

The Social-Constructivist Concept of Space in a German Geography Education Context: Status-quo and Potential

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Abstract

The present paper attempts to reason that social-constructivist spatial theory represents an essential approach for contemporary geography teaching. This approach is essential to show learners how space contributes to the organization of society. By contrast, German geography didactics and teaching practice, which are examined closely here by means of a content analysis based on curricula, textbooks, and classroom material, show that social-constructivist approaches are underrepresented and limited to a light-weight version of space as construct. This contribution concludes with a plea to grant the concept of space as a social construct with greater central significance and potential in teaching practice.

Keywords

Space, Social Construction; Geographical Concepts; Geography Textbooks, Germany

To cite this article: Weiss, G. (2020). The Social-Constructivist Concept of Space in a German Geography Education Context: Status-quo and Potential. *Review of International Geographical Education (RIGEO)*, 10(4), 684-705. DOI: 10.33403/rigeo.781489

•Submitted: 17.07.2020 • Revised: 19.11.2020 • Accepted: 29.11.2020

Starting in the 1990s, a theoretical, conceptual and methodological convergence with the social and cultural sciences (a cultural turn) has taken place in the scientific discipline of geography. As a result, a fundamental social constructivist understanding of how people act in space and how they create and modify spatial configurations has become established in research (Freytag & Mössner, 2016, p. 77). Despite occasional criticism, there is now broad consensus that the object of research is not space conceived of in the essentialist sense, but rather the intentional, meaningful production of spatiality (Dürr & Zepp, 2012, p. 272). This means that space maintains its social existence by everyday communication and within social practices.

The expansion of subject-specific geographical research to encompass social-constructivist approaches presents the field of geography education with a considerable challenge, namely the implementation of this perspective in schools. In the literature about geography education, two reasons are presented for practicing the social constructivist understanding of space in pre-academic education: to avoid a growing gap between school and university geography (e. g. Winter, 2007; Bustin, 2011; Harris, 2013; Butt & Collins, 2017); and to achieve the competence to act in space appropriately, for example when students learn to recognize the spatial production of power and social inequalities (Hammond, 2019).

The aim of this paper is to shed light on the manner of and extent to which social-constructivist approaches are applied in geography curricula and teaching materials for secondary schools (Grades 5 to 13) in Germany, and to present some recommendations in response to the findings. To this end, curricula, textbooks, and teaching materials will be examined to determine whether and, if so, in what form, didactic offerings for this social-constructivist perspective are available for geography lessons. This question may also be of relevance for the didactics of geography in other countries: On the one hand, the contemplation of the German practice may stimulate a wider critical discussion of this topic within the field of geography didactics. On the other hand, it may yield suggestions for the conception of concrete teaching units following along social-constructivist lines.

The research questions are:

1. How prevalent are references to a social constructivist understanding of space in recent geographical curricula and textbooks in Germany?
2. How do geography textbooks convey and instruct a social constructivist understanding of space?
3. To what extent do the implementations in curricula and textbooks correspond to the social-constructivist theoretical concepts in academic geography?

In a first step, the theoretical foundations of a constructivist understanding of space will be summarized briefly in order to illustrate the significance and scope

of these approaches. Next, the reception and implementation of constructivist notions in German geography didactics are explored. This will be substantiated based on an analysis of current curricula, textbooks, and online materials, since teachers are bound by curricula and textbooks continue to serve as a vital “backbone” in terms of lesson design (Fuchs Niehaus, & Stoletzki, 2014, p. 127) and they reflect disciplinary fashions (Sidaway & Hall, 2018, p. 34). This paper offers an explanation of the methodology and separate consideration of the results for curricula and for textbooks respectively, followed by a summary diagnosis. The contribution concludes with a plea to grant greater significance, in a socially relevant teaching practice, to the concept of space as a social construct in order to understand spatial structures and processes.

Background

Constructivist Interpretations of Space in Geography Lessons in Germany

In Germany, geography at universities and schools was understood as regional geography until the 1970s. The associated idea of space was that of a container with specific features in a unique combination, surrounded by clear boundaries. In the 1970s geography turned to a spatial science perspective, dealing with distances and locational relations in space, like commuter catchment areas. The findings were preferably used in spatial planning (Wardenga 2002, Gebhardt & Reuber 2011).

The 1990s saw a “spatial turn” in the social sciences right across the globe, which was influenced by geographers from the English-speaking world such as Edward Soja (1989), Derek Gregory (1994) and Doreen Massey (1994) (Gebhardt & Reuber, 2011, p. 646f.). Based on these developments, a cognitivist turn took place in German human and social geography in the mid-1990s, described by Dürr & Zepp (2012, p. 258) as “constructivist turn”. In German geography, the reception of the perspective of space as a construct commenced with the system theoretical approach adopted by Klüter (1986) and Werlen (1993), who in turn added to Giddens’ structuration theory in terms of spatial science (Dürr & Zepp, 2012, p. 261). In the years that followed, other social-theoretical conceptions of social constructivism were also taken up and implemented in research projects, such as Bourdieu’s theory of practice and Foucault’s discourse theory (Freytag & Mössner, 2016, p. 77ff.).

According to Gebhardt & Reuber (2011, p. 648f.) four developmental paths play a dominant role in German human geography, based on specific theoretical foundations: The classical spatial science perspective, the political-economic, the action-oriented, and the poststructuralist perspective. Of these, the latter two can be classified as social-constructivist: Action-oriented approaches analyze how individuals relate to the world as they attempt to implement their actions. Theoretical foundations were developed, above all, by Benno Werlen (1993) following Anthony Giddens (1984). Post-structuralist approaches focus on the

meaning of language and the symbolic significance of physical-material substrates that structure action and thought, with many authors drawing on the discourse theory put forward by Michel Foucault (1982) (cf. also Freytag & Mössner). People control the practices of others by assigning a symbolic meaning and sense to the spatial contexts of everyday experience (Daum & Werlen, 2002, p. 6). Owing to the reception of action, system, and discourse theoretical approaches, the understanding of space was also transformed and expanded; thus, it is only in social contexts that physical-material spaces “emerge”, and here they are used in communication and endowed with meaning (Rolfes & Uhlenwinkel, 2014, 362). In other words, spatial concepts fulfil social functions, in the sense that actors are granted or denied properties or opportunities through spatial attributions (Miggelbrink, 2002, p. 339 following Harvey, 1996). As Reckwitz (2003) and other sociological authors (Löw, 2017; Schatzki, 2003) representing spatial theory demonstrate, communication and discourse corresponds with practices in material settings, controlling the movement and performance of human bodies. The meaning of a material spatial surrounding serves as an indicator of appropriate behavior in it.

So, the importance of a social-constructivist understanding of space in contemporary human geography cannot be denied: “Given the diversity of theoretical views within the discipline today, [...] if any theme might be said to run throughout the diverse perspectives that characterize the field, it is social constructivism” (Warf, 2015, p. 82).

Space as A Social Construct in Geography Lessons - The Current Situation in Germany

The rise in social constructivist-based studies in scientific geography challenged the field of geography education to react to this innovation. As far as the field of German geography education is concerned, the formulation of four spatial concepts (space as a container, locational relations, an object of perception and a social construct) by Ute Wardenga (2002) has proved to be formative in this context. An expert in the history of the scientific subject, Wardenga has identified these concepts in the various developmental stages of geography, seen here as a science that is represented at universities in German-speaking countries.

In the container space of classical regional geography, structures and processes are described and explained within a clearly defined area; the aim is to describe the totality of a “natural” region in its distinctive uniqueness, based on its constitutive elements. Giving an example, Wardenga (2002, p. 10) cites the analysis of all elements (climate, vegetation, fauna, forms of settlement, etc.), which contribute to the overall potential of a tourist destination.

The concept pertaining to the space of (situational) relations deals with spatial interdependencies, such as the significance of sites, locational relations and distances, as well as addressing statistically supported instances of regionalization. In this context, for example, one would determine catchment

areas or the regional economic effects of a tourism region with clear boundaries assigned following the application of certain criteria.

In the case of space as an object of perception, the focus is on individual and group-specific perspectives on space. Human behavior in space is explained by various perception and information filters that distort the stimuli present in the space which objectively exists. In the example of tourism geography, one could determine the role played by subject-specific and group-specific requirements and evaluations in the choice of holiday destinations.

Finally, space as a construct deals with space as an element of action and communication. Spaces are produced and reproduced by social action that takes place in social practice given certain conditions and interests. In the context of tourism, one could examine how destinations are presented by whom and for whom, and to what extent and for what specific purpose this involves the use of spatial language (all examples according to Wardenga, 2002, p. 10).

Wardenga used this list of spatial concepts in a didactic context to promote the constructivist notion of space as the most suitable concept: "I believe that the constructivist questions raised here allow us to find more appropriate and more subtly differentiated answers to the [...] current social problems than lessons that rely solely on traditional concepts of space" (Wardenga, 2002, p. 11, translation by the author). This does not exclude the former three approaches to space since they are necessary in understanding spaces as constructs as well.

These four spatial concepts were incorporated into the Curriculum 2000+ (DGfG 2002). Accordingly, geography lessons should also be used to ask the question: "Who communicates about certain spaces under what conditions, representing which interests and in which manner, and who produces and reproduces the spaces continuously through everyday action?". (DGfG, 2002, p. 8). In the educational standards for Grades 5-10 (no national standards exist for Grades 11-13) of the DGfG (2020, p. 18), which are not mandatory for teachers, they form part of a conceptual framework supplemented by Fögele (2016, p. 70-80): In accordance with this, the 'system' represents the main basic concept of geography, consisting of the components (basic concepts) 'structure', 'function', and 'process'. The central category of space as an object is operationalized with the four spatial concepts. The constructivist perspective is initially linked in principle with orientation skills in the educational standards, but within this context it is essentially reduced to coping with maps. Since 2002, the four spatial concepts have been promoted over and over again in programmatic specialist didactic contributions, usually combined with suggestions for lesson design (e.g., Dickel & Kanwischer, 2006) and lesson planning (e.g., Hoffmann, 2009). In this, the authors largely agree that the concepts represent a kind of tool or grammar of spatial analysis that is intended to help learners acquire a systematic geographical view and guide them to geographical thinking in order to cope with complex situations and processes (e.g., Brooks, 2013, Bette & Schubert, 2015, p. 31; Fögele & Mehren, 2017, p. 5).

The use of these four spatial perspectives clearly distinguishes German geography didactics from the specialist didactics in anglophone countries such as

Great Britain, where the distinction is primarily made between 'space' as the three-dimensional surface of the Earth, and 'place' as a part of the Earth's surface, which has been given a name and meaning by humans, as well as 'scale', describing levels of scale where places and spaces interlink (Taylor, 2008; Lambert & Morgan, 2010; Lambert, 2011). 'Place' roughly corresponds to space as an object of perception and as a social construct.

More than curricula, textbooks are fundamental for many teachers in imparting prevailing knowledge and assignments in class (Fuchs et al., 2014) and they are a mirror to the relationship between geography in schools and universities as well. (Sidaway & Hall, 2018). The analysis of textbooks has a long-standing tradition in geography education (e. g. Schmithüsen, 2002; Wiater, 2003; Behnke 2016). There are some studies dealing with the social-constructivist idea of language being an essential part of the production of spatial "reality" by discourse, examining argumentation (Budke 2011) or planning tasks (Maier & Budke 2016) in geography textbooks. However, there has been no study to date of the extent to which curricula and textbooks explicitly implement messages, concepts and theories which are based on an understanding of space as being socially constructed.

Methods

This empirical study employed a mixed methods approach, focusing on a document analysis in a qualitative sense (content analysis). Some of the results, achieved by a more standardized thematic coding, were processed quantitatively using relative frequencies (Mattissek, Pfaffenbach, & Reuber, 2013, p. 206).

Analysis of the Curricula

In order to examine the importance of the concept of space as a social construct in geography lessons at German schools, the author first examined the extent to which this concept can be discerned in curricula and the contexts (topics, examples of space) in which it should be taught. There is no geography curriculum across all of Germany, but there is a consistent goal: In line with the educational standards, the German Society for Geography considers the responsibility of the discipline to guide learners in the analysis of "interrelations between nature and society in spaces of different sizes" (DGfG, 2020, p. 5). Budke & Glatter (2014, p. 494f.) identify similar wordings in the geography curricula of all German states, especially those that understand geography as part of the social science sphere. The compilation of curricula in all federal states is processed by commissions at the Ministry of Education, but with different members, dissimilar in their ideas and priorities concerning geography education.

Data collection

Consequently, since there is no single curriculum, the curricula currently valid were examined for all German school types (grammar schools, middle schools, secondary modern schools, comprehensive schools, and in some states regional schools) for all in Grades from 5 up to 13 for all 16 German federal states. Since geography as a discipline is not extensively taught in primary education (e. g. only

in combination with other subjects), these curricula were not included. All curricula are available online.

Data Processing / Category System

The curricula are comprised of general statements on the objectives and characteristics of the school subject geography as well as concrete guidance for the individual grades. The search was for references to explicitly mentioned social constructivist messages, concepts or theories. It was not about the identification of goals, topics or tasks that could possibly be interpreted or implemented in a social-constructivist way (e. g. requesting a change of perspective). The focus was on the question whether the message that space does not exist objectively but is socially constructed is clearly formulated. Therefore, both sections were searched for occurrences of the terms “spatial concepts”, “space” and “construct” / “construction” and “(socially) constructed” / “produced” / “established”, as well as “4 perspectives”. Since Wardenga (2002) recommended the constructivist view as a tool for analyzing spaces, it was also considered that social constructivist messages occur in connection with the analysis of specific regions. In addition, the search also examined the keywords “space” / “spaces” and “analysis”, as well as “analyze”, to determine whether these held any indications of a constructivist understanding of space.

Data Display

The text passages found were annotated to record which concrete specifications are linked to this aspect (type of school, grade, existence of a constructivist understanding of space, the objectives attached to this understanding and recommended topics).

Analysis of The Textbooks

While instructions in core curricula remain rather abstract in any case, it is the job of the textbooks to implement these guidelines by using concrete examples. Since textbooks are often used for teaching purposes, they offer a sound, if not entirely representative, approach to topics and assignments dealt with in geography instruction in schools (Maier & Budke, 2016, p. 10).

Data Collection

As the analysis of the curricula revealed that constructivist spatial analysis was assigned to grades 9/10, only textbooks covering these grades were examined. There is no data analysis one could consult about the number of copies of recent textbooks in circulation in Germany. However, according to statements made by geography teachers, the publishing houses Klett and Westermann appear to dominate the field (Maier and Budke, 2016, p. 5). The books currently approved for schools were identified via publishers’ catalogues on the Internet and were viewed in the publishers’ online stores. The year of publication currently valid lies between 2003 and 2019. For the purpose of the analysis, 10 textbooks from the seven states which included social-constructivist references in the curricula were carefully studied in a first step. In order to find out whether explicit reference is made to messages, concepts and theories about the social

construction of space, the search terms corresponded to those used in the analysis of the curricula. The examination revealed that references to the social-constructivist understanding of space were always mentioned in a chapter heading (e.g., Diercke Erdkunde 9/10 for Lower Saxony 2019, 186-193: chapter “Kenya – a spatial analysis in 4 views”). Consequently, the perusal of the remaining books was limited to the table of contents. Experiences from North Rhine-Westphalia show that textbooks may contain references to a constructivist understanding of space, even when these are not specifically addressed in the curricula (e.g., Terra Erdkunde 3 Gymnasium 2018, 192: chapter “A spatial analysis of Australia – conducting a multi-perspective examination of space”). So, the textbooks “Terra” published by Klett, “Unsere Erde” (Our Earth) published by Cornelsen as well as “Diercke Geographie”, “Seydlitz Geographie” and “Heimat und Welt” (Home and World) published by Westermann, were examined for the school types of Gymnasium (grammar school), Realschule (middle school) and Gesamtschule (comprehensive school) in all 16 German federal states. Even within the same publishing house, the textbooks used in different federal states are edited by different authors in the respective specific versions. 59 textbooks were studied overall, 32 of these were written specifically for grammar schools, 27 for other or all types of schools.

Data processing / category system

In order to find out how the social-constructivist understanding of space is implemented in terms of didactics, the following criteria were used to analyse the corresponding chapters: Reasoning for the constructivist perspective, specialist scientific topics, examples of space, nature of the materials from which the learners should infer that a space is socially constructed (e.g., statistics, picture, advertising text, etc.) and work assignments for the learners, i.e. the methodical procedure through which the learners should recognize the constructive character of space in the given material (see Table 1). All chapters explicitly dealing with space as a social construct as a topic were examined. To present an example: In the textbook “Terra Geography 3” for upper secondary schools in North Rhine-Westphalia the sub-chapter “Australia as a constructed space” was found within the topic “spatial analysis of Australia”- the topic was therefore classified as “analysis of spaces “and the example of space as “Australia”. The exemplary space was chosen as a criterion to find out whether there are certain scales or regions that are considered particularly suitable for a social-constructivist approach. The "material" criterion was divided into material types like newspaper articles, media reports, tourist advertising. The aim was not to analyze the content of the material, but rather identifying the nature of the sources. The assignments were summarized too. What was of interest here was how the learners should deal with the material given in order to recognize the idea of space as a social construction. If there were a number of tasks, only their central idea was recorded. Using an identical set of criteria, online materials provided by textbook publishers for teaching purposes were also examined in this regard. To these materials reference was made on the homepages of the textbook publishers mentioned above.

The evaluation followed the logic of a qualitative, typological content analysis (Kuckartz 2016). For this purpose, the text modules found were assigned to the criteria mentioned above in a table, paraphrased in a second and condensed into a few characteristic terms in a third step. In the case of pictures or statistics, the content was briefly described. This required an assessment to determine whether characteristic combinations occurred with regard to the criteria. Additionally, and for comparative purposes, a summary was produced, which recorded in which form the concept of space as an object of subjective perception was communicated.

Data display

The text passages found were annotated to record which concrete specifications are linked to this aspect (type of school and grade, topic, example of space, material and assignments given). The results are summarized in an overview table (see Table 1).

Critical Reflections

The analysis of curricula and textbooks does not, of course, cover the entire lesson, since teachers have leeway to implement their own ideas, but it is not to be expected that geography lessons will deviate significantly from the requirements of both. Since the aim of this study was only providing an overview, the conceptual abstraction of the messages, material types and assignments was not seen as problematic due to ambiguities or “messages between the lines”. To control the allocation of text elements to the criteria developed, the relevant chapters of two books were entrusted to a second rater. A more in-depth interpretation of texts and images would be useful but requires a separate investigation. Furthermore, the analysis does not cover the prerequisites the students have acquired in class before working with the social-constructivist chapter.

Findings

Space as A Social Construct in Geography Curricula

Only a small number of curricula (20 % of 46) refer explicitly to the four different concepts of space according to Wardenga (2002), as is the case in the curriculum of the federal state of Rhineland-Palatinate: “In addition, a diversification of space is integrated into the curriculum [...]. Under this premise, ‘space’ shall be specifically viewed and didacticized from four perspectives: Space as a container, as a system of situational relations, as a form of visualization, as a social, technical and political construction” (MBWWK RLP, 2016, p. 21). Slightly more curricula (33 %) point to the relevance of the constructivist concept of space. The stated goal is that learners should recognize that space is a social, political and technical construction, (re-)produced by interest-based social communication. Learners should ask about the conditions and interests underlying those constructions. In 13 % of these cases, this merely involves a reference to the fact that spatial concepts exist, while a further 20 % go no further than to provide a concrete topic suggestion in addition. The topics addressed are

Europe as a construct (4), tourism-related advertising (3), maps (2) and media (2) in general, with an assignment to Grades 9/10. In some federal states, most of the geography curricula (2 of 3 or 3 of 4) indicate the concept of socially constituted space (Berlin / Brandenburg, Hamburg, Mecklenburg-Vorpommern, Thuringia), in other federal states no curriculum has such references (Bavaria, Bremen, Hessen, North Rhine-Westfalia, Schleswig-Holstein). Rhineland-Palatinate is the only state where the orientation towards constructivism runs through all grades and covers several different topics. There is some evidence of a slight trend to adopt the constructivist understanding of space more frequently in more recent curricula and for use by senior grades in grammar schools, compared to cohorts prior to 2015 and other school types.

Space as A Social Construct in Textbooks and Handouts for The Classroom

The investigation showed that the latest generation of geography textbooks dated from 2014 onwards for Grades 9/10 in grammar schools in seven federal states (1-4 books in each, overall, 13 textbooks, see table 1) includes a separate chapter addressing the four basic spatial concepts according to Wardenga (2002) and the Curriculum 2000+ (DGfG 2002). Textbook authors from two federal states even adopted the concept without a corresponding anchoring in the curricula. Textbooks available for federal states without any curricular references to a social-constructivist approach, like Bavaria Bremen, Hessen or Saarland did not contain corresponding chapters.

Basically, the spatial concept “construction” is presented in the context of a methodical subchapter on the analysis of spaces within widely varying framing themes. Since most German geography curricula require the teaching of methodological skills, chapters that provide guidance on specific methods tend to run through all of the textbooks (e.g., “interpreting a thematic map”, “compiling a concept map”, etc.). Within the methodical sub-chapter, the students are encouraged to contemplate a space from all four perspectives on the basis of a central question, since this means that “the connections in the human-environment system of a space can be understood more profoundly” (Bette, Bünstorf, Bünten, Hemmer, Jansen, Kersting, et al., 2018, p. 194).

Table 1

Textbooks on Geography (Or Subjects Containing Geography) Approved in German Federal States In 2019 With At Least One Chapter on The Constructivist Understanding of Space.

Name	Type of school /grade	Year of publication	Topic	Example of space	Material	Assignment
Terra Geographie Baden-Württemberg	Gym	2019	Analysis of spaces in chapter "Understanding and shaping the world" (pp. 3-11)	Chile / Peru, guano deposits	report by contract or for investors	none
Seydlitz Geographie Berlin-Brandenburg	9/10	2017	Analysis of spaces in chapter "additional topics" (pp. 162-171)	South Africa	newspaper articles various topics	problem-oriented spatial analysis based on a central question
Terra Geographie Berlin-Brandenburg	9/10	2018	4 spatial concepts in chapter "Tanzania – a spatial analysis" (pp.122-133)	Tanzania	media reports and pictures for tourists and investors	compile problem-oriented spatial analysis based on 4 spatial concepts
DierckeErdkunde Lower Saxony	Gym 9/10	2016	Analysis of spaces in chapter "Interdependence of economic areas / structural change" (pp. 42-43) + chapter "Spatial analyses" (pp. 186-193)	establishment of a slaughterhouse Wieze Kenya	statements from various interest groups media reports + pictures for tourists	assign materials to spatial perspectives recognise interest and strategies
Seydlitz Erdkunde Lower Saxony	Gym 9/10	2016	Analysis of spaces in chapter "Spatial disparities" (pp. 96-105)	South Africa	newspaper articles various topics ("land of contrast s")	problem-oriented spatial analysis based on a central question (e.g. do disparities disrupt progress?)

Fundamente Geographie Lower Saxony	senior grades	2014	Analysis of spaces in chapter "Perceive and examine spaces" (pp. 334-347)	Nürburgring / Hocheifel region	tourist advertising	analysing sustainable development of the region based on the 4 perspectives
Terra Erdkunde Lower Saxony	Gym	2016	Analysis of spaces in chapter "China + India" (pp.124-145)	India	advertis- ing for tourists, investors, in film (pictures only)	synoptic spatial analysis: Is India the new star of the global economy?
Terra Erdkunde North Rhine- Westphalia	Gym 9/10	2018	Analyses of spaces in chapter "Spatial analysis of Australia" (pp. 192-203)	Australia Immigration; Abbot Point mining project	media reports, advertising posters	identify stakeholders and their intentions; reflect on the consequences of the presentation
Seydlitz Erdkunde Rhineland- Palatinate	Gym 9/10	2016	Analysis of spaces in chapter "Globalization" (pp. 172-173)	China, Pearl River delta economy	headlines from newspape rs	displaying space from different angles
Terra Erdkunde Rhineland- Palatinate	Gym 9/10	2010	Analysis of spaces in chapter.' "Countries and development opportunities" (pp.122-131)	Nürburgring	tourist advertising	spatial analysis based on the four perspec- tives using a central question (sustainable development)
Diercke Geographie Schleswig- Holstein	Gym 9/10	2011	Analyses of spaces in chapter "Spatial planning" (pp. 198-207)	Hamburg, Harbour City Fehmarnbe lt crossing	media reports media reports	problem- oriented spatial analysis based on a central question (e.g., sustainability)
Terra Geographie Saxony	Gym 10	2015	Analyses of spa- ces in chapter "Economy and population in Saxony" (pp.112- 143)	Saxony	media reports	spatial analysis based on the 4 perspectives using a central question

Klett Fundamente Geographie	senior grades	2014	4 perspectives in chapter “Perceiving and examining spaces” (pp. 334-347)	Nürburgring / Hocheifel region	tourist advertising	(successful economic development) spatial analysis based on the 4 perspectives using a central question (sustainable development?)
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Typical assignments, for example, to analyze the Australian Investment Commissions’ website, the Trade Commission information and a position paper of Word Wide Fund for Nature concerning a disputed Australian coal harbor project, are “identify the interest groups”, “describe how these groups represent the country”, “name possible intentions behind this type of presentation” and “explain the consequences of this type of representation (e.g. for the economic development)” (Bette et al. 2018, p. 203) The learners should gain a combination of objective and subjective information: “The knowledge acquired with objective information is thus supplemented by knowledge about the intentions of certain actors and subjective perceptions” (Bierwirth, Haberlag, Labusch, Meyfarth & Wagener, 2016, p.124). Other stated objectives along with a “deeper understanding” of spaces are an “objective view”, “multi-perspective understanding”, “avoidance of prejudice” or preparing for decisions about “complex requirements regarding the use and planning of spaces”. But the constructivist understanding of space as “made space” is ultimately always reduced to communication via mass media, combined with setting learners the task to determine the respective interest groups, their specific representation of space and the underlying intentions. Advertising for tourists and investors (typical texts and pictures) plays an important role in the presented materials: Terra 3 for grammar schools in Lower Saxony only includes positive representations of India in relation to both target groups; in Terra 3 for grammar schools in Rhineland-Palatinate, positive information aimed at tourists and investors is contrasted with a travel warning issued by the Foreign Ministry. Countries were most popular as spatial examples; (economic) regions like the Hocheifel or disputes on land use like the Fehmarnbelt crossing, the slaughterhouse Wieze and Abbot Point mining project were rarely discussed.

In addition to the textbooks, the publisher Klett has provided materials for the analysis of spaces with the help of the four spatial concepts. The Nürburgring racetrack, well-known in Germany, serves as an example in conjunction with the economic revival of peripheral regions by means of large-scale projects: With regard to the perceived space, different statements about the region (from the perspective of a policeman, a novelist, a festival visitor, and a hobby racer) are compared and contrasted; different advertising messages are presented about the ‘constructed space’ (Hoffmann 2011). This example was adopted in modified form in two textbooks.

Information material developed for the Curriculum 2000+ by the Institute for Geographical Didactics at the University of Jena takes up the example of the flood of the Elbe river in Dresden: “Space as a category of sensory perception” presents statements by those affected (local residents, tourists, conservationists, politicians, ferry operators), while “space as construction” asks which mass media are staging the flood event as a catastrophe and by what means they do so (Rhode-Jüchtern, 2002).

Compared to the themes proposed in the curricula, it is clear that the textbook authors have consistently implemented the four spatial perspectives according to Wardenga (2002), rather than pursuing purely constructivist topics. Instead of using Europe’s boundaries as a limitation, the spatial analysis was frequently applied to states; instead of maps, the only materials used were texts and pictures of beautiful landscapes and friendly people. In order to be approved by the Ministries of Education, the textbooks have to match the objectives of the curricula, but do not have to incorporate regional examples mentioned there. Further insights into the typical communication of “space as a social construct” for learners as a result of the criteria-led qualitative content analysis, especially in comparison to constructivist concepts of space in the scientific discipline, are summarized in the next chapter.

Summary diagnosis of the status quo

Based on the analyses carried out so far, the diagnosis of the implementation of social-constructivist theoretical concepts in geography instruction can be summarized as follows:

- Social construction in the form of communication about space is restricted in its didactic implementation to communication in mass media (texts and pictures) in which the learners are supposed to identify the underlying interest groups, their (linguistic) modes of representation and their intentions. There is a lack of appreciation of the fact that any social construction takes place in all forms of communication as an agreement about meanings, including ‘subjective’ statements by actors, everyday face-to-face communication, digital social networks, discussions in the classroom or in textbooks. It remains unclear who the actors behind the mass media are. At first glance, these are journalists or cartographers who, in addition to preserving the patterns of interpretation of their lifestyle group, could also be serving the economic interests of their newspaper or transporting the unfiltered interpretations of third parties. In the case of cartographic ‘distortions’ of maps, little distinction is made between intention and graphic limitations such as projection, scale and optical resolution.

- The perceptual space is predominantly equated with the utterances by individual actors (often referred to by name). The fact that individuals do not carry out entirely individual but rather socially configured space syntheses (e.g., from within their roles) is concealed, as are mass media, whose representations are ultimately always composed by individuals. Foucault’s discourse theory makes it clear that individuals in discourses do not act as individuals but from a socially standardized speaker position and articulate legitimate statements for this position, in a combination prescribed by the discourse.

• Social construction (in mass media) is represented as likely to be staged by linguistic and pictorial symbols such as metaphors and is shown as distorted as opposed to an assumed objective reality. Therefore, social construction is also preferably seen in tourism or investor advertising, which prepares a space for target groups through marketing and selectively beautifies it. This description contradicts the position of the social-constructivist theory that every statement (linguistic or iconic) is socially constructed. According to Löw (2017), a socially configured synthesis of spaces is different according to habitus, but only the social discourse distinguishes between the legitimacy of statements, not their 'objective' correctness. To describe tourist statements as beautifying-distorting is again part of the discourse about advertising and not an objective truth.

• Didactically, the claim to achieve access to the perceived and constructed space through multi-perspectivity and parallelism of different world interpretations is implemented above all by role-related statements from stakeholders who are interested in a space. This leads to the impasse of an idea of the world as a colorful variety of different subjective or role-related interests. The implicit portrayal of "both ... and" (an innkeeper thinks tourism is good, a forester thinks nature conservation is better; a region is interesting for tourism, at the same time many inhabitants are poor) does not deal with arguments about the interpretation of a space and about power geometries. Power is consistently ignored in the didactic implementation of the constructed space: After all, interests are not equal, but hierarchical; there is applicable law and there are sanctions for infringements. The power-blind approaches to space as a social construct thus overlook a decisive aspect of all social-constructivist theories of space (Löw (2017), Giddens (1984), Werlen (1993), Bourdieu (1984)).

• Although reference is made programmatically to overlaps and connections between the spatial concepts, the concrete implementation takes place with identical objects, and for each of these the respective own sections of connections or meanings are opened up separately (Fögele & Mehren, 2017, p. 5). The docking of the four spatial concepts to a spatial example serves a didactic purpose in order to make it clear to the learner that these are equivalent approaches. However, the task of assigning materials to one of the four concepts suggests that for a holistic analysis in a logic of regional geography a space must be dissected according to all four concepts separately. Younger students might learn better when having such a fixed concept but they necessarily should reflect it afterwards in higher class grades.

• The textbooks and teaching materials present the spatial concepts as analytical tools of geography. Although such a grid seems useful for school purposes, this contradicts the ontological understanding of the social-constructivist theory of space and a reflection of those four concepts is absolutely necessary. The basic idea of social regulation through space is only echoed in a few articles, for example when Fögele and Mehren (2017, p. 6) point out that the structural design of a shopping mall serves to exclude certain groups of people such as the homeless and street musicians, or Hofmann and Mehren (2012) derive rules of conduct from spatial settings. Social-constructivist spatial theory does not see itself as a tool, but as a diagnosis of the existential relationship of

human beings to the material world. Accordingly, for human beings, the world is fundamentally socially constructed. Within these social constructions there exists the construct of the 'illusion' that there is a genuine, unambiguous Euclidean space which is directly accessible to science.

- The role of science in the construction of spaces is not addressed. It remains open, which phenomena are merely taken up by science and which are actively constructed and to what extent science reproduces and legitimizes the constructs of social actors. Of course, this should be a goal for higher class levels (11/12th Grade) in such detail.

- Representatives of the field of geography education consider the number of geographical didactic approaches that react to current social geography work and theoretical discussions to be manageable, to say the least; there is also hardly any empirical teaching research on this subject (Budke & Glatter, 2014, p. 498). Miener (2012) deplors the fact that adequate methods for teaching geography are still lacking in relation to the spatial perspectives of the perceived and socially constructed space.

Discussion

With regard to the implementation of social-constructivist theoretical approaches, the German path via the four spatial concepts and their concretization for the purpose of teaching thus leads to something of an impasse. Essential theoretical positions are either not adopted at all, or only marginally. Such positions are the social order and stabilization through space syntheses, dialectics of social relations and physical-material correlates, the function of space for social distinction as well as the meaning of power in the form of allocative and authoritative resources with space as one such resource. Consequently, in geography, learners are brought into contact at best with a light-weight version of social constructivism without differentiating between different levels of complexity. This finding corresponds to the broadly recognized gap between academic and non-academic geography (Bustin, 2011; Harris, 2013; Butt & Collins, 2017).

This paper argues that a constructivist understanding of space is not a rather exotic perspective for certain special cases of geographic research, but instead the central perspective on space to which other views are subordinated as more specific variants. Accordingly, space as a social construct should not be limited for the specifics of mass media staging in a 'softened' version as one analytical spatial concept among several. The reasons are the following:

- Relevance of the theory. The question that is central to social-constructivist geography and at the same time to everyday action in space for every human being is that of who is allowed to do what in which place (move themselves or move information / objects there). This applies to 'appropriate' behavior in the public sphere just as it applies to the question of whether it is legitimate to relocate production to countries with low wages and low social and safety standards. According to Griffith (2010), this critical view offers an important

approach in geography instruction, since the question of who is included or excluded in certain places can be linked to the schoolchildren's own experiences.

- Ubiquity of spatial production through language. Essentially, the meaning of spaces is conveyed socially, usually via linguistic constructions. In this respect, the nature of the objective space does not play a role, because we can state in line with the sociological spatial theory by Löw (2017) that a space is created only through synthesis, i. e. through the socially preformed (re-)cognition of material elements and bodies. On this basis, the synthesized space is used and shaped by actions, because any representation of space has a performative effect by influencing political decisions of everyday practices (Fricke & Gualini, 2017, p. 204). (Geography) instruction is a genuine space of communication about space; whether this is based on media or on direct experience is irrelevant, since articulation in language is always socially standardized. Reflection on space is therefore especially necessary here. This observation corresponds to the general demand for language-sensitive geography lessons (e. g. Budke & Weiss 2014, Wey, Gölitz & Schubert, 2020).

- Geography as political education. The confrontation with the emergence of spatial syntheses that are regarded as legitimate enhances judgement skills, since time and again one must question not solely the intentions and benefits of a spatial synthesis, but also the conditions and power geometries surrounding its emergence (Miener, 2012, p. 45). Understanding processes of social production of space through thinking as a critical practice helps learners to live in a self-determined manner and to take responsibility for their own decisions in the sense of spatial citizenship (Bennett, Wells & Rank, 2009) which in turn coincides with the demand for political education through geography (e. g. Lambert & Machon 2001, Ford 2016).

- Liberation from the restriction imposed by prescriptions: In geography lessons, for example, classifications (developing countries, emerging economies, industrialized countries; developing countries, Third World, the Global South) are often problematized but are nevertheless retained. Recognizing the concepts as conventions allows the freedom to position oneself with one's own concepts and definitions, which are not discursively confirmed, but which initially represent a legitimate view alongside all others. Penrose (1999, p. 238) believes that it is important for learners to recognize the construction process and its consequences and to think creatively about other ways of conceptualization (critical deconstruction plus constructive reconceptualization).

- Convergence of geography education in schools and scientific geography. There is a gap between geography at school and university, because the university, in contrast to the school, has completed the postmodern turn to social-constructivist approaches. Decoupling the school from current research leads to the fact that the subject loses its intellectual acuity and fascination for learners (Winter, 2007, p. 352), as they lack contact with an important segment of methods and results from the research exploring current socially relevant topics and problems. The closer a scientific discipline and a school subject are to each other, the easier it is to develop a solid subject science perspective for the school subject (Rolfes & Uhlenwinkel, 2014, p. 365).

• Critical reflexivity towards science. The constructivist perspective shifts the central question of the consideration of scientific knowledge from the consideration of whether a (scientific) statement is appropriate to reality to the question of who benefits from this statement about reality. This brings into play the producers of knowledge and their intentions. The basis for dealing with statements from science should therefore be a form of methodical relativism: Scientific knowledge that is considered to be true should be examined in a social-constructivist manner just like knowledge that is considered to be false, which is explained from the outset by ideology or intention (Bloor, 1976). This view is not only of epistemological significance, but it also enables learners to relativize arguments in discourses and to recognize their strategic significance.

Conclusion

The present paper attempts to reason that social-constructivist spatial theory represents an essential approach for a contemporary geography that can be connected to other social sciences and that should also be usefully adopted for geography teaching. By contrast, German geography didactics and teaching practice, which are examined more closely here, show that social-constructivist approaches are underrepresented and limited to a light-weight version of the constructed space within the teaching of the four spatial concepts. The example serves to illustrate the risk that an undoubtedly well-intentioned, overly didactic reduction of conceptual ideas can itself generate inappropriate ideas in schoolchildren. Naturally, this point of view is difficult to understand and to endure especially for younger students. This is certainly one reason why constructivism as interest-based communication (in the sense of the well-known manipulation through advertising) has prevailed. But this simplification obscures the central constructivist idea of society and power organized through space (Hammond 2019). In the context of an understanding of geography as political education for spatial citizenship and responsible spatial action competence, topics such as mobility and gentrification could be taught a logic of social-constructivist spatial theory.

In order to promote and propagate social-constructivist approaches, it is necessary to develop and evaluate more every day and motivating teaching examples. For instance, a good starting point for the constructivist perspective could also be the textbooks themselves, an approach that is contingent on an understanding of textbooks as distributors of socially constructed concepts of space and not as strongholds of unambiguous truths. Generally, a profound discussion on the social construction of spaces is necessary in geography education and a dialogue between the disciplines. Research in geography education should investigate the ideas and opinions of scientists, teachers and students about space as socially constructed. The study of Bette & Schubert (2015) on students' attitudes towards the "4 spatial perspectives" is a first step in this direction. It would be valuable to design a sort of stage model and to check how learners can be gradually introduced to increasingly complex aspects of a social constructivist understanding of space in order to incorporate these findings into curricula and textbooks. A great deal more empirical research is

needed on working with social-constructivist theoretical elements in geography instruction in order to fine-tune topics and tasks that fascinate schoolchildren, but do not overtax them. Finally, geography teachers in other countries may be inspired to examine their textbooks and materials to estimate how these deal with the constructivist idea of space and place.

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