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**Title** **'Where no man has gone before!' – Exploring new knowledge in design-based research projects: A treatise on phenomenology in design studies**

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**Abstract** Design-based research (DBR) is a programme where researchers co-operate with practitioners to work out new solutions. In DBR researchers interfere in daily life and participate in practitioners' working processes. One open question is: What kind of knowledge can be generated in these projects? My starting point here is a DBR project in vocational education and training in Germany which is used for an investigation of the epistemological background of this kind of research enterprise. The characteristics of DBR are reflected on the basis of phenomenological and hermeneutical approaches. The basic assumptions of these concepts are introduced and applied to the DBR approach to show how DBR generally works and how, specially, features of DBR like participation in daily life, co-operation with practitioners, gathering knowledge in the field a. s. o. can be handled. The line of argumentation in this contribution is a radical switch between practical questions in daily work in DBR on one hand and theoretical re-assurance on the other hand. For researchers, DBR is an enterprise in a new world. The analytical paradigm does not prepare the voyagers for this journey. Therefore the non-analytic continental tradition of philosophy has to be re-discovered.

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life-world-approach  
participating in daily life  
phenomenological movement and DBR  
phenomenological reduction

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# ‘Where no man has gone before!’ – Exploring new knowledge in design-based research projects: A treatise on phenomenology in design studies

Peter F. E. Sloane

## 1.0 Some preliminary notes on the topic

‘Where no man has gone before!’ is the introductory phrase of the Star Trek serial. The audience is asked to accompany the star-ship Enterprise on its journey to new worlds. It is an on-going story of the captain and his crew. The series started with Captain Kirk, who was then followed by others. However, one quite current question always recurs throughout the series: how should the people of Earth react when they find a new civilization? On the one hand, they want to learn, as Kathryn Janeway, one of Kirk’s successors, always points out. On the other hand, there is the so-called prime directive that does not allow them to interfere directly because sentient species should live in accordance with their normal cultural backgrounds.

In the future world of the trekkers, a few things do not seem to have changed, or at least, they are quite common for those who do research work today.

The prime directive in some kinds of research is as follows. Do not interfere in the field; just make observations to find out how it ‘naturally’ works. Getting involved in the field always changes it. This is thought of as some kind of contamination. Thus, the knowledge that researchers could have gathered becomes spoiled.

Perhaps this is true. Hence, there is a strong belief that you can learn by observing and staying at a distance. When you become immersed in the world of Star Trek, the stories are almost always about getting involved in the field. This means that the crew members come in contact with new species. They are then no longer outside the new world. They are inside where they are not only observers but also participants.

Participation is necessary for learning something new. Deep understanding is only possible when people from the outside come in contact with those inside. They have to cross borders. The prime directive interpreted more precisely means that the people from the starship have to decide if their appearance in a new world will have a negative influence on it.

In our present time, this means that not every visit to a field has to be negative. It depends on what you want to learn about that field. This contribution is about researchers who are crossing borders to learn something about the world of practitioners. The motivation to go on this journey, where no researchers seem to be, is a strong feeling that there is something out there

that the researcher wants to learn not only by observing but also by participating.

This kind of journey is called design-based research (DBR). It has special chances and risks that I will reflect on in this contribution. I would like to work out that crossing borders and going into the world has some implications for research methods and methodology.

I will start with a case study on a pilot project my Paderborn research group did with vocational schools in Germany. On the basis of this research and development approach, I will illustrate the characteristics of a DBR concept. For me, one of the fundamental challenges is that we always assess the quality of this kind of research by comparing it to the standards of the analytical research approach because this is the mainstream of research in the social sciences today. This is an adoption of those methods and principles typical for research in (natural) sciences and already finds expression in the term social science, ignoring that social studies originally have to be applied to a completely different field than the sciences. Hence, I think it is necessary to de-construct the research in social fields and to do some self-reassurance on the basics of social studies in real-life settings. This leads to a few investigations on humanities. The principles and methods of paradigms like hermeneutics and phenomenology enable new ways to deal with home-grown problems of current social science. Humanities approaches will not be understood as alternatives to rational concepts but as useful supplements in a more enhanced research approach.

## 2.0 A journey from theory to practice – Working together with schools

Let me start with a typical DBR programme. In a federal Länder programme, research and development grants were launched to foster self-regulated learning in vocational colleges. My research group applied in co-operation with the educational administrations of two Länder, Bavaria and North-Rhine Westphalia, for funding (cf. Dilger et al. 2005).

At this point, I will neglect considerations of the institutional and organisational backgrounds of vocational education in Germany. In particular, the politically motivated structural support of the school system and the possible effects on the pedagogical development of schools in these Länder have to be ignored in this contribution<sup>1</sup>. Instead, I will concentrate on the research and development process. This can be described in summation as follows:

- Twelve vocational schools participated in this project. In each school, a focus group was established consisting of two or three teachers who were responsible for a training programme. Participating training programmes were: retail salesman, nurse helpers, and medical secretaries.
- In Bavaria and in North-Rhine Westphalia, the participating schools were co-ordinated by a federal steering group. This

<sup>1</sup> For more information on this kind of programme and the vet system, see Sloane and Fischer 2016; Sloane 2014a; and 2014b.

group was politically responsible for each of the two Länder. This was generally organized by the school administration<sup>2</sup>.

- The Paderborn research group participated with the steering group. In this context, researchers and educational managers had to come to an agreement about what they wanted to initiate in the schools.
- On the basis of these commitments, the Paderborn research group co-operated with the participating schools.
- The main project idea was to develop teaching and learning units to foster self-regulated learning. This carries implications for school work on three levels:
  - Teaching level: development of teaching units and material for teachers
  - Management level: development of course plans for the training programme, including a one-year curriculum, sequences of training units, instruments for the evaluation, etc.
  - School level: programmes for personal and organisational development, development of a school concept (e. g. quality management for the schools' new mission statements), etc.
- Self-regulated learning was not understood as a learning strategy to develop the individual vocational competences of students in the training programmes. According to an action-based approach, the Paderborn group established an integrated concept of self-regulated working and learning. This corresponds with the so called 'Lernfeldcurriculum' (learning field curriculum). This is an interdisciplinary syllabus. In vocational education, the traditional specialized subject curricula (Maths, Business Administration, Law, etc.) have been replaced by an interdisciplinary syllabus which is structured in action areas (planning a project, buying material, solving the customers' problems, etc.). These areas are problem based and integrate subject knowledge (cf. Ertl and Sloane 2003 and 2004).
- Finally, two different results can be distinguished: a design (prototype) and knowledge. Technically, these are two aspects of one process. On one hand, a problem has been solved or something has been designed to solve it. This could be, in our case, a training unit to foster self-regulated learning. I call this a prototype. It is generally something like a proven tool. On the other hand, knowledge is generated. This can be a declarative description of the prototype and its development. However, it also could be some insight into organisational processes or knowledge about how things, generally speaking, work in school and how they should be done; in essence, researchers and practitioners learn how to design. Dieter Euler (2014a and b) calls this kind of knowledge 'Design Principles'.

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<sup>2</sup> For North Rhine-Westphalia, it was the North Rhine-Westphalian Curriculum Institute, and for Bavaria, it was the Bavarian Institute for School Quality and Educational Research. Both are so called 'Landesinstitute' (state institutes) which are subordinate to the Ministries for Education and Culture of the Länder.

Figure 1 gives the first insight into the project.

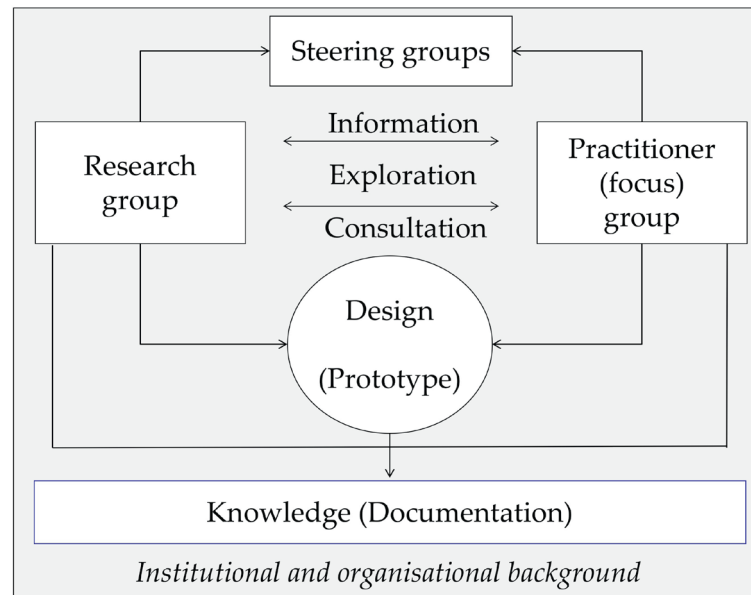


Figure 1: Working structure in a design project

As we can see, a DBR programme is not a simple agreement between teachers and researchers. At least in Germany, the researchers have to handle different working contexts and are confronted with political, organisational, and instructional requirements. Figure 1 shows the main components of the design project:

1. This design-based approach was embedded in a complex programme with political, organisational, and instructional implications. These implications correspond with different working contexts.
2. The kinds of methods the researchers implement into this programme as well as how knowledge is generated in the programme have to be clarified.
3. The working contexts bring researchers together with other actors (teachers, administrators, politicians, etc.) and they have to look for agreements with these actors. Of course, this can be understood as a necessary commitment when conducting research. In this case, researchers step back and try to describe what is going on in the school and in working groups. They maybe try to evaluate how successfully things are done by the practitioners. However, often they also have to inform practitioners, give advice, or present a concept. In the case I presented above, the Paderborn group developed an integrated concept of working and learning, and they run a series of workshops to enable the practitioners to do their designing. This has two implications. First researchers are not only explainers. They are also consultants. Second, researchers step into the field and co-operate in real-life settings with practitioners. I call this joint field of researchers and practitioners an arena. The researchers give up their distance from the field and become observers and participants.

4. Finally, the actors in this programme (here labelled as researchers and practitioners) have different interests, norms, and attitudes. They do not automatically interpret the joint work in the same way, and they likely have different perceptions of what the other one should or should not do.

Now we are at the exact point where the journey starts. What happens if researchers do not describe what is going on in the field with analytical instruments alone? To participate means that researchers give up their distance from the field. Does this change the way they understand the field, and do they then generate a different kind of knowledge? If so, then we have a different modality of theory formation, as in the traditional rational-analytical paradigm.

In cases like the joint project discussed here, researchers move between different social settings. They do not only act in a typical research environment but also have to work in those real life settings that they want to learn something about. This is research in a working process.

How can researchers handle this transition into the field? This is the central question. We also have to take into consideration that there is a borderline between researchers and practitioners. Passing this boundary seems to be important, but why does it exist in the first place?

### 3.0 Borderlines between knowing and doing

#### 3.1 What kind of knowledge are we searching for?

Researchers are seeking knowledge. The basic epistemological question behind this statement is: What is knowledge, and how can we acquire it?<sup>3</sup> At first, it seems to be simple: to express what we know about the world in words. In this case, we could also explain in words that which we do not know. In common life, this is accepted. From a researcher's point of view, knowing is used in a factual sense. To know means that things exist. Knowledge is propositional because things can be expressed in sentences. This sometimes is also called declarative knowledge.

Knowledge can also be procedural. In this case, we are not able to express what we know in words or sentences. Michael Polanyi called this 'tacit knowing' (cf. Polanyi 1983). In other words, we can do things without really being able to express the incorporated knowledge in sentences. This implicitness of knowledge in the process of doing is not only a matter of awareness. The basic question of the relationship between knowing things and doing things arises:

1. On an individual level, this refers to the link between individual knowledge on one hand and individual activities on the other. The simple question is, what do we have to know about things when we want to do them? In our tradition, there is a strong belief that doing requires knowledge. In pedagogical settings, the consequence is that learners should at first gather knowledge so that they can do things. Following this approach, common core curricula have been established

<sup>3</sup> I am referring here to general epistemological positions which are common in the philosophy of science without mentioning special sources. I refer to the argument in the chapter 'Epistemology' in the Internet Encyclopedia of Philosophy'. (Source: <http://www.iep.utm.edu/epistemo/>)

which codify the so-called relevant knowledge. All of this conflicts with the daily experience of learning to do things in an adaptive process of copying others and/or in a critical and self-reflective way of exploring the things.

In modern learning approaches, this has been adopted. Based on Piaget's cognitive theory and later deepened by constructive theories, the sequence from knowing to doing has been changed; not doing requires knowledge, but knowledge requires doing.

2. On a systematic level, research has been established as a social system that aims to collect knowledge about things. These things can be physical, social, biological, or economic. The result is on one side a specification of sciences and studies (academic disciplines).<sup>4</sup> In society, these academic disciplines have a twofold function. On one side, academic disciplines are knowledge archives of society. Researchers collect knowledge about all things. On the other hand, they transfer this knowledge to society. Teaching is the mechanism of turning knowledge into practice. At this point, the educational work in universities is in the same trap as grade-school teaching. We have the same question again: is the knowledge we develop in universities a satisfactory basis to prepare others for that what they have to do in society?

The history of academic disciplines in European universities<sup>5</sup> since the Enlightenment has been a process of professionalising knowledge production. It is, or at least was, part of the identity of research in universities to look at the fundamental issues of this process. This refers again to the following basic questions. What is knowledge? What are the epistemological basics when we produce knowledge? What are the external effects of knowledge? What happens to society?

Currently, many of these basic issues seem to recede into the background. Nevertheless, they are still relevant because the answers we provide to them focus on what we do. It seems that the answers have been provided, at least for those in the research mainstream.

In the social sciences, this mainstream defines research as a rational problem-solving process to generate declarative knowledge about existing things. It is up to practitioners to decide what to do with this knowledge. This also means that the difference between knowing things and doing things that was described above as an individual phenomenon has been established in a shift between research and practical doing.

Overall, there is in the Newtonian tradition of science a separation of research and social life. Maybe this is, in the case of natural science, not really a problem, but in the field of research on social activities or social life, this tradition leads to a segregation between knowing and doing. Of course, there are approaches that try to bridge this gap.

In the German discourse, this refers to the pilot project approach (cf. Sloane 2008; Sloane and Fischer 2016). According to the English discourse, this kind of approach can be described as

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<sup>4</sup> The term 'science and studies' is quite difficult to understand. I am referring to academic disciplines like sociology, medicine, biology, etc. In my opinion, these are social systems with specific rules and regulations. I will revisit this later. At the moment, it seems to be important that we understand that these academic disciplines which also exist outside universities as a group assignment have a social function in society.

<sup>5</sup> In this case, this includes US universities and refers to a long and ongoing process that started in Bologna and was continued in Coimbra, Prague, Oxford, Cambridge, Heidelberg, Paris, Jena, and others.



so-called 'Mode 2' research, which was established as a complementary concept to the traditional 'Mode 1' research:

The old paradigm of scientific discovery ('Mode 1') characterised by the hegemony of disciplinary science, with its strong sense of an internal hierarchy between the disciplines and driven by the autonomy of scientists and their host institutions, the universities, was being superseded – although not replaced - by a new paradigm of knowledge production ('Mode 2') which was socially distributed, application-oriented, trans-disciplinary and subject to multiple accountabilities (Nowotny, Scott, and Gibbons 2016, p. 1, see also Gibbons et al. 1994, p. 3ff.).

The borderline is an artefact. It does not need to be there, but it exists due to a research tradition. We could now continue to try to bridge the gap. Then again, it is quite interesting to take a look at other possible research approaches in order to work out a completely different concept. For this reason, I will have a look at continental philosophy, which can be understood as an alternative to the analytical Newtonian process.

### 3.2 Lost routes: Continental philosophy

Continental philosophy is a term introduced in the British discourse on philosophy and refers to a widespread series of Western European philosophical thinkers and schools, in particular from Germany and France. In a narrow interpretation, this refers to the late 19th and 20th century and includes German idealism, hermeneutics, phenomenology, existentialism, structuralism, post structuralism, and critical theory (cf. Critchley 2001, p. 38; Zahavi 2007, p. 7). In a broader sense, the Encyclopaedia Britannica links this tradition further back, for instance to the German philosophers Kant and Hegel, Fichte and Schelling, and the Danish philosopher Kierkegaard (cf. Wolin 2016).

I am surely simplifying the complex philosophical discourse in Europe when I now put my contribution on DBR in general contrast to an analytical Anglo-Saxon approach<sup>6</sup> on one hand and continental philosophy on the other hand.<sup>7</sup> However, I think that the main challenge is to overcome the limitations of the analytical approach without losing the advantages of this concept. This refers in general to humanities as the common reference point of continental philosophy.<sup>8</sup>

Humanities seem to be, in an everyday understanding, an older approach than the empirical or, in a broader sense, the rational-analytical concepts. Actually, humanities were always the response of rational programmes and not their predecessors as the following two interpretations demonstrate:

- Dilthey introduced his concept of hermeneutics as an alternative to Kant's two treatises – Critique of Pure Reason and Critique of Practical Reason – as a reasonable third critique of historical reason and as a counterbalance to the rational programme of science. While Kant evolved the logical process of knowledge production based on the forms of perceptions

<sup>6</sup> This approach has roots in the ideas of common sense, analytical approaches, etc. and was stimulated by the proponents of the Vienna Circle who had to leave Germany at the time of the Third Reich. Of course, I am referring here to Karl-Raimund Popper, who described his experience introducing Kant and other German analytical philosophers in the English discourse.

<sup>7</sup> Quite inspiring here was an essay on this contradiction on the blog, The Philosopher's Beard. The author states: 'Analytic philosophy is rationalistic: rigorous, systematic, literal-minded, formal (logical), dry, and detached. It is modelled on physics and maths and is particularly popular in the Anglo-Saxon world. Continental philosophy is humanistic: reflexive, literary, essayistic, charismatic. It is modelled on literature and art and is particularly popular in France, Germany, and Latin America. These two traditions dominate contemporary philosophy, and they are largely mutually incomprehensible. This is unfortunate since their strengths and weaknesses are somewhat complementary'. He is entirely correct.

<sup>8</sup> An overview of the 'classification of science' in European discourses can be found in Bambach 1995, p. 70f.

(time and space) in his Critique of Pure Reason, Dilthey constructed the process of understanding (*Verstehen*) as an individual operation where someone empathises with someone else and engages oneself. Hermeneutics means to find out what happens to yourself when you are engaged. It is a movement from the perspective on an object (Kant) to concernment by an object (Dilthey). In the rational case, a researcher explains what he observes, and in the second case, he describes what affects him.

- In the phenomenological movement (Husserl, Heidegger, Merleau-Ponty, Sartre, etc.) the mentalist tradition (Kant) was also denied. Edmund Husserl argued that (natural or positive) science ‘cannot in principle understand or do justice to the human subject’ (Tietzen 2016, p. 17). For Husserl, knowledge production in philosophy is completely different than in natural sciences. Science is oriented on objectivity. The initial position in a phenomenological approach is the ineluctability of ‘being-in-the-world’<sup>9</sup> (cf. Heidegger 2006), which includes that a person (subject) is always linked to a horizon of meaning (cf. Merleau-Ponty 1945, p. III–IV; 1966, p. 5f.).

After all, there seem to be alternatives. The sketchy depiction stated here points out that the discourse in humanities is branched out widely. Hence, I will concentrate on the phenomenological movement and a few complementary aspects of the hermeneutic approach and the critical theory in the following.

## 4.0 The Phenomenological Movement

### 4.1 Life-world approach

In the case study above, schools (practitioners) and universities (researchers) are two different ‘life-worlds’.<sup>10</sup> Consequently, this means that researchers and practitioners live in different organisations with varying rules and obligations. Researchers who go into the field to observe schoolwork change into a different environment.

A life-world is the real-life setting in which individuals (subjects) exist. Edmund Husserl (1996; 1962)<sup>11</sup> introduced this concept as a counter-project to the natural world in (natural) science. It is ‘the world as immediately or directly experienced in the subjectivity of everyday life, as sharply distinguished from the objective “worlds” of the sciences, which employ the methods of the mathematical sciences of nature; although these sciences originate in the life-world, they are not those of everyday life’ (Life-world 2016).

Alfred Schütz adopted Edmund Husserl’s conception:

The sciences that would interpret and explain human action and thought must begin with a description of the foundational structures of what is prescientific, the reality which seems self-evident to men remaining within the natural attitude. This reality is the everyday life-world [...] Only in the world of everyday life can a common, communicative, surrounding world be constituted. The world of

<sup>9</sup> For the English reception of Heidegger’s term ‘being-in-the-world’, see the Stanford Encyclopedia of Philosophy 2016.

<sup>10</sup> In principle, it is quite tricky to translate the German phenomenological terminology into English. ‘World-life’ is the translation in the Encyclopaedia Britannica. Cf. Life-World 2016. In preparing this contribution, I tried to find out how the German terms are used in the English-speaking discourse and grasped as many phrases as possible. It is not rare that the authors use the original German term; often they struggle to find the correct translation, exceedingly when German authors like Heidegger and Husserl use language games to express their thoughts.

<sup>11</sup> Manfred Sommer (1980, p. 42) points out that the term life-world was brought into a wider public through Heidegger’s analyses of Husserl’s contributions.

everyday life is consequently man's fundamental and paramount reality.

(Schütz and Luckmann 1973, p. 3. German original: Schütz und Luckmann 1979, p. 25. The authors refer explicitly to Husserl's conception. The footnote was omitted in this citation.)

In radical thought, nobody is able to escape from everyday life. The idea of objectivism of the (natural) science approach is ultimately a fictional thought from somebody in his or her life-world. We are always, according to Heidegger, in-the-world. His already above-mentioned term 'being in-the-world' is from his main work, *Being and Time*. Heidegger emphasises:

'The "essence" of being there lies in its existence' (Heidegger 2006, p. 42). Only people exist and are able to reflect on their existence (cf. Zahavi 2007, p. 46). Following Heidegger's argumentation, this means that each individual is the centre of his life-world. To illustrate this, it is reasonable to pick up Heidegger's differentiation of 'space' and 'body'.

Spatiality in Heidegger's phenomenological approach does not mean the Cartesian concept of space. It refers to a space that emerges through doing things (cf. Heidegger 2006, p. 102ff). Only by using things is one able to figure out sense. The context of use focuses not on existing things but on the pragmatic contact of someone with the things. Dealing with objects makes them functional and gives them sense.

What does that mean for DBR? From a phenomenological perspective school work does not exist as an 'unchangeable' object. It emerges for the researcher through his interactions with actors in school. In the project I refer to, this means e. g. that researchers go into school, participate in schoolwork or establish working groups with teachers and others from the so-called 'school world'. The interaction between researchers and practitioners is the basis to construct knowledge about this 'school world'.

Therefore, the phenomenological approach establishes, in addition to a physical spatiality, an *action-based concept of space*. An individual<sup>12</sup> is the centre of this space, which also implies that there has to be something that perceives the space. This leads to the concept of body. There is a long-going discussion in philosophy about the link between the natural (physical) body and mind. In the phenomenological approach, mind and body seem to be two perspectives of the same object. In the rational tradition, a dualism of body and mind as well as of subject and object is stated. Heidegger disagrees with this assertion.<sup>13</sup> For him, objects are always phenomena in perception of a subject, and the body is something like a resonance chamber of the 'outside' world. For Heidegger, this includes that human beings are bodily. Thus Heidegger (1979, p. 8ff) writes in his lessons on Nietzsche:

We do not "have" a body; rather, we "are" bodily. [...] Most of what we know from the natural sciences about the body and the way it embodies are specifications based on the

<sup>12</sup> I am referring here to an individual person knowing that Heidegger, for example, concentrates on human being as the starting point. The term 'human being' is my translation of Heidegger's term 'Dasein' in the book *Being and Time*. In English contributions, the German term 'Dasein' is used. Heidegger's fundamental starting point is the differentiation in a general being of all things (Sein) and the special being of humans (Dasein) or human beings (to use the correct English term). Only people (individual persons) are able to reflect and think about themselves. Thus, they are a special kind of being. Maybe they can be called reflective beings, but what is important is that from the phenomenological point of view, these mindful subjects are part of the world. To be precise, they cannot step out of the world, but they reflect it and are, as I will discuss following Heidegger, the centre of the life-world.

<sup>13</sup> At this point of the contribution, an excerpt about dualism as the basic assumption of the rational approach would be interesting. However, this is not possible in this contribution. I will only sum up Heidegger's position. He thinks that there is no distinction possible between the subject and the world that this subject is embedded in (cf. Heidegger 2006). Everything refers back to the subject and has to be de-constructed in the perspective of the subject. The result is that truth, knowledge, etc. are always part of the subject. The dualistic position that the object exists outside of the subject or without the subject is a simple fiction or, in modern terms, a construction of the subject.

established misinterpretation of the body as a mere natural body.

In a similar meaning, Merleau-Ponty speaks about the bodily being (cf. Merleau-Ponty 2002). In both approaches, this bodily being (Merleau-Ponty) or this living body (Heidegger) is the centre of the individual's life-world. The fundament again is Husserl and his differentiation between the lived body and physical body. There is a grand debate on this aspect in the literature. The main idea is a Phenomenology of Embodied Subjectivity (cf. Jensen and Moran 2013).

In an *action-based approach to space*, the subject perceives his world by doing things. These activities are situated and are experienced through the body as a resonance chamber. An example sometimes used in the literature to illustrate this perception is a person who uses his hand and arm to touch something. The experience is that the person and his hand and arm perceive something and that this is accompanied by a familiar feeling. A numb arm feels unfamiliar and leads to an external perception of the arm (cf. Zahavi 2007, p. 72f).

This can be understood as doing something in a situation. Being-in-the-world can be interpreted as being connected in the here-and-now of a situation and receiving what happens (cf. *The Cambridge Companion to Heidegger* 1992, p. 23). The situation is a context of life (*Lebenszusammenhang*) and a natural flow of experiences. It comprises (a) an event (*Ereignis*) and not a process (*Vorgang*), (b) is relatively closed (*Geschlossenheit*), and (c) never detached (*Unabgehobenheit*).

#### 4.2 The first-person perspective and the 'encounter of the others'

As the phenomenological approach neglects dualism and objectivism, the protagonist considers a 'first-person perspective'. This is not only a psychological concept according to the difference between 'I talk' (first-person perspective) and 'he talks about that' (third-person perspective) but in particular a transcendental approach (cf. Zahavi 2007, p. 17).<sup>14</sup> The situation and the person are inseparably connected (cf. Merleau-Ponty 1966, 489). This has a narrative and an epistemic characteristic.

The first- and third-person narrative refers to the viewpoint of argumentations. By using the third-person narrative, the subjects suggest a neutral description of the things as if there were no subjectivity in the thoughts put into text. In contrast, the first-person narrative connotes an individual position. The thoughts are connected to a person and the text, and thus the documented thoughts seem to be subjective.

The epistemic aspect is about inter-subjectivity. Indeed, the phenomenological concept stresses the individual embodied thinking of a subject in his life-world. Following the train of thoughts of Husserl, Heidegger, Merleau-Ponty, and others as done here, only the perceiving subject can develop certainty about his thoughts. The outside world is a reflection in the re-

<sup>14</sup> In the transcendental philosophy, ontological concepts are developed on the basis of what we know. It is epistemic, and we have to take here into consideration that in the phenomenological tradition, this is not thought of on the basis of Descartes' dualism but as an embodied perception of the subject.

sonance chamber of this subject. The question arises: how can I know what others know, and how can I be sure that these others know what I know (cf. Zahavi 2007, p. 67f)? This is also one major criticism of Jürgen Habermas (1988), who pointed out that language is a necessary fundament for a dialogue between subjects. This has to be taken into consideration to avoid a solipsistic trap. Therefore, it is important to work out how the others and their perceptions are conceptualized in a phenomenological concept. This has something to do with the question of whether inter-subjectivity exists in the phenomenological approach.

In the DBR project which I here refer to we developed among other things learning arrangements (learnAr) to foster self-regulated learning. According to the mentioned working structure in this project (see Figure 1), the researchers informed the practitioners and moderated the focus groups who had to develop this prototype (learnAr). They visited the teachers in school when they implemented the arrangements and they discussed the results and teachers' experiences after the implementation. The researchers' experiences were not only based on information on the process or through evaluation of the results; also the corresponding activities of researchers and practitioners influenced them. From the researchers' point of view, discussions with practitioners but also the communication between participating researchers lead to some kind of general understanding about what is going on in these projects. This is at the first sight a narrative and gives the impression of story telling. But it has also some kind of evidence because the stories have rules, become structured and explain indeed what is going on in this world of practitioners. On a second sight this means (a) empathy exists as a mode for discovering knowledge, (b) the narratives are put into words and thus have been put into texts and (c) there are different perspectives in the field.

Thus three responses are possible referring to inter-subjectivity: empathy, textual reality, and the second-person perspective.

#### 4.2.1 On Empathy

For Max Scheler (1973, p. 25f), empathy is the ability of human beings to become infected by the emotions of others. This is called emotional infection (Gefühlsansteckung). It is not a cognitive perception, but it is an emotional reaction. 'The process of infection presupposes no knowledge of the cause or the origin of the emotional mood' (Ranly 1966, p. 43). This concept of empathy is based on the deep involvement of the subject. Referring to the terms used above, this can be seen as a kind of non-cognitive perception in the individual resonance chamber.

Edith Stein (2016, p. 33ff) interprets emotional infection as a theory of imitation. Further modes of empathy are in her concept the theory of association (cf. *ibid.*, p. 37ff) and the theory of conclusion by analogy (cf. *ibid.*, p. 40ff). Sensitive understanding therefore appears in three modes:

- As imitation: I suffer with someone else



- As association: I remember myself suffering the way someone suffers
- As conclusion by analogy: I see myself suffering

In all three modes, I have to reflect on my own feelings to find out what is going on with the other. This is an experience of others and makes it possible for me to bring this experience to mind. Then, a dialogue with the other could start to give me insight into the other's life-world.

The mentioned work on developing learnAr had phases where the researchers had to give advice. They were consultants. Researchers as counsellors not only give information but also have to re-construct the problems in this case of the teachers, work out the background of the problem in co-operation with the teachers and develop strategies together to solve the problem. In the daily work of our project this leads to situations where the researchers not only thought about things happening in a cognitive mode that had to be documented. They were involved and often understood what was going on in school on the basis of the mechanism here called sensitive understanding. Interesting and important is in fact how these consultant experiences of the researchers can be transformed into the knowledge production of the DBR approach. We try to handle this with the writing of a research journal and with discussion groups. In both cases, the idea is to reflect in a writing process on their own experiences in the field. Texts are produced.

#### 4.2.2 On Textual Reality

The consequence of being-in-the-world is not only an individual life-world. We share situations with each other, which means that we share interpretations (cf. Cicourel 1974) and backgrounds (cf. Garfinkel 1999). Meaning in everyday life is linguistically distributed and is manifested in texts. According to Hans-Georg Soeffner (1983, p. 39ff; 1986, p. 140), social reality is mediated textually. This assumption finds its radical proponent in Jacques Derrida (1986): there is no outside-text. Everything has to be put into a textual form or it does not exist.

In a daily work of a DBR project the matter of text production is not as existential as Derrida points it out but in an ongoing research programme only those things can be taken into consideration which have been put into words. Thus producing texts is really important. I will come back to this point later on (see Figure 6).

#### 4.2.3 On the Second-Person Perspective

In the last decade, researchers from the field of neuroscience and social cognition have integrated the idea of the 'first-person perspective' into their approaches. They try to combine the rational approach (third-person perspective) and the phenomenological one (first-person perspective) (cf. Gallagher 2001; 2008; Zahavi 2001). The intention is to establish connections between

the insight view and the outside explanations. This is called the second-person perspective.

While the first-person perspective refers to an introspective approach and the third-person perspective defines the other as an object, the second-person perspective accepts the other as an individual with a consciousness. Understanding someone therefore means to get into a personal interaction between at least two subjects: 'It is through immediate perception of, and embodied interaction with others that we gain our primary experience of their feelings and intentions, without recourse to inner theories or simulations. This approach focuses on the expressive bodily behaviour, inter-bodily resonance, intentions as visible in action and the shared situational context in order to explain social understanding' (Fuchs 2016).

Or in the words of Alfred Schütz, social activities are 'face-to-face encounters' (cf. Schütz 1967, p. 162).

These face-to-face-encounters were typical in the DBR project which I refer to. Discussing the implementation of learnAr for example always leads to a communication where the researchers' third perspective has to be matched with the practitioners' first perspective.

The examples for empathy, textual reality, and second-person perspective from one work process in the case study illustrate what inter-subjectivity in phenomenological approach refers to. It is not the idea of implementing research methods to receive identical results like it is understood in the Cartesian approach. Inter-subjectivity refers to a matching of experiences of actors in a communication process between researchers and practitioners as well as between researchers involved in the project itself or in similar projects.

### 4.3 Uncovering structures: Epoché and reduction

Life-worlds are mediated linguistically and textually. These utterances are indexical in both intention (sense or meaning) and extension (reference). In a structuralism sense, they are a surface structure. The underlying deep structure can be discovered through phenomenological reduction (cf. Garfinkel 1999, p. 4; Bergmann 2000). This is possible by a process of suspending judgements and situational implications and influences. This bracketing should help the subject cast off prejudices; thus, we can concentrate on the phenomenon (cf. Zahavi 2007, p. 22). This leads to structural knowledge or, referring to Berger and Luckmann (2011), to social constructions. Husserl (1962, pp. 154, 238) calls this a transcendental reduction (or epoché), and he distinguishes between noema and noesis. Both terms refer to the originally Greek term 'nous' (mind). 'Noema' can be understood as the content of the perception. It is the result of thinking (thought). 'Noesis' is the mental act of thinking that leads to the content or, more simply, the result of the thinking:

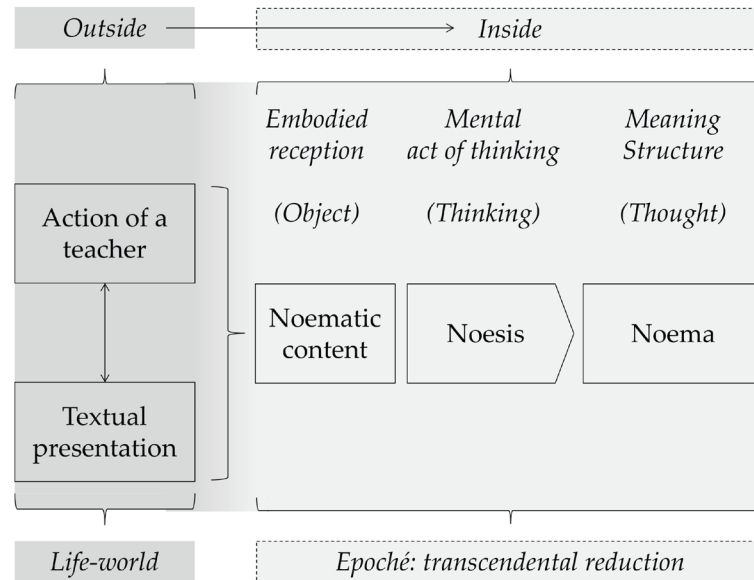


Figure 2: From outside to inside – Teacher actions as examples of generating knowledge in the phenomenological approach

Figure 2 is a brief overview of how knowledge is generated in the phenomenological approach. Based on the example of a teacher’s activities in the documented case above, the following implications become visible. The activities of a teacher are embedded in his life-world and textual presentation. Typical texts are: a teacher’s diary, video-documentation, a notice from a participating researcher, etc. From the researcher’s point of view, all of these utterances are noematic contents he perceives and reflects on. Technically, the noematic content is a kind of mental representation of the outside object that is transmitted from thinking (noesis) to knowledge (noema).

This is indeed not very far removed from the Kantian position. Kant (1781) emphasizes in his treaty on pure knowledge that all knowledge is based on perceptions and transformed by the intuition of space and time into real knowledge. Husserl as well as Kant saw a shift between thinking and thought. In Kant’s conception of dualism, thinking is the subject that generates an object as perception-based knowledge. This implies that the truth lies outside the person and establishes empirical evidence. The person itself is in Kant’s approach a fiction on the basis of thinking (cf. Kant 1781, p. 278) because ‘the subject has no knowledge of himself’ (Ibid, p. 350, author’s translation). Husserl now puts the ‘dualism’ into the person because the internal process of thinking refers to noematic content. This content is already intra-personal. In this case, the implication is that truth lies inside the person, and subjective or internal evidence is established. The person in this case is also a fictional subject.

From an analytical point of view, the creation of knowledge is a profound matter because the rules of constructing knowledge are vague. If bracketing is seen as rational, then there is an expectation of a rule like the following:



$a \in A$  with  $A = \{ a: T(a) \}$

Read:  $a$  is an element of the set  $A$ , and set  $A$  comprises all which have the attribute  $T(a)$ .

This interpretation of ‘bracketing’ would be rational and empirical and would refer to the extension (scope) of the concept. However, noema is not a rational construction, and noesis is more intuitive than rational. Thus, we are not skipping elements but are trying to distil sense. Dan Zahavi (2011) emphasises that Husserl called this a shift in the reflection. This is like a sudden insight and has a totally different purpose than a rational deconstruction. It is focussed on the intension (meaning) of the concept.

#### 4.4 Explanation and understanding: Crossing borders again

Finally, Jürgen Habermas (1981, p. 180)<sup>16</sup> works out the difference between explanation and understanding:

1. An explanation is sought by observing everyday life. This is an analytical concept; an explainer analyses from a distant position. This person is outside the situation, analyses it from this point of view, and wants to receive neutral information about what is going on in the situation.
2. Understanding is sought by participation in everyday life. This is a hermeneutic concept; understanding means participation. The person who follows this approach is inside the situation and therefore gives up the distance.

Referring to Heidegger (2006, p. 105), bodily embedded reception is exactly a matter of distance. In his concept, human beings are not able to attain distance<sup>17</sup> from their life-worlds. ‘Being-in-the-world’ implies that we cannot escape from a situation. In the words of Sartre (1993, p. 562ff), the embodied perception of the individual is the absolute centre of the situation.

Jürgen Habermas contrasts the phenomenological approach of understanding as a process of participating in the situation with the analytical approach of explaining the situation from a distance. These are indeed two completely different paradigms. Logically, you only can work with one or the other concept. Researchers can use both paradigms. They can shift from one to the other, but they cannot slide them into one another.

If we refer to the work in design projects and similar co-operations between research and practitioner groups, we have to understand that from the researchers’ point of view, both modalities are possible, but they have to be distinguished. Werner Kirsch (1997, pp. 152–160) emphasises this in the style of Habermas as a separation into two life-worlds: the research world and the practice world. These worlds are incommensurable as already mentioned: you can only be in one or the other world but not both worlds at once. Both worlds differ according to the acting persons, the culture, and the existing rules (institutional structure), as seen in Figure 3.

<sup>16</sup> Jürgen Habermas would likely not see himself as a phenomenologist, but I summarize his position under the concept of continental philosophy and see him in this position as an opponent to rational-analytical positions.

<sup>17</sup> Heidegger uses the term ‘distance’. This is ‘Entfernung’ in German. He writes it as ‘Ent-fernung’, which leads to a different interpretation because the word stem ‘fern’ means far away. The prefix ‘Ent-’ makes this an opposing phenomenon similar the English prefix ‘dis-’. Thus, distance is used in the sense of being near even if the term ‘Entfernung’ in common German simply means the distance between two points.

Acting persons	Competence (capability and knowledge) of the persons. Their capability to act successfully in the life-world.
Culture	Social knowledge of the persons. Their capability to interpret the life-world correctly.
Existing rules	Social order in the form of norms and institutions (mostly implicit). Regulations on interactions in the life-world.

Figure 3: Differentiation of the life-worlds – Research and practice (Source: Kirsch 1997)

The basic assumption of the phenomenological approach is the unalterable fact that everybody is integrated in a life-world, and nobody is able to dissolve out of it. This is the fact of existence, and implies that being-in-the-world is the starting point of every kind of reflection on the social world. This world is not a world of objects but a world of doing. Thus, subjects discover it by acting. The body of the subject is the recipient of all activities in the social world, which then implies that knowledge is linked back to the body. The living body is the holistic counterpart of the physical body. As a consequence, truth and evidence have to be found inside the subject. Bodily thinking is a resonance chamber for the outside world.

Of course, the phenomenological terminology and the daily experience in DBR projects seem to be quite different. But this is in the end due to the fact that these are two different life-worlds. What the phenomenological approach according to the working process of researchers in DBR points out is that these researchers change the life-world. When the researchers of my group go into schools as they do in the case study described they have to accept the existing rules and understand the culture in this 'school' world; they have to locate the acting persons, the often implicit hierarchy, and the sometimes informal obligations in this world.

Some examples show how important this is: The researchers had to find out the role of the headmasters in the participating schools, they had to understand how informal groups in the different schools react, they had to learn how the participating teachers define their roles in the process a. s. o. And it is not only important to know these things which often seem to be quite simple. But at the beginning of the co-operation with schools researchers cannot really know what really is important. They have to find the right questions and locate the structures of the 'school' world.

Unfortunately, there often is no manual of relevant questions researchers can take with them when they explore the 'school' world. Thus in the here-mentioned case we had to learn how the schools work and what really goes on there. Of course we were prepared by research results but that only could help us to get into the school. Bodily thinking as the phenomenologists call it now means that we participate as human beings with other human beings. Going into school takes us, the researchers, into a situation where we are part of the interaction, for example with teacher groups or with headmasters. They have to un-

derstand what is going on. According to Figure 2 we generate knowledge in a process in which we generate structures of the 'school' world. In the phenomenological terminology this means that a mental act of thinking (noesis) takes place where we transform an embodied reception (noematic content) into a meaning structure (noema).

Putting this idea into the daily work in design research this refers to a situation where I am confronted with a strange surrounding and try to find out how things work in this situation. Examples are: the first meeting with headmasters or the focus group.

Now, to avoid a solipsistic trap, it is necessary to understand how an individual person can have certainty about others and how people can be sure that they talk about the same things and understand things in the same way. As the phenomenological approach assumes that human beings live in a social world, they have joint experiences. Inter-subjectivity is not thought of as having the same result according to knowledge about objects, as in the world of natural things. Instead, in a world of doing, inter-subjectivity refers to acting experiences. Consequently, this leads to an approach of co-activities or corresponding activities.

Following this line of thought, the interaction between subjects is important. As a variation of Heidegger's 'being-in-the-world', this can be paraphrased as 'going-into-the world'. Thereby emerges the idea that researchers go into the world of practitioners to find out what is going on there.

## 5.0 Knowledge Searchers in the World of Practitioners

### 5.1 Booty from practice: Design principles and other useful things

According to Dieter Euler (2015, see also Euler and Sloane 2016), DBR projects are built up as revolving co-operative work-processes of practitioners and researchers. The iterative cycle has phases: (1) identifying and clarifying the problem, (2) theoretical foundation, (3) development of the design, (4) testing and formative evaluation of the design, (5) creation design principles, and (6) intervention and summative evaluation.

I want to pick out two phases from this circle: the theoretical foundation and the creation of design principles. In an idealistic view of this circle, researchers are involved in these two phases and play an active part in the work. The theoretical foundation can be understood as input, for example, via a workshop or talk with the practitioners. The creation of principles expels at the reduction process. The researchers have to bracket all subjective influences and irrelevancies and define the central idea or general structure. One quite interesting aspect of these two working contexts is their similarity to the two possible modes of hermeneutics in Hans-Georg Gadamer's (1972) treaty on Truth and Understanding. Understanding and applying are the two perspectives (cf. Di Cesare 2009, pp. 122ff) of the hermeneutic approach. Understanding can be seen as the act of deconstructing the design activities to find the general structures (subtilitas

intelligendi). This is similar to Edith Stein’s concept of empathy (see above 3.2.). In contrast, to apply means the application of a theory or knowledge to a situation (subtilitas applicandi). From a hermeneutic point of view, a situation is always a special case of a general principle. On one hand, these principles can be constructed on the basis of a case, while on the other hand, cases are applications of knowledge. This is indeed a circle of understanding and applying.

However, researchers are not involved in only these two phases. They only seem to be quite obvious for reasons of co-operation. Additionally, the researchers can and will be involved in the other phases. It is quite important to define the role of researchers in all phases of the design circle. At minimum, they will be observers, and according to Edith Stein’s concept of empathy, they will be involved emotionally in what is going on in the work process.

A special feature of DBR is the development of concrete solutions to explicated problems. Principles such as general knowledge of situations are used to focus on problems. However, this knowledge is not codified only as principles. You find it incorporated in the material developed in the design process. Figure 4 illustrates the types of products on hand of the introductory case. This was on the development of instruments, material, syllabuses, etc. to foster self-regulated learning.

<i>Background</i>	
Design studies in 12 schools in a period of 4–5 years Dissemination through further education for 5–8 years Adoption of new educational programmes (running at the moment, planned for 5 years)	
<i>Material (Prototypes)</i>	<i>Design Principles</i>
Narrative learning situations Teaching and learning units Media and material Alternative diagnostic approaches Concept for the development of courses Annual plans for vet programmes Concepts for further education	Structure models (didactical approach) <ul style="list-style-type: none"> <li>- for designing process-oriented courses</li> <li>- for designing learning situations and learning units</li> </ul> Principles of sequencing of learning situations and didactic units Principles for the measurement of competences Concept for the implementation of the programme Principles for the implementation of courses
Manuals for the school work Development of new syllabuses Companions to handle typical problems Publication	
<i>Documentation</i>	

Figure 4: Booty from practice – What researchers found in a project (a selection)

The above figure gives an impression of what kind of knowledge is generated in DBR programmes. The working framework of the case is added, and it is visible that the development of the material is based on an ongoing working process of more than ten years. That is, in my opinion, quite typical for this kind of research programme. They need time and have different phases. In this particular programme, the first development phase was nearly five years long, followed by an initiative to disseminate the results. This dissemination process gave some insight into different contexts and made it necessary to modify the material. At the moment, we are adapting our results to a new programme with a slightly different target group. All of this work leads to a differentiation of our knowledge.

## 5.2 Challenges of 'going into the situation'

### 5.2.1 Language and Text in Life-Worlds

Summing up the previous thoughts, it can be emphasized that researchers have to implement different working processes into co-operation with practitioners. This was already framed in Figure 1. In more detail, this can be seen as a range of different tasks researchers have to master. Working in the field means changing the life situation and makes it necessary to cope with the rules that exist in this field. It also includes, according to Figure 3, learning about the relevant knowledge and understanding the cultural settings.

Researchers are confronted with these, and they will have to learn to understand these perspectives of the field. They receive indexical phenomenon (contextual utterances) and have to transfer these into general structures. This is a process of interpreting the received contents. The utterances are narratives and refer to typical situations. Finding typical structures makes bracketing necessary. Only when these structures are found will it be possible to work out nomothetic knowledge. This implies that every empirical approach is based on a phenomenological recognition of a structure.

Thus, a differentiation between structural and nomothetic knowledge is necessary. While structural knowledge links contextual utterances to general patterns, nomothetic knowledge can have three different emphases: statement, reason, and justification (cf. Terhart 1981, p. 769). This is quite similar to a distinction in Gestalt psychology. There, you find a discrimination in ontological and nomological information according to the structure of the elements of a field (ontological) and the relationships between the elements of this field (nomological) (cf. Winnefeld et al. 1957, p. 37f).

Structural knowledge		Nomothetic knowledge		
Story	Structure	Statement/rule	Reason	Justification
Narrative context (special case)	Pattern (general interpretation)	If ..., then	... because	To ...
topic (topoi)		Nomological	Causal	Final
Case → Pattern		Cause → Effect	Incident → Reason	Motif → Incident
Understand		Explanation		
Participant status		Observer status		

Figure 5: Structural and nomothetic knowledge

### 5.2.2 The Eureka Moment in Life-Worlds

In German educational theory,<sup>18</sup> there is a didactical tradition<sup>19</sup> of forming the students with educational contents. The idea is that learners are affected by these contents and that they build up capabilities, abilities, motivation, etc. Wolfgang Klafki (1963)<sup>20</sup>, a main proponent of the educational theory, described this as a culminating fruitful moment in which the subject has a deep insight into the content. For Klafki, this is the result of a ‘double-sided exploitation’. In the traditional German concept of ‘Bildung’,<sup>21</sup> an exploitation is normally considered. A subject (formal perspective of the educational process) exploits an object (material perspective of the educational process) and picks up the incorporated sense. This exploitation is in the humanities tradition seen as a double-sided process, as at the same time the object also exploits the subject. Dealing with content fosters knowledge and leads to capacity enhancement. This enhanced competence then retroacts on the way the individual now deals with the content. The view on the content has generally changed. This is a circular process that is compatible with the phenomenological approach.

The double-sided exploitation can be described as bodily reception of mental content. Noesis implies that the general meaning of the content is distilled. The educational interpretation now is that this retroacts on the reception of the content. It is noteworthy that this is seen as a fruitful culminating moment of change. This idea was introduced originally by Friedrich Copei (1960), who himself was influenced by Edmund Husserl. He emphasizes that there is an ‘original moment in which new knowledge awakes in us like a lighting, a new mental content grips us’ (ibid., p. 17. Author’s translation, P. SI).

This is a priori knowledge. It is a eureka moment, which is the sudden understanding of what is going on, for example, in a situation with practitioners.

Eureka moments are not so seldom in design research. In the project I refer to, we often had these moments in workshops

<sup>18</sup> I am referring here to a humanities concept of education called the educational theory or in German, the Bildungstheorie.

<sup>19</sup> For insights into the German tradition on ‘Didaktik’ as a ‘reflective practice’, see Wesebury et al. 2000 passim.

<sup>20</sup> For an English introduction to this conception, see Klafki 2000.

<sup>21</sup> Roughly, this can be translated as education, but it means far more in the German expression, as I will try to show.

with practitioners. In these meetings often two or three researchers from the Paderborn group participate. The research group develops the programme of the workshop on the basis of feedbacks from the practitioners. During the workshop itself, one of the researchers moderates the discussion or some kind of working process while the others are participant observers. The practitioners' explanations are often long-winded, cumbersome, and full of details. They go and lose themselves, sometimes. And in these situations we often have a moment when one of the researchers forms a pattern to generalise the ideas of the practitioners. This is often presented in a panel painting.

It then is hard to decide if this is the structure of the practitioners' everyday knowledge or if it is the researcher's interpretation that slightly differs from this knowledge and therefore maybe is a new common view on the practitioners' experience. At the end this 'ownership' question of knowledge is in a phenomenological approach not the central aspect, as the world in this concept is an action field the developed structure is common knowledge in the working group.

### 5.2.3 Topoi: Patterns of the Life-World

In Figure 5, I mentioned the term 'topoi'. It refers there to the logic of stories. In the Aristotelian poetic, a topoi is an action pattern, and in literature, it is the typical motif of the story. We have implicit knowledge of these frameworks. This regularly expresses itself in our reception of stories, fictional as well as non-fictional. For example, in our culture we know quite well what happens when Romeo meets Juliette. We can interpret it dramatically as inevitably tragic and also as some kind of negation. In the second case, a comedy could be formed if Romeo were to climb up to the balcony and fall down. To defend against the motif changes, the story in this case may change from dramatic to comedian.

Participating in practice gives researchers the possibility to experience social interactions and find out, maybe in one of these eureka moments, why things work the way they do because all of a sudden, an action pattern may become visible. In a more pragmatic sense, the researchers have to discover the logic of the narratives.

### 5.2.4 Validity

To validate the logic of the narratives, a communicative validity is necessary. According to ideas of Jürgen Habermas (1981) on communicative rationality, it is essential to find a common level of communication to discuss the meaning of utterances. As already shown, these statements are codified text. Thus, it is a matter of communication on and through media that concerns text validity. With Ewald Terhart (1981 pp. 773), two communication levels can be distinguished: a communication between researchers and practitioners and one between researchers. These are two so-called hermeneutical fields.



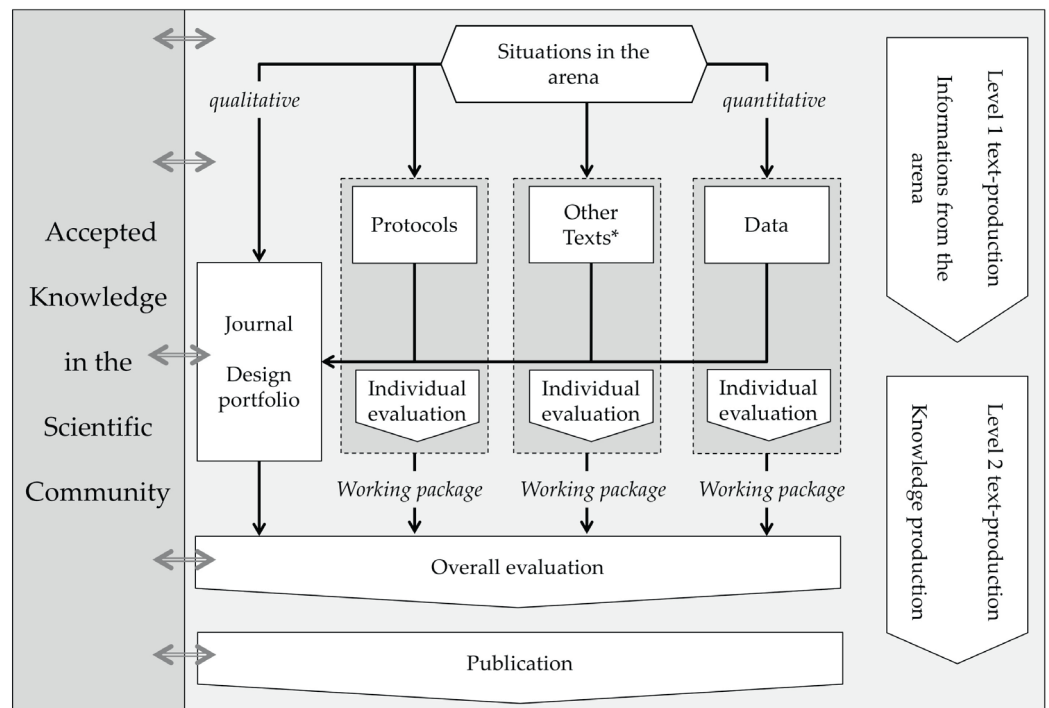
- Hermeneutical field 1: communication and co-operation in the arena between researchers and practitioners.
- Hermeneutical field 2: communication and co-operation in the scientific community between researchers.

Hermeneutical field 1 refers to commitments in the arena. The actors have to find out if they are talking about the same things. The arena has, from the researcher's point of view, the function to gather information. A lot of documentary texts will be produced here which have to be interpreted.

The function of hermeneutical field 2 is to link back the experiences won in the arena and validated in field 1 to the knowledge accepted in the scientific community. This has to be seen in connection with the hermeneutical interpretation (see 4.1.).

### 5.2.5 Text Corpus

As seen, DBR projects generate different text types. There are texts produced in the arena which have to be validated in hermeneutical field 1. These are primary texts. Data collections are a subgenre of this kind of text. Primary texts are the basis for interpretation in the research group. This interpretation leads to further texts that I call the secondary texts. These are texts generated from primary texts to find more general knowledge. Finally, these texts are condensed to those publications that will be presented and discussed in the scientific community. Figure 6 summarizes the text production in the case from the beginning of this contribution.



\* Other texts: Curricula, concepts of the practitioners, memos, etc.

Figure 6: Text generating in design-based research projects



## 6.0 Beam me up, Scotty – Back at the home base

In Star Trek episodes, especially the older ones, the crew copes with a lot of adventures. They learn new things, but at the end of each episode, they have to leave. Satisfied with the work done, they give their starship a call: 'Beam me up, Scotty!' The crew then disappears from the surface of the once-strange planet. Captain Janeway, my favourite commander, often takes a long look at the planet displayed on the monitor in the ship's bridge before resuming the adventure. It is a short glance back, but it also embodies the idea of continuing to somewhere else.

This happens in design research, too. Working together with practitioners is always a temporary affair. This implies that researchers have to accept, as well as practitioners, that their joint time is limited and that they will part ways after some time together. It has to be accepted from both that they are people from different life-worlds. Therefore, the aims of practitioners and researchers are different. This becomes even more important if we broach the issue of the role and special interests of politicians in the arena.

The main intention of this contribution is to reconstruct design research on the basis of a phenomenological approach. As I mentioned at the beginning of my argumentation, one problem in the communication done in design programmes is the reception of those who work with the established, analytical, rational approaches. Often, the background assumptions are not expressed, which often makes communication problematic because questioning the research design then happens without understanding the special assumptions in this kind of research work.

Indeed, a long-going tradition of humanities can be claimed with sophisticated arguments for why research in the life-world of practitioners is possible, fruitful, and reasonable. From this point of view, the contribution is an attempt to reflect one's own work in social fields. Therefore, I want to end with a few final remarks about those things I could only refer to briefly and those things I had to skip.

1. Participating in social fields is a learning process for researchers. According to the German tradition of didactics as reflective practice, this implies that one's own learning process should be reflected.
2. Understanding the social world as a world of doing implies an action-based concept of research that also fits with the idea of research as learning. Strictly speaking, research is a kind of problem-based learning.
3. Co-operations between practitioners and researchers will only succeed if both groups have the competence to do this work. In my experience, it was often part of the research work to prepare the practitioners for co-operation. This is, according to the headline of this contribution, a new and additional challenge.
4. In talks and papers on DBR, it often is stated that the community of practice is far more successful than the community

of research when it comes to innovations in practice. I doubt this sharpened thesis. This can be true sometimes, but I often experienced that in this kind of co-operation, the innovative power was the result of good communication and co-operation where both sides brought in their strengths. This again hints at the role of researchers as consultants, critical friends, facilitators, knowledge mediators, etc. This also is an invitation to think about the implications of the headline.

5. Finally, the experience with empathy, eureka moments, and other things which are common in humanities and strange in the analytical approach wobbles the comfortable chair of observers who want to stay outside of the world.

Going into fields is an opportunity for researchers. My intention was to illustrate how this kind of work can be classified in the philosophy of science. My train of thought may sometimes give the reader the impression that this is an alternative way of research. However, it is not my pretention to stand up for a new paradigm. On the contrary, this contribution should be understood as a trial seeking more possibilities to find knowledge. It is not a new dogma.

Following Jean-François Lyotard, paradigms are contemporary grand narratives. Thus, we make narratives about narratives (metanarratives). Maybe this explains why it is not necessary to cling to one and only one paradigm with the result that other approaches are seen as mistakes or worse. My personal opinion is that everything is possible. Therefore, in the words of Paul Feyerabend: 'Anything goes'. However, he will not have the final say because that has not yet been spoken, as the Enterprise continues exploring. 'Beam me up, Scotty!'

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