this volume. There are threads to the triadic triangle presented by Friesen, to Krogh and Qvortrup's meta-reflective didactics and to didactic ethos, to Vollmer's outline of disciplinary didactics in Germany and his advocacy for a general disciplinary didactics, to Schneuwly's concept of didactic transposition(s) developed in a French context, to Friesen's and Deng's concerns for content, and finally to Kullenberg and Uljens' life-world phenomenology (in a possible dialogue with a Habermasian life-world perception). Of these, I have chosen to expand further on the didactic triad (just briefly), disciplinary didactic as didactisation (at length), and disciplinary didactic ethos and content (both briefly). At the very end, I round up self-critically and suggest a future disciplinary place for the framework.

The didactic triad

First, if didactics is seen as triadic L&C, each of the aspects in the didactic triad (Friesen, this volume) can be further differentiated, discursively. In the most reduced version of the triad, focusing utterances, a teacher expresses, refers, and acts, as does a subject's written curriculum, and a student receives what is expressed, referred, and done. As a thought example of mis-/communication, a teacher might prioritise the expressive aspect (stressing emotionality) and aesthetics, while a subject's content in fact has prioritised essence and thus epistemology, while in turn a student might prioritise effect and thus ethics, or simply choose to be entertained rather than educated. This overdose of *Es* is

of course a cheap aesthetic trick to get across this chapter's epistemological key point to enhance its effect on readers.

Yet the preceding reasoning follows a too-simplistic logic of single-chained utterances, one after the other. In reality, all teaching, 'knowledging', and learning happen in inevitable discourses/genres (systemic contexts) – you cannot *not* use genres. In the context of education, one can speak of a multitude of disciplinary genres, of didactic genres, and of research genres. For instance, the Norwegian 1997 L1 curriculum contained more than 100 genres. Further, all methods in research and teaching can be seen as genres. Finally, genres generally appear in a mix, unless they are focused and taught meta-discursively to reduce blindness and increase genre awareness. Dealing with didactic issues based on L&C theories in the future will encounter increased complexity.

On didactisation

Didactisation brings us back to Mellin-Olsen's wish in 1989:

If the disciplinary didacticians can free themselves from the original [pedagogical, SO's remark] discourse, the didactic alphabet can be replaced with statements like: Which consequences will it have for communication of knowledge if the germ and the preconditions for knowledge lie in language, in activity, in dialogue about validity, in experience, in the human construction of the world?

(Mellin-Olsen, 1989, pp. 3–4)

His *if* actually did happen, eventually. Over the next 30 years, and mostly isolated from pedagogy and general didactics, teachers and teacher educators in Norway and Scandinavia began didacticising their school subjects and disciplines (Krogh and Qvortrup, this volume; Ongstad, 2017). L&C and subject didactics were brought much closer by examining how their disciplinaries were constructed (Vollmer, 2006, this volume; Krogh, 2015; Krogh, Christensen and Jakobsen, 2015; Green, 2018; Ongstad, 2014a, 2014b, 2020; Beacco et al., 2016).

I find Vollmer's description of the development of subject didactics as scientific disciplines (in Germany) to be quite close to the history of disciplinary didactics in Norway (Vollmer, this volume; Ongstad, 2017). An important similarity in the light of comparison and dialogue is the claim that this growth has, to a high degree, happened independently of pedagogy and general didactics. Using the framework to position the two fields communicatively, a main difference could be that general didactics is to a higher degree a given field and has a relatively more stable disciplinary content, while disciplinary didactics are relatively new fields, in search of new content, on the move, characterised by processes in progress.

I find Krogh and Qvortrup's contribution, taking one point of departure (among others) in the concept of didactisation and working their way further,

adequate and stimulating. Yet, in the particular context of this volume, I would like to hint at yet another possible direction for future research. In the 1970s Schwab was concerned by a deep split between languages for theory and for practice (Schwab, 2013). A common perception has been to see teaching and learning primarily as *doing*, and didactics and curriculum theory mainly as *thinking*. This contrast mostly goes hand in hand with keeping a traditional split between practice and theory. A counter-thought might be that practice represents just as much thinking as theory, and theory just as much doing as practice. Both could be seen as both/and, but they differ in the weight they put on different L&C aspects.

Encouraged by a comment from an anonymous reviewer, I would like to develop on the idea that L&C might be connected to the splitting of theory from practice. Twenty years ago, I saw didactisation as a discursive, semiotic, or textual process that weaves a subject or field of knowledge closer together with meta-knowledge of the subject knowledge in new contexts, under pressure from a changing society. Hence, didactisation can be seen as driven by the ‘linguaging’ of experiences and discoveries. It therefore adds to, develops, and changes subjects and disciplines. To pinpoint and exemplify – after a year-long international debate over the school subject English as L1, Elbow (1990) famously asked, “What is English?” He answered, radically, “The question is the answer.” Questioning educational subjects is didactisation. Challenging, enhancing, criticising practice (including one’s own) means reflecting over and linguaging experience. Such knowledge is new, heterodox, subjective, not yet validated, still marked by knowledging as non-finished processes. It seeks out for dialogues with practices. Its L&C priority is within the realm of pragmatics. Referring to the outlined framework, it relates to doing. Didactics, by contrast, is more of a given (established), doxic, intersubjective (‘objective’), validated field. It seeks dialogues with (other) theories. Its L&C priority is within the realm of semantics. Referring to the framework, it relates to thinking.

To keep the two too separate might contribute to increased practicisism and theorism. So how could L&C be a bridge over such troubled waters? Because L&C is inevitable for both production and dissemination of knowledge. Because the building blocks of conscious understanding consist of concepts made explicit with words. Because utterances create coherence between them, and thus further lead to enhanced and growing recognition. Because kinds of knowledge presuppose kinds of genres (both disciplinary and didactic ones). Because meta-language helps to distance a too-narrow teaching, knowledging, and learning.

An advanced meta-language that is at hand, along with L&C, is philosophy, which seeks to comprehend the dynamics of aesthetics, epistemology, and ethics, echoing both Aristotelian and classical triadic values for education (as shown in Table 12.1). My own description of these systemic connections is mainly (meta-)thinking. However, there is no direct, given route from this

abstract thinking to concrete doing, from an *is* to an *ought*. A future fate of advanced disciplinary didactics, comparative disciplinary didactics, general disciplinary didactics, general didactics, and advanced curriculum theory could ironically be that all go academic, seeking an ever ‘researchable’ *is* and resisting a normative *ought*. In striving to become accepted members of academia as part of professions, educational sciences risk their ethos. Again, the solution is not either/or, but both/and. Researchers need to recognise, in and by L&C, what their discursive paths from their own discourse are – not ‘down’ to, but ‘over to’ practitioners. Likewise, teachers should be educated and experienced enough to see connections between their own didactic practice (and discourses) and what researchers are up to.

Further, there is a challenge regarding power and powerlessness for didactics and curriculum theory. In one sense, these two fields have a significant influence on education as major contributors to and critics of curricula all over the world. By the same token, in leaving didactisation to teachers and disciplinary didacticians, they seem almost powerless to suggest, describe, differentiate, and evaluate school content. Here the two differ. Curriculum theory has historically paid less attention to content, while didactics has traditionally focused content, though often as a mere box for anything and everything. As a contrast, ever more self-conscious disciplinary didactics has, through discursive self-reflection with language as explicit means, improved its understanding of subject differences and of the role L&C can play in this recognition.

Disciplinary didactic ethos

In Norway, disciplinary didactics has established itself in teacher education. It obtained its power partly by gradually squeezing out the traditional field methods (common up till the late 1980s) and partly even pedagogy (and thus didactics) owing to a certain reluctance to deal with specificities of educational knowledge (Ongstad, 2017). Yet, advanced disciplinary didactics now seems to be in a similar position to general didactics earlier. Both fields have fled into thinking (‘reflection’ and ‘theory’). Both have become academic fields by distancing themselves from doing (practice as acting). Professionalisation of traditional professions has contributed to a split between research and teaching, both in schools and in teacher education. Within research, theoretical orientation has got the upper hand over a more practical orientation.

In the Introduction, Krogh et al. raise the issue of the ethos of didactics. They point to two risks among several hinted at by Hopmann. First, there is a danger of letting down the teachers and their students to whom didacticians are accountable in the first place. Second, Hopmann appeals to scholars to look for options for acting in a didactically responsible manner. To initiate dialogues between didactics and curriculum theory risks ending on the highest abstract level and may challenge such expectations. An ethical solution could therefore be to help researchers finding paths back to practice. Krogh and Qvortrup

(this volume), partly inspired by Foucault, suggest there is a need to develop a disciplinary didactic ethos. They see the core of that ethos as an inseparable duality of acting and reflection. However, as they make clear, different communicational theories such as ‘systems theory’ and ‘theory of communicative disciplinary didactics’ offer different perspectives, and in the next round, different didactics, for instance for acting and thinking (Krogh and Qvortrup, this volume).

Content: and thus, knowledge and Bildung

If pedagogy, general didactics, and curriculum theory could make the effort to look over the fence into disciplinary didactics all over Western Europe, they might find that content has been a key issue for 30 years. It is rather within these three fields that a differentiated understanding of content has been missing and missed (Friesen, this volume; Deng, this volume). What pedagogy, general didactics, curriculum theory, disciplinary didactics, comparative disciplinary didactics, and general disciplinary didactics all mostly seem to miss is not to describe, criticise, or suggest content or content elements. It is to get into dialogue with subject didactics about what particular school-subject content does (or does not). In such an enterprise L&C is needed, but a sufficient awareness of L&C is still not in place. A bridge is shared concepts. At a minimum, the fairly idealistic idea of Bildung cannot be achieved without knowing what impact different kinds of content have on students (if any), especially in the long run. Further, as underlined, content does not come as a stream of separate utterances. Content will always be discoursed by certain kinds of communication, by genres. The discursive set of disciplinary genres defines the disciplinarity of school subjects and of academic disciplines. A field that only knows its own discursive set has blinkers on, and in that sense is still blind. Hence, in the educational sciences, each should be aware of the others’ fields. Such insight is only available through L&C. Yet L&C is itself blind without a dialogue with subjects and disciplines.

Although this chapter is critical of the low awareness of L&C in educational sciences, and therefore has a somewhat different scope than most of the other chapters, it nevertheless has aimed to connect to the overall project. It should be admitted that many of the initiatives for increased understanding of the role of L&C in education and research stem from scholars in L&C – for example, as mentioned, Christie, Green, Gundem, Krogh, Langer, Martin, Smidt, Vollmer, and myself. In the Scandinavian context, this ‘movement’ has spread from L1 to disciplinary didactics. It has also slowly established scattered contact points with scholars of didactics and pedagogy, as demonstrated in this volume’s introduction.

From (self-)critical L&C towards integration of L&C in educational sciences?

The key issue in this chapter has been concurrences claimed between L&C and education, in most extreme form claiming that education *is* communication.

Hence, if educational disciplinarity and L&C (discursivity), partly paradoxically, are seen as both amalgamated and separable, future research could investigate whether they mainly differ or mainly coincide in different fields. Such contrasting could in turn lead to more principled, self-critical questions: to what degree can L&C theories really describe school subjects? Is it helpful to describe disciplines/school subjects from a purely discursive perspective? What is a necessary knowledge of L&C for teachers and educational researchers? Should L&C be kept separate from, or be integrated in, school subjects and disciplines?

Such questions cannot be answered in the context of this chapter. In my case, they are rather (self-)critical outcomes of more than three decades of problematising how disciplinary knowledge can be constructed semiotically: in other words, how signs, utterances, genres, and communicational ideologies can be seen as crucial parts of different disciplinaritys. Many contributions are collected in the volume Ongstad (2014a), *Disciplinarity and/as Communication: Discursive and Semiotic Perspectives on Education*.

Nevertheless, this present chapter concludes that questions and critique based on L&C should, in the spirit of Morris (1946), Bakhtin (1986), and Habermas (1987), be part of the sub-study in master's and doctoral studies within the educational sciences that is called general theory of knowledge ('Wissenschaftstheorie'). Such integration of L&C in educational studies could establish fora for further dialogues, both between theory and practice and between the educational sciences.

References

- Bakhtin, M. (1986). *Speech genres and other late essays*. Austin: University of Texas Press.
- Beacco, J. C., Fleming, M., Goullier, F., Thürmann, E. and Vollmer, H. (2016). *The language dimension in all subjects: A handbook for curriculum development and teacher training*. Strasbourg: Council of Europe.
- Beaugrande, R. de (1982). The story of grammars and the grammar of stories. *Journal of Pragmatics*, 6(5–6), pp. 383–422.
- Bühler, K. (1934/1965). *Sprachtheorie* [Language theory]. Stuttgart: Fischer.
- Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.
- Christie, F. and Maton, K., eds. (2011). *Disciplinarity: Functional and sociological perspectives*. London and New York: Continuum.
- CoE (Council of Europe). (2009). *Language(s) of schooling*. Strasbourg: Council of Europe. Available at: www.coe.int/t/dg4/linguistic/Schoollang_en.asp [Accessed 25 May 2020].
- Deng, Z. and Luke, A. (2007). Subject matter: Defining and theorizing school subjects. In: M. Connolly, M. F. He and J. Phillion, eds., *Sage handbook of curriculum and instruction*. Thousand Oaks, CA: Sage, pp. 66–87.
- Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education*. New York: Macmillan.
- Elbow, P. (1990). *What is English?* New York and Urbana: MLA/NCTE.
- Green, B. (2018). *Engaging curriculum: Bridging the curriculum theory and English education divide*. New York and London: Routledge.

- Gundem, B. B. (1995). The role of didactics in curriculum in Scandinavia. *Journal of Curriculum and Supervision*, 10(4), pp. 302–316.
- Gundem, B. B. (2011). *Europeisk didaktikk: Tenkning og viten* [European didactics: Thinking and knowledge]. Oslo: Scandinavian University Press.
- Habermas, J. (1987). *The theory of communicative action*, Vol. 2. Cambridge: Polity.
- Halliday, M. A. K. (1994). *An introduction to functional grammar*, 2nd ed. London: Arnold.
- Halvorsen, E. M., ed. (2008). *Didaktikk for grunnskolen: Fellestrekk og særdrag i et fagdidaktisk mangfold* [Didactics for primary school/education: Common patterns and uniqueness in a diversity of disciplinary didactics]. Bergen: Fagbokforlaget.
- Hudson, B. and Nyström, P. (2007). Language across the mathematics curriculum in Sweden. In: S. Ongstad, ed., *Language in Mathematics? A report to the Council of Europe from the LAC group in mathematics education*. Strasbourg: Council of Europe, pp. 21–34.
- Imsen, G. (2014). *Elevens verden: Innføring i pedagogisk psykologi* [The student's world: Introduction to pedagogical psychology]. Oslo: Scandinavian University Press.
- Imsen, G. (2016). *Lærerens verden: Innføring i generell didaktikk* [The teacher's world: Introduction to general didactics]. Oslo: Scandinavian University Press.
- Kelly, G. J., Luke, A. and Green, J. (2008). What counts as knowledge in educational settings: Disciplinary knowledge, assessment, and curriculum. *Review of Research in Education*, 32(1), pp. vii–x.
- Kress, G. (2010). *Multimodality: A social semiotic approach to contemporary communication*. London: Routledge.
- Krogh, E. (2015). Faglighet og skriftlighet: Teori, metode og analyseramme [Disciplinary and the field of writing]. In: *Faglighet og skriftlighet: Fund og perspektiver* [Disciplinary and the field of writing: Findings and perspectives]. Odense: University Press of Southern Denmark, pp. 25–64.
- Krogh, E., Christensen, T. S. and Jakobsen, K. S., eds. (2015). *Elevskrivere i gymnasiefag* [Student writers in high school subjects]. Odense: University Press of Southern Denmark.
- KUF (Kirke-, utdannings- og forskningsdepartementet [Ministry of Church Affairs, Education and Research]). (1996). *Læreplanverket for den 10-årige grunnskolen* [The curriculum for the ten-year compulsory school in Norway]. Oslo: Ministry of Education and Research.
- KUF (1999). *The curriculum for the 10-year compulsory school in Norway*. Oslo: The Norwegian Directorate for Education and Training.
- Langer, J. A. (2011). *Envisioning knowledge. Building literacy in the academic disciplines*. New York and London: Teachers College Press.
- Martin, J. (1997). Analysing genre: Functional parameters. In: F. Christie and J. Martin, eds., *Genre and institutions*. London: Cassell, pp. 3–39.
- Mellin-Olsen, S., ed. (1989). *Om kunnskap: Fagdidaktiske perspektiver* [On knowledge: Disciplinary didactic perspectives]. Bergen: Bergen University College.
- MER (Ministry of Education and Research. (2010). *Norwegian subject curriculum*. Oslo: Ministry of Education and Research.
- Morris, C. W. (1946). *Writings on the general theory of signs*. Mouton: The Hague.
- Murphy, M. and Fleming, T., eds. (2010). *Habermas, critical theory and education*. London: Routledge.
- NDFT. (2013). *Reviderte læreplaner: Læreplan i norsk* [Revised curricula: Curriculum for Norwegian]. Oslo: The Norwegian Directorate for Education and Training (Utdanningsdirektoratet).
- Ongstad, S. (2004a). *Språk, kommunikasjon og didaktikk* [Language, communication, and didactics]. Oslo: LNU/Cappelen.

- Ongstad, S. (2004b). Bakhtin's triadic epistemology and ideologies of dialogism. In: F. Bostad, C. Brandist, L. S. Evensen and S. Faber, eds., *Bakhtinian perspectives on language and culture*. London: Palgrave Macmillan, pp. 65–88.
- Ongstad, S. (2006). Mathematics and mathematics education – Language and/or communication? Triadic semiotics exemplified. *Educational Studies in Mathematics*, 61(1), pp. 247–277.
- Ongstad, S. (2007a). Language in mathematics? A comparative study of four national curricula. In: S. Ongstad, ed., *Language in mathematics? A report to the Council of Europe from the LAC group in mathematics education*. Strasbourg: Council of Europe, pp. 1–12.
- Ongstad, S. (2007b). Positioning in theory: A methodological framework for MTE studies and beyond. In: W. Herrlitz, S. Ongstad and P. H. van de Ven, eds., *MTE Methodologies in international and comparative perspective*. Amsterdam and New York: Rodopi, pp. 119–148.
- Ongstad, S. (2010a). The concept of lifeworld and education in post-modernity: A critical appraisal of Habermas' theory of communicative action. In: *Habermas, critical theory and education*. London: Routledge, pp. 55–70.
- Ongstad, S. (2010b). Synchronic–diachronic perspectives on genre systemness: Exemplifying genrification of curricular goals. In: S. Kvam, K. P. Knutsen, and P. Langemeyer, eds., *Textsorten und kulturelle Kompetenz/Genre and cultural competence: Interdisziplinäre Beiträge zur Textwissenschaft/An interdisciplinary approach to the study of text*. Berlin: Waxmann, pp. 35–50.
- Ongstad, S. (2013). Å studere sjangrer, diskurser og literacy [To study genres, discourses, and literacy]. In: D. Skjelbred and A. Veum, eds., *Literacy i læringskontekster* [Literacy in learning contexts]. Oslo: Cappelen Damm, Akademisk, pp. 197–224.
- Ongstad, S. (2014a). *Disciplinarity and/as communication: Discursive and semiotic perspectives on education*. Oslo: Oslo and Akershus University College.
- Ongstad, S. (2014b). Om faglighet og språklighet i Nasjonalt kvalifikasjonsrammeverk [On disciplinarity and discursivity in the National Qualification Framework]. In B. Kleve, S. Penne and H. Skaar, eds., *Literacy og didaktikk i skole og lærerutdanning* [Literacy and didactics in school and teacher education]. Oslo: Novus, pp. 174–196.
- Ongstad, S. (2014c). The blindness of focusing: Pragmatic theories of communication and the challenge of validation. *Reconceptualizing Educational Research Methodology*, 5(2), pp. 128–144.
- Ongstad, S. (2015). Competing disciplinarity in curricular L1: A Norwegian case. *L1-Educational Studies in Language and Literature*, 15, pp. 1–28. <https://doi.org/10.17239/L1ESLL-2015.15.01.08>.
- Ongstad, S. (2017). Fagdidaktikk i Norden [Disciplinary didactics in the Nordic countries]. In: T. S. Christensen, N. Elf, P. Hobel, A. Qvortrup and S. Troelsen, eds., *Didaktik i utvikling* [Didactics on the move]. Aarhus: Klim, pp. 44–58.
- Ongstad, S. (2020). Curricular L1 disciplinarity: Between Norwegianness and internationality. In: B. Green and P. O. Erixon, eds., *Rethinking L1 education in a global era*. Cham, CH: Springer, pp. 83–112.
- Pepin, B. (2007). Language across the mathematics curriculum in England. In: S. Ongstad, ed., *Language in mathematics? A report to the Council of Europe from the LAC group in mathematics education*. Strasbourg: Council of Europe, pp. 13–20.
- Pinar, W. F., ed. (2013). *International handbook of curriculum research*. London: Routledge.
- Pinar, W. F., Reynolds, W. M., Slattery, P. and Taubman, P. M. (1995). *Understanding curriculum: An introduction to the study of historical and contemporary curriculum discourses*. New York: Peter Lang.

- Posner, R. (1984). From Russian formalism to glossematics: European semiotics between the two world wars. *Zeitschrift für Semiotik*, 6(4), pp. 383–395.
- Säljö, R. (2001). *Læring i praksis: Et sosiokulturelt perspektiv* [Learning in practice: A socio-cultural perspective]. Oslo: Cappelen akademisk.
- Saussure, F. de. (1916/1974). *Course in general linguistics*. By J. Culler. London: Fontana.
- Schwab, J. J. (2013). The practical: A language for curriculum. *Journal of Curriculum Studies*, 45(5), pp. 591–621. <https://doi.org/10.1080/00220272.2013.809152>.
- Singer, M. (2007). Language across the mathematics curriculum in Romania. In: S. Ongstad, ed., *Language in mathematics? A report to the Council of Europe from the LAC group in mathematics education*. Strasbourg: Council of Europe, pp. 34–47.
- Sivesind, K. (2013). Mixed images and merging semantics in European curricula. *Journal of Curriculum Studies*, 45(1), pp. 52–66.
- Sjøberg, S. (1998). *Naturfag som allmenndannelse: En kritisk fagdidaktikk* [Natural science as general education: A critical subject didactics]. Oslo: Ad Notam Gyldendal.
- Sjøberg, S. (2001). Naturfag-didaktikk: Tverrfaglighet som styrke og problem [Science didactics: Interdisciplinary as strength and problem]. In: E. Elstad, ed., *Fagdidaktikkens identitet og utfordringer* [The identity and challenges of subject didactics]. In the series Acta Didactica 5. Oslo: Department of Teacher Education and School Research, University of Oslo, pp. 10–33.
- Smidt, J. (2007). Positioning, responsibility, and relevance in MTE research. In: W. Herrlitz, S. Ongstad and P. v. d. Ven, eds., *Research on MTE in a comparative international perspective: Theoretical and methodological issues*. Amsterdam and New York: Rodopi, pp. 211–226.
- Smidt, J. (2008). Dialoger og posisjoneringer: Felt, relasjon, mediering [Dialogues and positioning: Field, relation, mediation]. *FoU i praksis*, 2(1), pp. 23–46.
- SNL. (2020). *Didaktikk* [Didactics]. Oslo: Store norske leksikon (SNL [Great Norwegian Encyclopedia]). Available at: <https://snl.no/didaktikk> [Accessed 25 May 2020].
- UF (Utdannings- og forskningsdepartementet [Ministry of Education and Research]). (2006). *Kunnskapsloftet* [The knowledge promotion]. Oslo: Ministry of Education and Research.
- Vollmer, H. J. (2006). Fachlichkeit und Sprachlichkeit [Disciplinarity and discursivity]. *Zeitschrift für Fremdsprachenforschung*, 17(2), pp. 201–244.
- Vollmer, H. J. (2007). Language across the curriculum. In: W. Martyniuk, ed., *Towards a common European framework of reference for languages of school education*. Krakow: Universitas, pp. 177–192.
- Wikipedia. (2020). *Curriculum theory*. Available at: https://en.wikipedia.org/wiki/Curriculum_theory [Accessed 06 March 2020].