On the Definition of Learning

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The mistake to mistake learning theory for didactics

Ane Qvortrup & Tina Bering Keiding

The Methodification of Higher Education Didactics

Since the mid1980s, higher education has witnessed an enhanced focus on pedagogical and didactical professionalization (Murray 2008; Trigwell, Martin, Benjamin, & Prosser 2000). Initially it expressed itself as a nascent interest in teacher professionalism and formalized teacher qualification programs, but gradually a 'scholarship of teaching and learning' (SoTL) in higher education has emerged (Tight 2012; Trigwell et al., 2000). Based on the aim to offer research-based contributions to the practice of higher education, we might describe SoTL as a domain of didactics, understood as a body of knowledge that *"provides teachers with ways of considering the essential what, how, and why questions around their teaching of their students in their classrooms"* (Westbury 2000, p. 17). In line with this Künzli (1998, p. 42) describes didactics *"as theory of instruction and the embodiment of knowledge about instruction"* and Luhmann (2002b, p. 201) describes didactics as theories or programs for reflection.

In Keiding and Qvortrup (2015) we asked: What is the content of this new scholarship or didactic domain? What knowledge does it provide to teachers emerging professionalism? Inspired by Tights (2012) metaanalysis and Hopmann's (s.a) concept 'didactics of didactics', we conducted a meta-didactic analysis of the contributions in four journals, sharing a common aim of contributing to the theory, practice or research of higher education. The conclusion was that the SoTL journals share a number of distinctive characteristics (Keiding & Qvortrup 2015):

- a strong orientation towards methods; 40% of the contributions had a methodological question as its main topic
- the methods are characterized by a student-centred point of departure leading towards either dialogue-based methods (e.g. feed-back, peer-

assessment and co-operative learning) or various types of structured, student-centred activities (e.g. PBL and practice-based learning)
- "teaching as representation", e.g. various ways of lecturing and various ways of structuring the content are rare topics
- the categories "intention", i.e. learning objectives, and "assessment" receive only minor attention, and the category "subject matter" barely exists as research topic in its own right

Textbooks for higher education seem to mirror this pattern. For instance, Biggs & Tang (2011) do not at all address the question about selection of content. Ramsden (1992) acknowledges the relevance of the topic, but nor do we find a conceptual framework for systematic reflections on selection content here.

If one agrees with Tight (2008, p. 64) that one of the main purposes of research into higher education is to sharpen the educators' mind, one might argue that the strong focus on teaching methods makes SoTL a somewhat one-sided sharpening tool. In the "Lerntheoretische Didaktik", Heimann (1976) argues that a holistic reflection of teaching requires six didactic categories: aim, content, media, methods, students background and organizational context. Similar categories are found in newer didactic theories (e.g. Hiim & Hippe 2007) and, although less elaborated, in broad understandings of curriculum theory e.g. Dillon (2009). A common premise is that decisions within one category influence the space of decisions in other categories and that didactic practice must avoid contradictions between categories. The relevance of addressing the interdependence between categories is substantiated empirically by the fact that clarity and transparency are fundamental for quality teaching (Hattie 2009; Helmke 2009; Meyer 1994)

In this chapter, we expose the contributions on teaching methods to further inquiry by asking to the conceptual sources for these student-centred methods, or learning activities, as they are often called. A central aspect of didactic analysis has to do with reasoning the choices of teaching: "Why did you select this instead of something else?" is what didactics is all about (Hopmann n.d., p. 144; Heimann 1976, p. 151ff) and therefore, knowledge about the conditioning factors framing the articles seems to be essential in order to understand the scope of this new didactic domain. By doing this, we intend to come to a deeper understanding of the reason for the strong focus on student-centred methods or learning

activities and, based on the fact that in great many of the contributions the argument for the focus on student centred methods or learning activities are found in learning theory, to discuss the interplay between theories or concepts of learning and practices of teaching.

Analytic design

The data

The empirical data comprises the contributions classified as student-centred methods in two of the four journals examined in Keiding & Qvortrup (2015): Higher Education Research & Development (HERD), and Dansk Universitetspædagogisk Tidsskrift/Danish Journal for Teaching and Learning in Higher Education (DUT). The criterion for selection of these two journals was that we wanted journals with background in the Didaktik tradition and the Curriculum tradition, respectively. See for instance Gundem and Hopmann (1998). Table 1 gives an overview of the data.

Journal	Year	Number of contributions
Higher Education Research & Development (HERD)[1]	2013-2008	48
Dansk Universitetspædagogisk Tidsskrift/ Danish Journal for Teaching and Learning in Higher Education[2] (DUT)	2014-2016	49/47

Table 1. Selected journals and number of contributions dealing with student-centred methods. As the number of contributions per year in DUT is small compared to HERD, all available volumes are included. Two contributions in DUT based exclusively on the authors' experiences and without links to conceptual frameworks were excluded.

Analytical strategy

The inquiry of the conceptual background for the student-centred teaching methods is based on Heimann's (1976, p.151ff) distinction between two levels of didactic reflection and analysis (Figure 1). The first level, "the structure analysis", deals with decisions and reflections

on aim, content, media and methods. This level was the guiding framework for the classification in Keiding and Qvortrup (2015). The second level of didactic analysis examines conditioning and organizing factors, e.g. personal and organizational norms, values and beliefs, framing the horizon for the didactic decisions in the structure analysis. Heimann describes the inquiry of these organizing factors as "factor analysis". The factor analysis is the guiding framework in this article. It is operationalized in the guiding difference "**organizing and conditioning factors**|anything else", see for instance Andersen (2003), Luhmann (2002c), Keiding (2010).

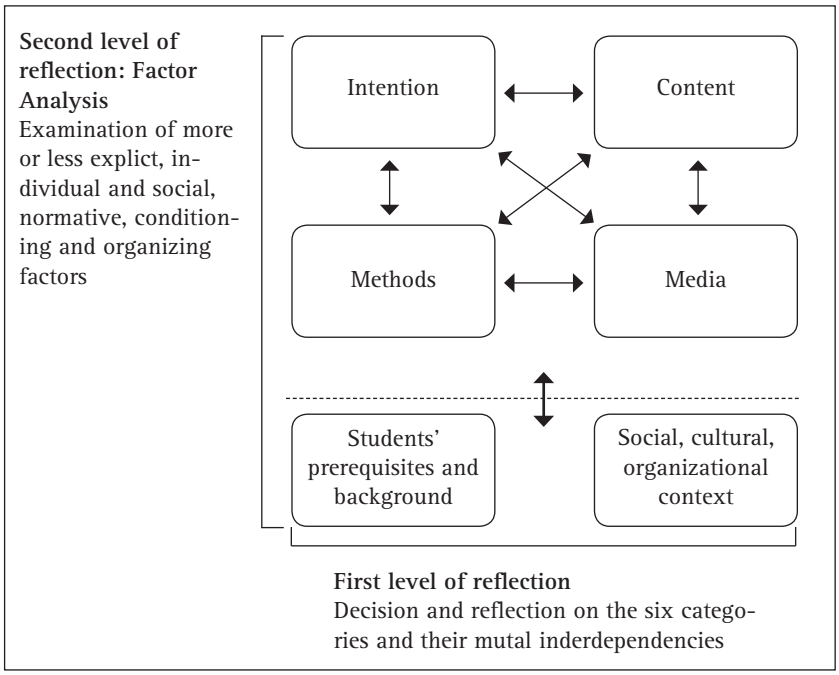

Figure 1. The Berliner-model: two levels of didactic analysis (Heimann, 1976, p. 151ff.; after Keiding 2013)

The organizing and conditioning factors were categorized in three groups: 'Learning theory', 'Didactics' and 'Various'. The categories 'Learning theory' and 'Didactics' includes contributions that find their arguments in theories of learning and theories of teaching and instructional design,

respectively. Various includes articles drawing on for instance empirical data without explicit theoretical arguments for analytic categories (e.g. Cooper, 2009), philosophy (e.g. Hansen, 2008) or organizational theory (e.g. Adriansen & Ravn 2012). Several contributions draw on several sources. In this case, the categorization is based on the constituent approach. Table 2 shows examples of contributions from each of the three categories 'Learning theory', 'Didactics' and 'Various'.

	DUT	HERD
Learning theory	We have developed a way of teaching the highly individual art and craft of speaking well in front of an audience by means of socio-cultural learning principles, group and project work stressing the importance of collective responsibility, and workshops in which students are teaching students. (Juel 2010, p. 23)	The basic principle of the pragmatic, social constructivist approach to teaching is that students learn most effectively by engaging in carefully selected collaborative problem-solving activities, under the close supervision and coaching of an educator. (Hanson & Sinclair 2008, p. 170)
Didactics	Jank & Meyer argue that teaching can be described completely by the use of five basic categories related to the structure of aim, content, social dimension, actions and process (Thorp 2011, p. 33)	Problem-based learning is a teaching methodology that develops knowledge, abilities and skills through participation, collaborative investigation and the resolution of authentic problems. (Dickie & Jay 2010, p. 32)
Various	It is shown how Marx's concept of technology can be used to analyse IT-mediated learning. (Hansen 2008, p. 40)	Learning disabilities are generally defined as dysfunctions in cognitive and information processing that interfere with academic performance despite average to above average intelligence (Reed et al. 2009, p. 385)

Table 2. Examples of classification.

Findings

Table 3 shows result of the classification.

Journal	Learning theory	Didactics	Various
HERD (n = 48)	11 (23%)	21 (44%)	16 (33%)
DUT (n = 47)	19 (40%)	20 (43%)	8 (17%)

Table 3. Number of contributions in the three categories. To ease comparison across categories within the sample, the brackets show number of contributions in the categories in percent of total number of contributions (n).

Given the subject, Scholarship of Teaching and Learning, we expected that many contributions would find their arguments for decisions in didactics, theories of instruction and empirical didactics. On one hand, the findings confirm this expectation. On the other hand, less than half of the contributions are founded in didactics, theories of instruction and empirical didactics. It is common to both journals that arguments for teaching methods are based on learning theory. This is even more distinctive in DUT (40%) than in HERD (23%). The category "Various" covers 33% of the contributions in HERD, compared to 17% in DUT. The difference between the numbers of contributions based on learning theory in DUT (40%) vs. HERD (23%) remains an open question. One explanation might be that SoTL in Higher Education is a young discipline in Denmark and, drawing on Tight (2004), the limited number of theoretical positions might be an expression of an immature field of research. The first number of DUT was published in 2006 as a "framework for the exchange of experiences between engaged teachers about didactic and university pedagogical issues and framework for the research that takes the form of studies of their own practice, and can be performed by teachers in all subjects" (Jensen 2006, p. 1). In contrast, the first issue of HERD was published in 1982.

If we subject the contributions to further classification we find that two-third of the contributions draw on various forms of social learning theories using concepts as "communities of practice" (Lave & Wenger), "dialogue-based learning" (Dysthe) and "collaboration" (Vygotsky). Common to these theories are that they use social interaction/practice

as foreground for understanding and analysing learning. We might also describe this approach as "contextualism"[3]. Among the most influent concepts in the cognitively oriented category, we find for instance Schön's concept of the reflective practitioner (Schön) and Kolb's idea about experiential learning (Kolb). Here the cognitive processes of the learner – or more specifically the concepts of action and reflection – are used as foreground for interpretation of learning. Table 4 shows the distribution between learning theoretical approaches in the two journals.

	Learning theories	Social learning theories	Cognitive learning theories
HERD	11	7 (64%)	4 (36%)
DUT	19	12 (63%)	7 (37%)

Table 4. Distribution of learning theoretical approaches

Figure 2 illustrates the overall distribution between the frequencies of the two learning theoretical approaches.

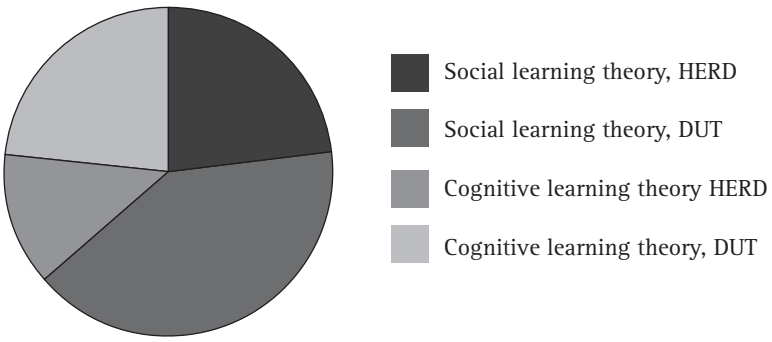

Figure 2. Distribution between the two learning theoretical approaches. Based on table 4.

Especially the contributions in DUT apply learning theories in a very general form. An example is Juel (2010, p. 23), who has *"developed a way of teaching [...] by means of socio-cultural learning principles, group and project work"*, but omits to describe which principles and concepts he refers to and how they are transposed into instructional design. Another example is found in Kobayashi, Grout and Rump (2013, p. 15) which *"is based on a socio-cultural understanding of learning as a human social activity conducted within institutional and cultural contexts"* and *"Learning opportunities were created through the diverging voices of the supervisors"* without explicit descriptions of the criteria used to describe voices as "diverging". In this sense, especially DUT mirrors the findings from the meta-analysis described by Tight (2004, p. 399), who based on the distinction explicit/implicit and evident/non-evident use of theory concludes that *"it is perfectly possible to write an article about, say, problem based learning, staff development or institutional change in higher education without ever mentioning or articulating any relevant theory at all"*.

Picturing why learning theories became so influential

The findings raise the question, why learning theories, and especially social learning theory, have become so influential in the scholarship of teaching in higher education? Our assumption is that it can be understood as an imprint of a general preoccupation with learning in the education system and a strong resonance with tendencies in the political system, describing the society through terms as "information or knowledge society" (Bell 1979; UNESCO, 2005), "complexity" (Luhmann 1995), "detraditionalization" and "individualization" (Giddens 1991). We will, however, restrain our focus to education system.

In 1985 the Australian "Project for Enhancing Effective Learning" (PEEL-project) was initiated *"by a group of teachers and academics who shared concerns about the prevalence of passive, unreflective dependent student learning, even in apparently successful lessons"* (Mitchell & Mitchell, 2008, p. 7). Some of the keywords in the PEEL-project were "independent learning", "metacognition" and *"change of attitudes to ones that promote such learning"* (Ibid.; see also Baird & Mitchel 1986). The PEEL-project's focus on meta-cognition origins from an observation that continuously learning and learn-to-learn is *"widely*

recognized as a necessary skill for the learners in the future" (Mitchell & Mitchell 2008, p. 7) . This is in line with Luhmann (2002b) who argues an enhanced societal complexity and an enhanced uncertainty about the aim and content of education has transformed the overarching aim of education towards open-ended focuses such as learning-to-learn and innovation. See also Keiding and Qvortrup (2014, p. 91ff.).

A similar concern manifests itself in the "From teaching to learning" paradigm, formulated in Barr & Tagg's (1995) as well as the Scandinavian concept "Responsibility for own Learning" (Bjørgen, 1991). Common to these contributions is that *"the chief agent in the process is the learner. Thus students must be active discoverers and constructors of their own knowledge"* (Barr & Tagg 1995, p. 21).

At a first glance, this appears to be a didactic and empirical question: How can we teach students to become independent and proficient learners in relation to the demand for lifelong formalized and informal education both inside and outside the education system? What do they need to know and how can teaching be organized to render this type of learning? As illustrated in Figure 1, such didactic reflections involve four didactic categories (aim, content, methods and media). Nevertheless, the heavy focus on the students *as learners* tends to direct our attention towards how students' engage with the content and hence toward the axis of experience in the didactic triangle (Figure 3).

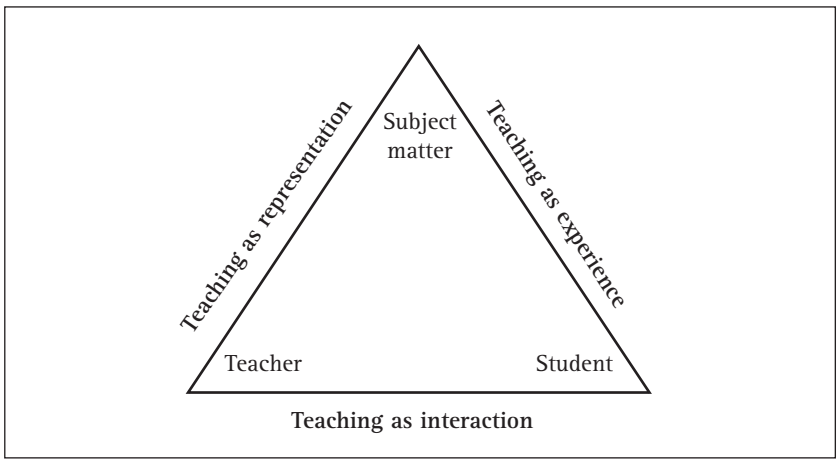

Figure 3. The didactic triangle. (Künzli 1998, 2000)

The question on how students (should) engage with content is a common topic in didactics, and does not necessarily lead us into the domain of learning theory. We find several examples of didactics with a strong displacement toward teaching methods and students engagement with content in for instance progressive pedagogy (Myhre 1971; Röhrs 1982), PBL (Uden & Beaumont 2006) and programmed teaching (König & Riedel 1973; Mager 1962; von Cube 1999). Nevertheless, the preoccupation with learning activities and concepts like "students as chief agents or constructors of their own learning" and "from teaching to learning" seem to have changed how we talk (and think?) about teaching. According to Biesta (2012, p. 37), we have witnessed a new language of learning in the education system and a shift from teaching to "teachingandlearning", which he deliberately writes as one word as this is, how many people nowadays seem to use it. The consequence is a "learnification" of the education system (Biesta 2010) Other researchers consent that the new orientations have guided the attention away from teaching, and consequently from didactics and theories of instruction, towards the learner and learning strategies, and placed activities referring to learning on the center stage (Haugsbakk & Nordkvelle 2007; Richardson 2003; Terhart 2003).

In this perspective, the strong preoccupation with learning theory appears understandable. Nevertheless, we will earmark the next sections to argue that learning theory cannot replace didactics and that the fact that it to some extend seems to be the case leave us behind with a restricted framework for reflection on teaching.

The whole story: Learning theory and didactics

In this section, we will dig deeper into how the relation between learning theory and didactics can be conceptualized and discuss the use of learning theories in didactic settings.

Learning theory

Learning theories help us to understand learning as phenomenon. They answer questions like: "What is learning?" and "What matters to learning?". Different theories offer different answers to these questions. Sociocultural learning theory emphasizes communities and practice

(Lave & Wenger 1991). To systems theory, differences and differences 'that make a difference' are some of the key concepts (Bateson 2000b; Luhmann 2002a). Behaviourism is occupied with systematic couplings between stimuli and response (Skinner 1974) and emancipatory learning as described by Mezirow (1991) focuses on personal meaning and transformation of identity.

Learning theories help us understand learning as phenomenon, but they do not support reflections on what, how and why something should be taught and learned in school. They are in other words empty with regard to aim and content of teaching. This can be illustrated with Mezirow's (1991) concept of "personal meaning". The concept emphasizes *that* the experience of meaningfulness is important for learning, but it does not say anything about *how* one makes something meaningful to the learner. Should teaching, for instance, relate to the student's former experiences as we see in some parts of progressive pedagogy (e.g. Dewey 1997; Kerschensteiner 1971), point to future applications as we see in for instance problem-based teaching (Frey 1984), or should we select a playful approach as it is suggested in one of the most child-centred pedagogies (Neill 1960)?

Another example can be taken from Lave and Wenger's (1991) idea of "trajectories of participation". The concept describes how a learner gradually becomes a full member of a community of practice, but it does not offer concepts for systematic reflection of valuable knowledge, skills and competence of the community, nor for reflection of the sequencing of the process: in which order must the single elements be taught (and learned).

Similar arguments can be directed towards for instance functionalist learning theories, e.g. Piaget, Bateson and Luhmann. These theories tell us, that learning is adaptive or meaningful seen from the perspective of the learner, but this does not tell us anything about what should be learned in school.

Didactics

The questions about *what* to teach, *how* to teach it and *why* it should be taught in school is the domain of didactics: *"Didaktike techne or Didaktik would thus be the art of showing, of pointing and drawing attention, of allowing something which does not simply demonstrate*

itself, or cannot be understood, seen, perceived and recognized. In keeping with this original meaning of the word, Didaktik can be used to mean the science of such actions of demonstrating, or more specifically, as a science of instruction. Didaktik as theory of instruction and the embodiment of knowledge about instruction" (Künzli 1998, p. 42)

Just as different learning theories reflect on different aspects of learning, didactics reflect on different aspects of teaching. Theories of Bildung (Education) ask to the fundamental aim and content of schooling (Klafki 1998, 2000, 2001). Progressive pedagogy offers different suggestions on why and how world life experiences should be integrated in the school (Blonskij 1971; Dewey 1997; Kerschensteiner 1971). Theories of supervisions offer conceptual frameworks for understanding and guiding decisions in relation to supervision (Handal and Lauvås 1987) And didactics founded in systems theory point towards either programmed teaching (König & Riedel 1973; Mager 1962; von Cube 1999) or process and reflection oriented approaches (Arnold 2007; Holtz 2008; Keiding & Qvortrup 2014).

Based on Luhmann, we might distinguish between three types of didactic knowledge: Experiential didactic knowledge, didactic theory and science of teaching, see Figure 4.

	Experiential didactic knowledge	Didactics	Science of teaching
Type of knowledge	Individual and collective knowledge based on experiences and tradition	Programs of reflection for teaching and instruction	Scientific knowledge about teaching and learning
Code of	Useful⌋not useful	Guiding⌋not guiding	True⌋false

Figure 4. Three types of didactical knowledge and their knowledge codes (Keiding & Qvortrup 2014; Qvortrup & Keiding 2014)

With the term "experiential knowledge", we refer to the body of experience or practice-based knowledge about teaching and about what works in different situations that the single teacher, each team, each educational institution and the teacher profession as a whole possess. Experiental knowledge is closely linked to the context where it is

produced. It is partly a result of a teacher's own teaching practice, and partly a result of social conventions and norms within the professional contexts outside the classroom (colleagues, teams, institutions and profession) (tradition) (Keiding & Qvortrup 2014; Qvortrup & Keiding 2014)

We have several times indicated how theories of didactic might guide decisions in relation to the fundamental didactic questions and categories. The field of didactics can be described as systematic descriptions of and reflections on teaching that teachers can use *to guide* the choices made in planning, conducting and evaluation of teaching. Didactics is not characterized by consensus about what good teaching is. As we have shown through the article, different didactic positions reflect and present teaching in different ways and accordingly tell different stories about what teaching is or should be. This variety of perspectives is useful and desirable, when teaching for some reason has to change direction, for instance when experience and tradition no longer suffice to meet new ideas or conditions. This is especially important when teaching does not go to plan; for example, if a selected approach or content proves inappropriate for those, who are going to use it (Hopmann, s.a, p. 142). In such a case, it would seem futile to simply repeat previous actions (ibid., p. 182).

During the latest years, the empirical teaching research has contributed with knowledge about, what seems to work or not work across contexts, in form of indicators of how different forms of didactic practice influence student's learning. The empirical teaching research has, at least in Denmark, been treated with skepticism. This skepticism seems to originate in an interpretation of pedagogical practice as a unique relation between two unique individuals, which means that it is not possible to generalize. Pedagogics is a normative and not empirical science, and decisions must be based on professional judgment (e.g. Moos, Krejsler, Hjort, Laursen, & Braad 2008).

However, the empirical teaching research does not question that pedagogics and didactics are normative sciences and that concrete practices and actions are contextually rooted (Johannsen 2011). It simply looks for another kind of knowledge than didactics and pedagogics. The empirical teaching research provides knowledge about correlations between single elements and students' learning, but *"does not supply us with rules for action but only with hypotheses for intelligent problem*

solving, and for making inquiries about our ends in education" (Hattie 2009, p. 247).

The three types of knowledge on one hand increase complexity of didactic practice by means of a wider horizon of opportunities. On the other hand, they reduce complexity by offering new perspectives. What they can do is to offer knowledge, which teachers can use to narrow and reflect on the horizon of possibilities and hereby guide the selections in a given situation. Neither of these knowledge domains, nor the collection as a whole, prescribes actions. The micro-diversity and complexity of teaching as interaction are simply too high. It always contains an aspect of unpredictability. Therefore, no matter how closely we read empirical teaching research and/or didactics, it is the teacher, who makes the concrete didactical selections in a given situation based on his/her professional knowledge and judgment.

The form "didactics"

Learning (in the broadest meaning of the word, i.e. containing concepts of Bildung as well as concepts of knowledge, skills and competences) is the purpose of teaching. *"There cannot be taught or learned either language or science, either history or mathematics on the assumption that it does not matter how the learner deals with the content"* (Luhmann 2002b, p. 63). Schooling and education is not just about learning, but about *learning something specific*. In this sense, the distinction between better and worse learning is fundamental for the education system and teachers use both concepts of learning and conceptualizations of learning processes to reflect the quality of their teaching.

In Keiding and Qvortrup (2014) we have used Luhmann's concept of observation to illustrate how learning serves as concept for didactical reflection. Luhmann describes observation as the unity of distinction and indication: *"Observations are asymmetric (or symmetry-breaking) operations. They use distinctions as forms and take forms as boundaries, separating an inner side (the Gestalt) and an outer side. The inner side is the indicated side, the marked side. From here, one has to start the next operation. The inner side has connective value"* (Luhmann 2002c, p. 101). *"But normally our indications will frame our observations with the effect that the other side implicitly will receive a corresponding specification"* (Luhmann 2002d, p. 85).

Drawing on Spencer-Browns form-notation, the didactics as theories *about* teaching *aiming* to stimulate not-random learning can be expressed as showed in figure 5.

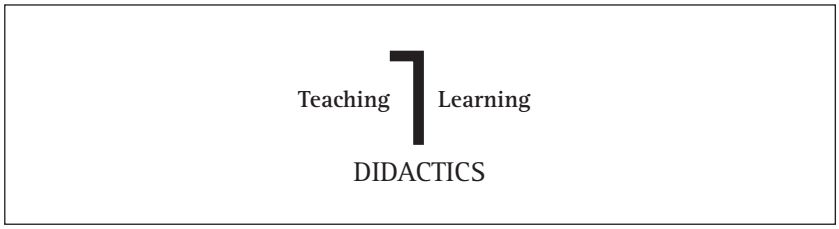

Figure 5. The form didactics

The form notation illustrates the previous stated points that didactics are theories of teaching, and that learning serves as the fundamental concept of reflection.

But what happens to our reflections on teaching if we replace didactics with learning theories as program of reflections? As learning theories deal with learning processes in the sense "what matters to learning", the concept of teaching is replaced by learning processes (Figure 6).

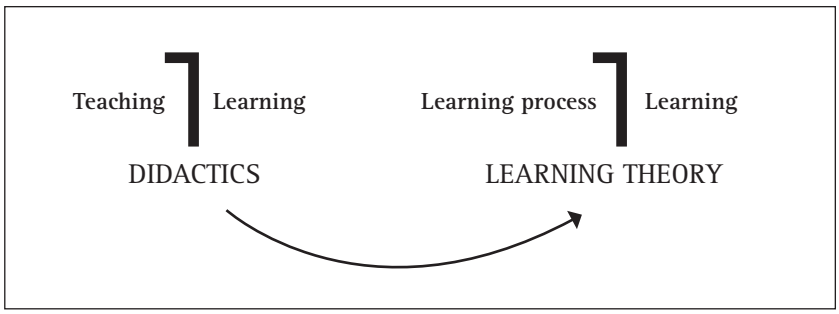

Figure 6. Transformation of the form Didactics into the form of Learning

The transformation means that learning no longer serves as concept of reflection of students achievement in relation to the intended learning objectives embedded in teaching. Learning becomes the concept of

reflection in relation to a learning theory's conceptualization of the learning process (e.g. participation, shared repertoire, existentially meaningfulness or differences that make a difference). This means, that the normativity of a description of a learning process replaces the normativity of teaching, defined by the intention to teach someone something specific. Learning processes in themselves become the success criteria of the social interaction.

We find several examples in HERD and DUT that may serve to illustrate how the learning process itself replaces intended learning. One example is found in Hanson and Sinclair (2008) (Table 2). Another in Durey, Lin, and Thompson (2013, p. 722) who state that the methodological design is based on *"situated learning theory [...], which prioritised context and participation in the construction of knowledge:"*. An example from DUT is found in Dalsgaard (2011, p. 11), who argues that: *"a socio-cultural perspective, learning requires active participation in socio cultural contexts [...]. The consequence is a motion from the idea of a fixed syllabus"*. See also Thøgersen (2011) and Thomsen and Nordentoft (2012)

In this sense, the form notation brings us closer to an understanding of what happens when Biesta (2012, p. 38) claims that, if learning *"is indeed the only language available, then teachers end up being a kind of process-managers of empty and in themselves directionless learning processes"*

Didactic analysis in the center of teacher professionalism

In the previous sections, we discussed the relation between learning theory and didactics, and we argued that learning theories cannot replace didactics. Learning theories help us to understand learning as phenomenon and hereby offer insights, which are able to qualify didactic analysis. In this section, we will elaborate on this perspective.

As argued above, learning serves as the fundamental concept for reflection of teaching. In line with this Luhmann (2002b, p. 59; 143) describes intention as the central symbol of education. In contrast, learning – as the outer side of the form – has no connective value (Luhmann 2002c, p. 101). Teaching cannot promote and observe learning directly, but must produce its own observation strategies, which align with teaching as social interaction. It must, in other words,

look for "signs of learning" based on changes in communication and behavoir. In this sense, learning as it is conceptualized in teaching can be described as a semantic construction that *"indicates that one cannot observe how information triggers far reaching consequences by bringing about partial structural changes in a system without interrupting its self-identification."* (Luhmann 1995, p. 111)

When teaching produces its *own opportunities* for observation of learning, we might say that learning as outer side of the form **teaching**⌉learning *reenters* on the inner side of the form. Using the form notation, we might expressed this as illustrated in figure 7.

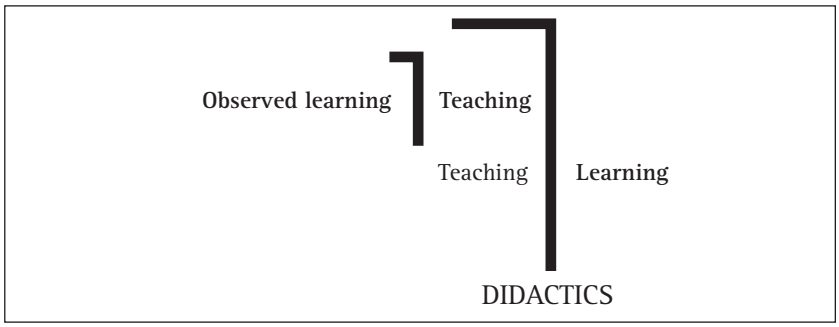

Figure 7. Teaching's observation of learning takes place from the inner side of the form

Learning observed from didactics

Teaching is interested in learning in three dimensions of time: Before, now, after (Luhmann 1990). The dimensions relate to three didactic questions: What should student learn and what do they know beforehand? How is learning observed procedurally and used for conformation and/or correcting of teaching as interaction? And how is learning assessed after the lesson/course?

The three questions are themes in different theories of didactics. For instance, learning outcomes and the operationalization of learning outcomes into learning objectives as described in for instance study regulations and syllabi/lesson plans is the key topic in Möller (1973) and Mager (1962). Also various learning taxonomies Bloom (1956) and Krathwohl, Bloom, and Masia (1964) contribute to the field. And the shift from content-based to outcome-based curricula, that we have

witnessed during the last 10 years, has revitalized a dormant empirical interest in how learning outcomes are described (Biggs & Tang 2011; Guskey 2013).

Formative and process-related assessment and *"seeing teaching through the eyes of the student"* is one of the cornerstones of quality teaching (Hattie 2009; see also Helmke 2009; Meyer 1994; Nordenbo, Larsen, Tiftikçi, Wendt, & Østergaard 2008; Weinert 2000). In Keiding and Qvortrup (2014) we argue for an intimate link between process-related observation of learning and didactic rationality. But so far, research and didactics have primarily been concerned with the observation of learning based on planned procedures and technologies (Biggs 1998; Knight 2004; Ruiz-Primo & Furtal 2006; Rust 2002). This means that enhanced research in informal process-related observation and interpretation of learning and how it influence teaching as interaction is vital.

Didactic sight points in learning theories

As mentioned, the different learning theories offer concepts that help us to understand and conceptualize the unobservable and inaccessible outer side for the form: learning as process and result. One example concerns the conceptualization of prerequisites for learning. Behaviorism talks about the necessity of appropriate couplings between stimuli, response and reinforcement (Skinner, 1974). The cogntive approaches that we meet in for instance Piaget (1970) and Bateson (2000a) suggests that we understand learning as more or less radical reconstruction of cognitive schema and Lave and Wengers theory about communities of practice points at 'legitimate peripheral partication' as a prerequisite for learning in communities of practice (Lave & Wenger 1991). These various descriptions of learning conditions can be used to identify didactical awareness and to guide the didactical choices in the planning of teaching strategies and activies.

Figure 8 offers a non-exhaustive example on which concepts didactics and learning theories offer for description of the three dimensions of learning.

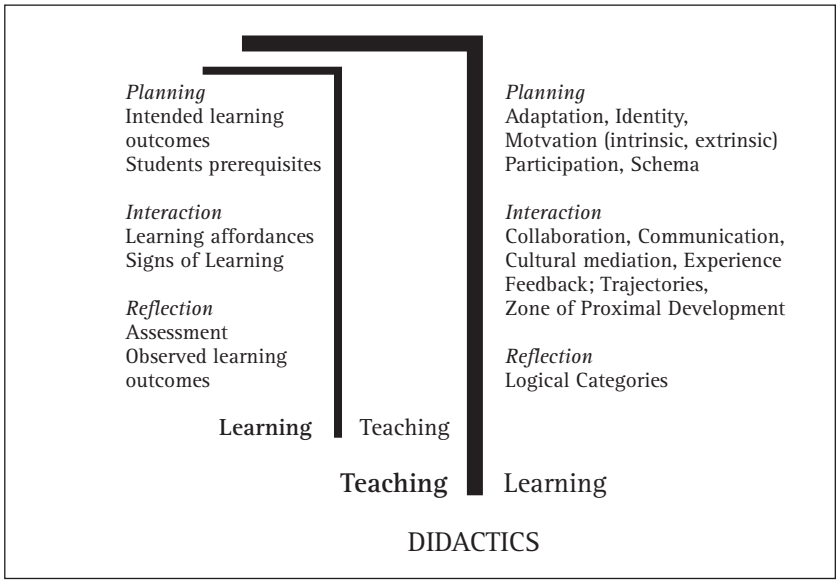

Figure 8. Examples on how learning is observed in didactics and learning theories, respectively.

Conclusion

In the article, we have shown how, especially in Denmark, broad concepts of constructivism and socio-cultural learning theories seem to have replaced education theory and didactics as conceptual framework reasoning on teaching and choices of design in the Scholarship of Teaching and Learning in Higher Education. We have illustrated how and why didactic theory and practice cannot be deduced from learning theoretical concepts and have discussed possible consequences of the displacement towards learning theory. Finally, we have argued that both learning theories and didactics are fundamental for systematic reflection of teaching and learning and cannot be replaced by each other.

Empirical research gives strong arguments for a variety of methods and a clear eye for the students' learning process as a whole, and we do not question the relevance of a student-oriented approach in the sense that teaching is planned and carried out with a clear focus on the pedagogical significance and students learning.

But we do question student-oriented approaches as the only methodological dimension in teaching. In line with Barr & Tagg (1995,

p. 14) our credo is that teachers must chose *"whatever approaches serves best to prompt learning of particular knowledge by particular students"*.

Furthermore, we do question the idea that learning theory can replace didactics and that the education system benefits from the current learnification. The exchange of the language of teaching with the language of learning is not just a simple replacement of one word with another without significance of the meaning. On the contrary, it deprives us a systematic framework for reflection on teaching, at the risk of becoming blind for the many didactic decisions that we make whenever we try to design "learning environments" and "learning activities". The risk points in two directions: Either we forget the role of schooling and teaching and leaves the student with the responsibly of designing educational relevant activities. In this case, students become responsible not only for their own learning but for *own teaching*. Or we might be seduced to think that we as teachers actually plan – or even steer and observe – students learning and risk to neglect *"the educative difference of matter and meaning and a strong conviction that teaching and learning are necessarily autonomous activities"* (Hopmann 2007, p. 121).

We will designate the first risk as "the students as his/hers own didactician" (Keiding 2008) and the second as "trivialization" (Luhmann 2002b, p. 77ff) and in line with Keiding and Qvortrup (2014) uphold that neither is compatible with quality teaching and hence not with the function of a Scholarship in Teaching and Learning in Higher Education.

Notes

1 http://www.tandfonline.com/toc/cher20/current#.UlfD-1DIaCq
2 http://www.dun-net.dk/tidsskrift/
3 We thank Gerd Christensen for proposing the term contextualism.

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