

# **Development of Geography Teachers' Capacity to Evaluate: Analysis on Coping with Complexity and Controversiality**

**Stefan Applis**

*Justus-Liebig-University*

**Janis Fögele**

*Justus-Liebig-University*

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## **Abstract**

The educational standards in geography in the German-speaking world separately refer to the areas of competence of judgment and evaluation and thus attach outstanding importance to reflective value-orientation in geography classes. Therefore, coping with complexity and controversiality has become a core challenge for geography teachers, particularly in the subject areas of Global Development and Global Learning, which are analyzed in a qualitative-reconstructive research project of responsive evaluation, and on which this article is based. The study has shown that the treatment which the teachers underwent during the training could cause their deeply inscribed subjective theories on geography instruction to become explicit in joint discussions and thus became accessible to dealing with them and reflecting on them.

**Keywords:** competence research, teacher competences, controversiality & complexity, qualitative-reconstructive social research, documentary method

## **Introduction**

### **Challenges for Geography Teachers in Coping with Complexity and Controversiality**

In consequence of the introduction of the Educational Standards in Geography (DGfG, 2012) by the German Geographical Society (DGfG) the areas of competence of judgement & evaluation attach outstanding importance to reflective value-orientation in geography classes with the aim of making a key contribution in dealing with important challenges of the 21st century. Therefore volitional, motivational and social aspects have to be considered particularly significant, e.g. expressed in the superordinate goal of education for sustainable development and supposed to enable people to:

apply knowledge about sustainable development and recognize problems of unsustainable development [...]. That means [to] draw conclusions about ecological, economical and social developments in their alternate dependency from presence analysis and future studies and [to] make decisions based on them, [to] understand and be able to enact them individually, collectively and politically, with whom sustainable development processes may be realized (de Haan 2007, p. 4).

It's clear that geography teachers themselves have to possess highly-developed competences in dealing with factual and ethical complexity. First of all, they have to grasp and organize continuously changing scientific opinions without always being able "to verify or falsify single statements or calculations in order to find out which are the 'right' basic assumptions and therefore the 'right' results" (Ohl 2013, 5). Therefore, geography teachers must possess strategies for complexity reduction as well as the competence of relating corresponding strategies to the students (Fögele & Mehren 2015, 58). Furthermore, they have to possess distinct ethical-reflexive competences; abilities to use discursive teaching methods that moderate controversiality without overwhelming the students with "the one right solution" that cannot exist anyway (for results on pupils dealing with complexity and controversiality, see Applis, 2014, 2015).

In German geography didactics, the working groups surrounding Rainer Mehren and Stefan Applis at the universities of Nuremberg and Giessen have devoted themselves to an empirical examination of the question which teaching competencies are required for the successful implementation of complex methods such as Thinking Through Geography strategies and the development, by the teachers themselves, of corresponding teaching materials (Leat, 1998). So far, this author's projects concerning German geography teaching represent the only investigations whose challenges and potential motivating and supportive measures can be formulated for sustainable teacher training (Applis, 2016; Fögele 2016).

## **Research**

### **Research design**

This article is based on interpretations of teachers' stories, experiences and assessments being surveyed in group discussions. On basis of the results foundations for the development and execution of teacher continuing education with the objective of sustainable implementation shall be developed (based on the four levels of effectiveness, following Lipowsky & Rzejak, 2012; for international perspectives in regards to combining teacher training and related research endeavors see Chalmers, Keown & Kent, 2002). The project is divided in the following phases:

- *Phase 1:* Creation of a learning arrangement (topic “International Textile Industry”) with the objective of encouraging moral judgments (teaching methods: mystery method by Leat (1998), dilemma discussion method by Kohlberg (1976)) for execution in the geography class.
- *Phase 2:* Execution of four continuing education classes for teachers (25 participants each) followed by eight group discussions with five to six participants each.
- *Phase 3:* Reconstructive interpretation of the group discussions with the documentary method (compiled with regard to documentary interpretation and discourse analysis by Bohnsack (2003); for international perspectives compare response evaluation by Stake (2004)).

Knowledge of the following questions is pursued:

- How and where does learning show itself in an open discursive teaching arrangement for the promotion of dealing with complexity & controversiality from a teaching perspective?
- How do teachers cope with an open, discursively designed learning situation with an uncertain outcome?
- Which attitudes are reconstructed on the teachers’ side with regards to competency expectations of value-oriented geography curricula?

For studies researching teacher competences in the fields listed above, it seems necessary to refer to complex theories that enable us to describe in an almost adequate manner the areas of practice explained. In this case, the area of further education of teachers in dealing with complexity and controversiality in double-complex problem situations (professionally and ethically) and to develop adequate measures of support based on empirical results. Furthermore, we must seriously consider the finding “that the logic of the practice of scientific reflection is always one step ahead of this practice. So we cannot but work with reconstructive empirical research that can examine the conditions from various perspectives” (Vogd, 2006, p. 1). The following text will briefly present the main meta-theories on teacher habitus, profession-related beliefs of teachers and the survey instrument connected to it. As one of the essay’s main focal points lies on the necessary presentation of the complex meta-theories, it will exclusively present and discuss results from the surveys with the geography teachers.

### **Theories of habitus and field**

The habitus of a social actor or person, in this case, of a teacher, according to Bourdieu (1977) consists of schemes of perception, thinking and acting. These schemes determine how an actor perceives his environment, which everyday theories, classification patterns, ethical norms and aesthetical standards

he holds and which individual and collective practices or acts the actor creates. A habitus is formed in the course of the internalization of external conditions of social life through the position an actor takes up. In this context, the actor is not fully determined, the habitus merely presents the limitations of possible and impossible practices or acts as well as the perception connected to them. Social fields are spaces created by practices of the habitus on the one side and create possible practices of the habitus due to their conditions on the other side. The social space, however, is not per se the territory of individuals or the living environment of a group. Social space, according to Bourdieu, is first of all not to be found as a structure on the surface of the earth in any way. Bourdieu's social space is about the social world; the term 'space' works as a metaphor. Nevertheless, theoretical parallels may be drawn to the constructivist perspective of "New Cultural Geography" (compare Glasze & Matissek, 2014 and Werlen, 1993) as practices can only take place inside spaces, and spaces are created through communicative acts.

The ambiguous term teacher habitus may be understood with reference to the considerations above in different ways (see Helsper, Kramer, & Thiersch 2014, p. 7); e.g. (a) as a comprehensive habitus of teachers, in this case geography teachers, as it can be observed in an out-of-school context, as well, with family, friends or diverse social institutions where teachers act as private persons, (b) as a texturing structure of practices related to the school space in terms of a professional partial habitus comprising the teaching acts of geography teachers, or (c) as an expression of all practices that can be described as the enforcement of institutional norms and requirements and insofar define a field-specific ideal teacher habitus within the field of schools. The term teacher habitus divides all theoretical and empirical problems that apply to the concept of habitus as a whole but still allows a differentiated view on the specific issues that develop for geography teachers in the field of value-oriented teaching as this is usually connected to touching one's own values and experiences of contingency.

### **Subjective theories and epistemological beliefs**

Teacher competence is an interaction of the dimensions of professional knowledge, self-regulative abilities, motivational orientations as well as beliefs and values (see Baumert & Kunter, 2006) being focused in the present study. Apart from knowledge resources (compare topology of Shulman, 1986), especially subjective, profession-related beliefs are considered another central component of the professional competence of teachers (see Reusser, Pauli, & Elmer 2011, p. 478). These intentionally relate to lesson subjects, phenomena and processes and always contain affective-judging components. Learning (of knowledge) does always happen in the context of subjective beliefs serving as a filter, i.e. that only knowledge consistent with the beliefs might be adopted, a clear functional division of the two dimensions of professional competence is not possible (see

Riese & Reinhold, 2010, p. 171). The umbrella term of beliefs related to school and education mainly addresses subjective theories and epistemological beliefs.

Subjective theories influence the objectives of teachers or their lesson conduct (see Dann, 2000, p. 87). Existing subjective theories are, among others, different concepts on teaching and learning, like for example learning according to the *construction view* or the *transmission view* (see Dubberke, Kunter, McElvany, Brunner, & Baumert, 2008, p. 194). For example, teachers with a *construction view* prefer tasks aimed at students' self-deductive understanding and consider learning as an interactive discourse with subjective problem solution processes (see Baumert & Kunter, 2006, p. 500). Epistemological beliefs include individual concepts and theories of persons on the "structure of knowledge" (Helmke 2012, p. 113), on the process of acquiring knowledge in general (see Baumert & Kunter, 2006, p. 498) as well as concerning domain-specific learning contents (see Reusser et al., 2011, p. 485) – e.g. concepts of space as a container or space as the result of communication. In that respect, epistemological beliefs represent an important part of the individually available professional expertise, pre-structure the way of world encounter and are therefore of high and action-guiding relevance to pedagogical actions in geography classes (see Helmke, 2012, p. 113).

### **Documentary method**

Subject of the empirical research in this context are explicit thinking processes like thinking and knowing, plans and schemes ("the mental inside of skills", see Neuweg, 2011, 451) and implicit underlying orientations of teachers referring to Bourdieu's term of habitus (Bourdieu 1977). The question to be asked therefore is which teacher cognitions are needed for shaping learning-effective, subject-specific learning possibilities (see Bromme & Haag, 2008, 805). In reference to Mannheim (1964; on the sociology of knowledge see Loader & Kettler, 2001) it is assumed that judgments occur on the theoretical reflexive surface level of an explicit (theoretical) knowledge base and continue to be implied as a deeper level embedded in the practice of action. In this manner, how implied, connective experiences are conveyed (e.g. metaphorically, by designing opposite horizons, in an interactively dense exchange) and access can be developed to that which is behind the explicit expression, such as a judgment or an assessment. This "behind" is called *document sense* as it must be reconstructed from the text as a document (steps of analysis: verbalizing interpretation, reflective interpretation, comparative analysis) and taking the practice of action of the discourse among the participants in the group discussion into consideration. The foundation is Mangold's theory that group views are "presented in a division of labor." The speakers confirm, complete, correct each other, their statements build on each other; one could sometimes think that only one person is speaking, so closely does one debate contribution resemble another. A dissection of the

collective process of stating opinions into views of individual speakers is often impossible. Following Mangold (1960, p. 49) the group opinion is not a 'sum' of individual opinions, but rather the product of collective interactions. Therefore, the discourse structure is a collective practice and as such gives understanding into the action practice of the participants.

### Results

Hereafter, the text will list examples from group discussions with geography teachers and interpret them through reconstruction in order to depict the relationship between habitus or orientation frame and professional (social) identity and to confirm this relationship empirically. In order to do so the text will focus primarily on teachers' beliefs that have been thematized as hard to adapt but are still relevant to their actions (see Pajares, 1992). This was made possible through use of the documentary method, which "is also [able] to appreciate pre-reflective processes and [...] [is] closer to a system-theoretical description that tries to take into account the arrangement as a whole" (Vogd, 2006, 2).

### Organization school versus interaction school

School can be understood as a conglomerate of various communicating systems referring to the organizational framework and task of schools on one hand, including curriculums, grading, teacher employment, transfers, disciplinary measures and certifications and graduation. On the other hand "these practices [...] don't [represent] education but constitute the frame in which education as an intended socialization happens" (Vogd, 2006, 5). It needs to be recognized that school as an organization school is different from the classroom as a space of interaction and that both systems follow different logics and semantics that often cannot be combined. This will be proven empirically by means of the following transcript excerpts. The statement of the discussion participant C(m) was preceded by the question of the interviewer (Y) on where in the use of the mystery method and the dilemma discussion method learning was happening in geography classes from the teachers' point of view. The second part of the training consisted of practical work using both teaching methods. On the previous day, teachers had been informed, mainly through lectures, about theoretical basics of reforms in curriculums in connection with the introduction of competence orientation.

C(m): [...] Yesterday it was all about competence in a quite theoretical way (.) and today this Evaluation Judgment was clear to me: (.) so to also let students communicate (.) to talk listen react (.) //um// I think it's pretty good that you're pointed to that very consciously again (.) //um// that as a teacher you also have to step back every now and then (.) Full stop. (.) that you also say (.) you (.) just let students present their point of view (.) and //um// (.) let 'em also (.) experience a reaction to their point of view (.) and (.) that maybe requires a little courage and it's always this (1) //um// comment yes how can I test that in the end and how do I judge it and

how can I take the student to the same performance level in the end so it's testable (. ) and then I think to myself (. ) maybe we'd have to again consciously (. ) create situations (. ) where a judgment: concerning a grade becomes secondary. that you consciously say yes: (. ) //um// I give the freedom and I also think it's definitely there (. ) that you consciously take that along again (. ) why does every performance eventually have to end in a grade. (1) I think that's the chance for (. ) for the openness that the student feels more valued again, I say something I mean the other part is listening to me, reacts on me (. ) I enter other points of view I widen my view of the world (. ) //um// I learn new things from others, (. ) and they don't just always listen to the teacher °who: says° now //um// I am important and //um// (. ) that's what you're gonna do full stop (3).

C(m) marks the contradictory relationship between the organization school and the interaction space classroom right from his initial proposition: On one hand, the access of the organization in the form of the training for competence orientation is generally considered negative (“all about competences in a quiet theoretical way“), on the other hand, it is considered positive in terms of the new input because at the same time statements implied that participants were “pointed to that very consciously again (. ) //um// that as a teacher you also have to step back every now and then”. It becomes clear that C(m) considers the pedagogical and professional task – seeing the so-called peer education as a resource to unfold the student's potential – as part of his professional identity; his demands are open and clear: “just let students present their point of view” while the teachers also have to step back every now and then (. ) Full stop” – that way, “the student feels more valued again” and can widen his world view by exchanging contradictory opinions and learn from it. In order to achieve this it would be necessary that students “don't just always listen to the teacher °who: says° now //um// I am important and //um// (. ) that's what you're gonna do full stop”. Controversiality & complexity of professional questions is therefore explicitly appreciated. However, at the same time it becomes clear on an implicit level from the way C(m) presents his views that he considers himself to be a representative of the formal structure of the organization school and that he whole-heartedly accepted the task of exercising control, of testing the “performance level in the end” as usually “every performance eventually has to end in a grade”. The experiences from the training make the implicit subjective theories (transmission view) explicit and accessible to reflection and problematization in the group (“maybe we'd have to again consciously (. ) create situations”) and in that manner, it seems, recalls more complex concepts of learning (construction view) controlled by the normative dimension of social identity (Goffman 1963, p. 126ff.) Hereby, the mainly exterior character of normative experiences becomes obvious.

### **Scientific “theory” versus “practice” in school**

The aversion to dealing with scientific theory, in this case subject-

didactic theory, considered alien to the practices of geography teachers that was noted by C(m) before, is also found at the start of E(m)'s subsequent proposition.

E(m): Well, I can only join that position a certain theory is surely important in the background (.) but to: (.) the teacher who gives a lesson in a way a certain practicality (.) of course (.) matters and he just has to see (.) //um// how can I fit that school (.) and then everyone can in his own way come up with something concrete and say I will really give this a try (.) //um// //um// yesterday (2) definitely too much focused on theory (.) and //um// the concrete applicability (.) is missing in parts (.) today a lot better because you really transformed the things you learnt (.) really briefly (.) in theory (.) and I think you can go home now and just say I will just try this out in my class seven eight nine (.) (2)

Theory could certainly play a role “in the background” but would, however, represent a counter perception to what “matters” to the teacher – namely “concrete applicability”. Theory was something that clearly could be addressed but only “really briefly”; therefore, the part of the training where participants got to work practically was understood to be “a lot better”. As the example above made clear, one goal of further education for teachers in the areas of competence Evaluation & Judgment has to be to make the implicit subjective theories and epistemological beliefs of geography teachers explicit and accessible for common processing within the discourse. The challenge can be named as part of the so-called theory-practice-problem (Neuweg, 2007, 8) which describes the general criticism of the insufficient transfer of pedagogical and didactic innovations into school practice as a hindrance of professionalization (see Van Driel, Beijjaard, & Verloop, 2001). However, in this context, it is necessary to incorporate theories as professionalization of teachers’ aims at the acquisition of complex expertise through the training of professional existences of knowledge and skills. As only through these are teachers able to implement new theories and concepts in their own class projects. The results of the present study show from a perspective of eight group discussions that the encounter of theories is of particular importance but at the same time represents the main barrier of further education for teachers.

### **Organization school and the medium of education**

The persistence of implicit subjective theories in the teacher habitus also emerges in the following excerpt from the same discussion group where, in dealing with the experiences made within this course of further education, a counter perception of open teaching is created without discussing the subjective theories constructed above that are obviously deeply inscribed.

D(m): [...] the additional value too of course if I say (.) the (.) student doesn't only sit in school and lets the information wash over him (.) but the student is challenged also to be active and //um// in all of these forms where he then the



group members exchanged views. I have to produce something orally and I have to tell someone something who either worked on this topic too (.) but maybe has a different opinion (.) or who doesn't know this topic yet at all (.) it is additional value if the student //um// communicates contents to another student (.) and thereby probably also has the additional value (1) I know the new contents well (.) because (.) I explain it to someone else (1).

Y: And how would you connect that with what you just said that //um// (.) some older teachers consider the additional value described (.) differently

A(m): He (.) he doesn't know it because he doesn't conduct this kind of lesson (.) well you (.) have to [...] the teacher or if the teacher is open enough and does this then sure then he realizes it but (.) I don't think that you can say //um// (.) through (.) further education and through multipliers I will make every teacher conduct these lessons in his classroom too (3)

After the interviewer (Y) asked about the “additional value” of the use of the mystery and dilemma discussion method twice, D(m) emphasized the possibility of transferring knowledge from one student to another and thus continued to argue consistently from a transmission view perspective with the exception that the teacher is replaced by another student who “//um// communicates contents to another student (.) and thereby probably also has the additional value” by checking if he “know[s] the new contents well” because “[he] explain[ed] it to someone else”. The fact that the teaching methods concerned initiate and allow the consideration of complexity & controversiality is not discussed. This finding is mostly confirmed in inter-case reconstruction – when dealing with complex and controversial lesson subjects, questions toward the possibility of transfer of knowledge dominate, as well. This is so far obvious as the organization school structures these aspects of teacher habitus dominantly – the geography teachers of the present study consider themselves primarily as facilitators of knowledge.

Apart from that, however, it is found that the discussion participants construct themselves as being open to innovative didactic and pedagogical theories in this part and other parts of the group discussion. They dissociate themselves from so-called “older teachers” who could not understand the “additional value” of the open teaching methods applied because they were not “open enough” and therefore would not conduct “this kind of lesson”. The theory-practice-problem again shows in the skeptical assumption that not every teacher could be made to “conduct these lessons in his classroom” “through (.) further education and through multipliers”. It is evident on a case-specific level – and the result can be confirmed from an inter-case perspective – that it is part of the social and professional identity of the geography teachers studied to consider themselves as innovative in the sense of the pedagogical and professional task of competence acquisition. On an implicit level, this skepticism toward the ability of further education of so-called older teachers might also represent a self-description.

### Judgment competence and dealing with controversiality & complexity in geography classes

Subsequently, the interviewer asked whether the discussion participants considered the development of the moral power to judge as a central goal of teaching – this question was used in all eight group discussions of the study in order to explicitly encourage an internal discussion about dealing with complexity and controversiality in class. Interestingly, this was each groups' focus in reaction to this encouragement on the meaning of moral emotions to professional learning:

- C(m): And I think the: the emotional concern that's a real good method of approaching students of thrilling them (.) but I immediately thought (.) that's very easily applicable to the topics that are by far less emotional if I think of //um// topic: coffee tea banana or in (.) I can tackle an everyday problem (1) how do I decide about the offer as a consumer and what far-reaching consequences does it have //um// I don't know if it always has go off that emotional, but I think it's good because it makes it easier accessible (.) I can also say (.) working conditions //um// (1) producer's country the way to us what am I willing to pay (.) why do I choose the product , don't choose another one //um// how many factors can contribute to influence our decisions in the end that I evaluate all the time (1) and that's a thing where I say (.) yes if I bring that to my mind (.) why don't I include that once or twice a year maybe in a situation where I consider it most reasonable . (1) that I somehow create an awareness yes I //um// with every decision I make (.) I evaluate in a way that's right that's a central competence (1) and if I include that regularly (1) [...]
- B(m): And I think it: (2) thus avoids this wagging finger so there (.) the student can form his own opinion now and doesn't just have an opinion imposed "this is bad or what you do if you (1) and that's where the students should be taken (.)
- C(m): Ah I think you have to also accept that in a way to a certain degree maybe just leave it that someone says to me //um// (.) the price is a much more decisive factor than saying I have to have the cleanest conscience somewhere (.) than maybe I'll just have to leave it that's a conscius decision too (1)
- A(m): Cause we don't want to manipulate.

C(m)'s initial expression reveals the central action orientation of teachers: it is about "approaching students [and] thrilling them". Which means to design classes in the sense of a frictionless process. The language used by the geography teachers in this context strongly follows regulative semantics: If it "goes off emotional" it is easier accessible; connections are to be "made aware" of; methods "regularly included" in order to implement the teaching goals. At the same time, the development of assessment competence and one's own opinion are considered central in the sense of construction view and it is explicitly emphasized that one "[has] to also accept that [students' decisions] in a way to a certain degree maybe just leave it"; thus, standing controversiality & complexity, at least on an explicit

level, is considered an important goal.

However, from an inter-case perspective, it is more the creation of order and less the accompaniment and negotiation of complexity & controversiality that dominates as a guiding implicit orientation.

The discussion excerpt above clearly shows that a demanding character, a norm, is connected to the teaching methods which are new to the geography teachers (mystery method, dilemma discussion method) and which make the negotiation of complexity & controversiality the topic of the further education course; i.e. transformation pressure on the habitus of the teachers is created. On an explicit level, it is quite simple for the teachers to follow up on this demanding character as its orientation schemes (e.g. allow multifold perspectivity toward the world; support students' individual development) coincide with orientation schemes of the collective habitus as a teacher in general and as a geography teacher in particular. However, on an implicit level, the explicit understanding of the virtually new norm of letting complexity & controversiality happen is opposed by strong order schemes of the teacher habitus which are aimed at ordering, limiting and controlling multifold perspectivity.

### **Discussion**

The qualitative-reconstructive research access enables a discussion of results in connection to the presentation above. It has already taken place in the comparative procedure within the cases worked with (group-internal), between the individual cases (inter-group) and in contrasting with complex meta-theory. In general, "the validity of qualitative or reconstructive research depends on its foundation in or framing through basic terms, i.e. meta-theories and meta-theoretic categories" (Bohnsack, 2014, 33).

The results of the presented study initially show that the relevant question is how strong implicit perceptions or orientations are transferred and made transferrable with the goal of subject-didactic innovation introduction in the context of further education. In order to answer this, analyses are necessary to find out in which social dynamics implicit existences of knowledge become effective. The present study aims at these fields and dynamics of the possibility to determine the conditions of transferability of innovative didactic existences of knowledge related to theory and practice within the so-called third training phase for further education of teachers. However, to achieve this, it is necessary to refer to complex meta-theories that manage to almost adequately describe the practice space studied.

Subsequently, on the basis of this study and similar studies, further education programs must be designed that, as well as facilitate knowledge, also aim to model epistemological beliefs and subjective theories (see a list of constitutive criteria of further trainings that can support these efforts, Fögele & Mehren, 2015a, 2015b). The need to facilitate knowledge that was often

formulated by the group discussion participants mostly followed a transmissive understanding of learning and the idea of facilitating facts.

In order to reach adequately complex conclusions and suggestions for improving the practice, we need to focus more on the explicit and implicit “mental inside of skills” (Neuweg 2011, 451) of geography teachers, i.e. the following questions, among others, need to be worked on theoretically and empirically:

- Which theories, plans, schemes and knowledge (on an explicit and implicit level) do teachers have concerning the areas of competence formulated as target dimensions in educational standards?
- Which practices of individual teachers can be observed and which are the underlying thinking processes and habitual orientations to these?
- Which teacher cognitions are necessary for the design of learning-effective, subject-specific teaching-learning-arrangements?

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**Dr. habil. Stefan Applis** teaches at the Chair of Geographical Education, Justus-Liebig University, Giessen, Germany. His work focuses on student and teacher attitudes towards the different thematic areas of global learning and value-orientated learning in the geography classroom.

**Dr. Janis Fögele** is a postdoc at the Chair of Geographical Education, Justus-Liebig University, Giessen, Germany. His work focuses on student and teacher attitudes towards the different thematic areas of conceptual learning and geographical understanding and on the professionalization of teachers.