RESEARCH REPOSITORY

Critical Geopolitics and School Textbooks: The Case of Environment-Conflict Links in Germany

Abstract:

This study explores the conceptual and empirical utility of studying school textbooks from a critical geopolitics perspective. School textbooks bind together various discourses, modalities and genres and can reflect the dominant knowledge in a given society. They therefore have a high potential to reveal the citational practices resonating between the domains of formal, practical and popular geopolitics. Studying school textbooks can also enrich the literature on children's and young people's (political) geographies by analyzing how the political worldviews and agency of young people are shaped by teaching materials. Empirically, the study draws on a mix of quantitative and qualitative methods to study how environment-conflict links are textually and visually portrayed in German geography and civics textbooks. The results suggest that German school textbooks significantly reflect the depictions of environment-conflict links in political, media and popular science discourses and thus reveal crucial citational practices. Drawing on the environmental security literature, it is further argued that these textbooks convey problematic geographical imaginations: they overemphasize the risk of environmental conflicts, reflect ideas of spill-over effects threatening the global north, and portray people from the global south as irresponsible and threatening.

INTRODUCTION

"Anyone inquiring into the ways and settings in which knowledge is acquired, stored, applied and altered must have an interest in consulting educational media, particularly

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in textbooks and curricula […] they reflect the knowledge and values defined by a given society […] as essential" (Lässig, 2009: 1-2)

Simone Lässig calls for all those investigating dominant knowledge schemes and discourses in a given society to draw on school textbooks and their associated curricula. Several studies suggest that school textbooks are in fact widely used (Fuchs, 2011; Fukuoka, 2011; Pepin et al., 2001), are perceived as authoritative by their users (Bar-Tal, 1998; Christou & Spyrou, 2016; Durrani, 2007), and are therefore crucial for the transmission of dominant discourses from one generation (of policy makers, voters, journalists etc.) to the next generation.[1]

Within the discipline of geography (and also within International Relations), the analysis of school textbooks is especially promising for the field of critical geopolitics as it strongly focuses on dominant discourses and their (geo-)political implications (Dalby 2008). One of the central assumptions of this research field has been formulated by Mamadouh & Dijkink (2006: 360): "Any story of the world uses implicit geopolitical visions and images." Consequentially, critical geopolitics focuses on the construction of geographical knowledge and geo-spatial identities (which can be summarized under the term geographical imaginations), the power relations they produce, and the practices they legitimize (Dalby, 2010; Müller, 2008). It is common to distinguish between the analysis of formal geopolitics (theoretical and scholarly geopolitical reasoning), practical geopolitics (statements and practices of policy makers) and popular geopolitics (geographical imaginations circulating in popular and mass media) (Dittmer & Gray, 2010). However, in reality, practices and discourses from all three domains overlap and shape each other. Bialasiewicz et al. (2007) argue that the interactions and resonances between different societal domains are most powerful in shaping political realities.

The main argument of this article is that school textbooks are interfaces of formal, practical and popular geopolitical discourses and thus well-suited to reveal the geographical imaginations which resonate between these three domains. This argument is demonstrated empirically by focusing on the depiction of the links between environmental stress and conflict in German school textbooks.

I focus on Germany for a variety of reasons. Germany is widely accepted as an influential player in global environmental politics and increasingly also international security politics. Issues of environmental change and conflict/security have also gained much attention in public debates in Germany (Schäfer et al., 2015).

This article also puts forward two subsidiary points. Firstly, it contributes to the literature on the critical geopolitics of environmental change and on environmental security discourses (Dalby, 2014; McDonald, 2013). Several studies find that an inadequate portrayal of environment-conflict links can legitimize northern interventions in the global south and militarized foreign policies, among others (e.g. Brzoska, 2009; Hartmann, 2014). In the empirical analysis, I evaluate whether these claims are also true for German school textbooks. This study thus contributes to the core agenda of critical geopolitics as defined by Dalby (2010: 281): "critical geopolitics is about challenging how contexts are constructed to justify violence."

Secondly, an emerging body of literature on children's (political) geographies is analyzing how young people exert political agency and how they not only receive and reproduce geopolitical discourses, but also actively influence and construct them (Philo & Smith, 2003; Skelton, 2013). Recently, several authors have argued that analyzing the discursive and material factors which shape and constrain young people's political agency would greatly benefit this area of research (Benwell & Hopkins, 2016; Kallio & Häkli, 2010). School textbooks are highly relevant in this context as they supposedly play an important role in the political and spatial socialization of young people.

The remainder of this article is organized as follows: The second section will outline the theoretical foundations of this paper by drawing on the literature on critical geopolitics, environmental security and children's and young people's geographies. The following section describes the methodology of the empirical part of this study. In the fourth section, I will analyze the depiction of environment-conflict links in German curricula and especially in school textbooks. By comparing them to the dominant discourses in the domains of formal, practical

and political geopolitics, I find that school textbooks are indeed a good indicator of the citational practices resonating in a given society. I also show that the analyzed textbook passages contain various geographical imaginations that are strongly criticized by the literature on environmental security. Finally, the paper draws a conclusion and formulates recommendations for future research.

THEORETICAL CONSIDERATIONS

Critical Geopolitics and School Textbooks

As discussed above, critical geopolitics is usually considered to deal with three domains:

> "formal geopolitics, the domain of academics and advisors, and more grand narratives; practical geopolitics, the domain of policy making and geopolitical reasoning justifying concrete foreign policy actions; and popular geopolitics, the domain of the public realm and the media that foster support and legitimacy - or fail to do so - for foreign policy". (Mamadouh & Dijkink, 2006: 355)

School textbooks can be conceived of as parts of all these three domains. Firstly, their content and distribution is clearly structured by political elites, especially by the government (Ingrao, 2009). School textbooks are usually politically regulated, for instance when textbooks are published by the state or structured to comply with government-defined curricula, syllabi and examination content. In many countries, including Germany, the publication and use of textbooks is also dependent on permission from the ministry of education (EDU.DATA, 2015). This enables political elites, and especially governments, to influence the content of school textbooks (e.g. Bleiker & Young-Ju, 2007; Naseem & Stöber, 2014; Nguyen, 2014).

Secondly, not at least due to their enormous coverage, school textbooks can also be characterized as popular mass media, hence belonging to the domain of popular geopolitics (Dodds, 2008; Sharp, 2000). In the words of Lässig (2009: 2), "for millions of people they have been the first,

and often the only, books that they had read." In several countries, such as Germany, they are also not written by political or academic elites, but by teachers or employees of the publishing company (Bhattacharya, 2009; Macgilchrist & Marmer, 2015). Some authors argue that school textbooks are "perceived by students as authoritative and factual" (Bar-Tal, 1998: 725), thus contributing to the everyday (re-)production of hegemony in a given society (Ingrao, 2009).

Finally, the academic domain is usually deeply involved in the production of school textbooks, thus locating them in the domain of formal geopolitics. The persons responsible for writing and approving textbooks are usually teachers (as in Germany), publishing house employees and civil servants who have received some academic training, or academics themselves (EDU.DATA, 2015). Among others, school textbooks thus draw on academic debates and recontextualize them according to pedagogical/didactic (and political) criteria[2] (Klerides 2010).

The divide between the three different domains of geopolitics has always been rather heuristic. In the lived realities of everyday and high politics, all three domains are usually closely intertwined. Various scholars have therefore emphasized the necessity of investigating how the different domains of critical geopolitics overlap, interact and shape each other (Ingram & Dodds, 2009; Saunders, 2012). According to Bialasiewicz et al. (2007: 409), "citational practices that are reiterated in cultural and political sites" are highly important for the production of knowledge and eventually political action. Dominant political and popular cultural discourses (e.g. Sharp, 2000; Weber, 2010) as well as dominant academic and political discourses (e.g. Heske, 1986; Livingstone, 2015) frequently shape each other, thus producing particularly influential geopolitical imaginations. Similarly, Weldes (2006) argues that intertextuality - that is the various cross-references and shared basic assumptions which underpin quite different texts - is crucial for an understanding of the broader cultural basis which enables and restricts foreign policies. Dominant geographical imaginations are hence produced through loosely associated discourses and practices which can be located in different domains and places, but which resonate with and

reiterate each other, thereby creating a consensus about certain "facts" and worldviews (Connolly, 2005).

Taking the notions of citational practices, resonances and intertextuality further, critical geopolitics will benefit from the analysis of school textbooks because they are not only parts of, but interfaces between the domains of formal, practical and popular geopolitics. Textbooks combine various discourses (political, scientific, educational, media etc.) and modalities[3] (descriptive texts, pictures, tasks etc.) and provide a mixture of various genres such as historical sources, newspaper articles or academic texts (Klerides, 2010; Otto, 2013). They are therefore well-suited to study the geographical imaginations which resonate within a given society and which are designated to be passed to the next generation. Textbooks certainly also reflect (place- and time-specific) controversies within and between various domains of a society (Fuchs & Otto, 2013; Nozaki & Selden, 2009). But they reflect a certain, and *limited,* set of discourses which resonate with each other and define some common ground and shared assumptions.

Environmental Security and School Textbooks

The relationship between environmental stress, renewable resource scarcity and (violent) conflict gained prominence during the 1990s. From 2007 onwards, the issue received additional attention as concerns about the security consequences of climate change intensified (Meierding, 2013). "Previous research largely agrees that environmental problems and climatic changes are unlikely to provoke violent inter-state disputes" (Ide & Scheffran, 2014: 264). By contrast, there is still considerable disagreement about whether environmental stress has an impact on the onset of civil wars or communal violence (Deligiannis, 2012; Salehyan, 2014). There is also some empirical evidence that environmental stress under certain circumstances has a positive effect on violence prevention and conflict resolution (Barquet et al., 2014; Wolf et al., 2003).

Most authors welcome this idea of environmental peacemaking as it highlights cooperation, shared problem solving and the agency of those suffering from environmental stress (Ali, 2007; Conca et al., 2005). By contrast, the concept of environmental security and especially the environmental conflict discourse have been criticized by the critical geopolitics (Barnett, 2009; Dalby, 2014) and the security studies (Selby & Hoffmann, 2014; Verhoeven, 2014) literature. Claiming a link between environmental stress and (especially violent) conflict despite a lack of conclusive scientific evidence might produce five undesirable (and probably unintentional) consequences:

Firstly, overly dramatic claims about environment-conflict links, especially in the face of ambiguous empirical evidence, might be perceived as alarmism, thus undermining the credibility of environmental research and activism (Buhaug, 2010; Manzo, 2012). Secondly, claims about environmental stress as a cause of conflict might depoliticize the political and economic inequalities driving many conflicts (Selby & Hoffmann, 2014). Thirdly, visions of environmental conflicts, and especially of water wars, provide argumentative support for the continued existence of high military budgets in the post-Cold War world (Brzoska 2009). Such budgets are easier to justify if the world is considered inherently insecure and laden with conflicts likely to increase in frequency and intensity with advancing climate change, soil degradation and water depletion (Barnett, 2009; Sharp, 2011).

Fourthly, portraying environmental stress as a source of instability in the global south can potentially legitimize interventions by states of the global north, such as governance reforms or the establishment of military infrastructure (Hartmann, 2010). Legitimation for interventions is mainly provided by the anticipated security consequences of disorder in the global south (e.g. breeding grounds for terrorism) for the global north (Hartmann, 2014), but also by an impetus to protect innocent victims in the global south (Nguyen, 2014). Finally, imagined geographies representing certain regions as unable to cope with adverse environmental changes and as prone

to resorting to violence in such cases have the potential to reproduce colonial images of an uncivilized and barbaric other (Methmann & Rothe, 2014; Verhoeven, 2014).

As it is especially concerned with the geographical imaginations legitimizing militarized policies and external interventions, critical geopolitics would clearly benefit from analyzing the depiction of environment-conflict links, as I will show below. And like large parts of critical geopolitics research, the literature on environmental security has not considered school textbooks so far.

Children's and Young People's Geographies and the Role of School Textbooks

Children and young people so far only play a minor role in the field of critical geopolitics. However, from the early 2000s onwards, a rapidly growing literature has focused on children's and young people's political geographies (Skelton, 2013) and critical geopolitics (Benwell & Hopkins, 2016). By doing so, scholars have responded to calls from feminist researchers to focus on grounded and everyday geopolitical actions, discourses and perceptions rather than merely on the state or elite level (Dixon & Marston, 2011). Research on the critical geopolitics of young people is considered relevant due to the „importance of children in the building of future societies" (Kallio & Häkli, 2010: 357), but also because the role young people play in current politics. Various studies have shown how young people are actively involved in and shape political processes (Kallio & Häkli, 2011; Philo & Smith, 2003). This is also true for the fields of environmental and climate politics (Stratford & Low, 2015), although environmental security scholars have so far hardly focused on children as political actors or as recipients of environmental security discourses. By focusing on the depiction of environment-conflict links in school textbooks, the paper at hand takes up this task.

While many studies convincingly demonstrate young people's agency in appropriating, modifying and acting upon geopolitical discourses, there is a lack of consideration on how this agency is constrained. So far, researchers „have [largely] neglected the social and spatial contexts that often

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determine the extent to which children and young people can express agency" (Benwell & Hopkins, 2016: 11). For instance, Hörschelmann (2008: 594) finds in her study on the response of youths from Leipzig to the war in Iraq that the "[m]edia provided not only information and a range of arguments, but also […] a discursive framework which participants used in their discussions."

Researchers have already focused on the roles of teachers (Benwell, 2014), peers (Hörschelmann, 2008) and families (Staeheli & Hammett, 2013) on young people's geographical imaginations. School textbooks have a wide coverage, are accessed by young citizens before their political worldviews are fully developed, and are frequently considered as containers of knowledge that is considered essential by a given society. The consideration of these books can hence enrich the analysis of the discursive contexts which influence young people's political and spatial socialization and thus shape their agency as "political beings and political becomings" (Kallio, 2014: 211). However, when doing so, it is important to consider the actual use and reception of school textbooks (Benwell, 2014; vom Hau, 2009) as well as the range of other social and material influences on children's and young people's geographical imaginations. I will return to this issue in the conclusion.

SAMPLING AND METHODS OF ANALYSIS

In Germany, the educational system is organized federally, meaning that all 16 federal states have their own curriculum and, at least partially, specific textbooks. In order to keep the analysis simultaneously practicable and representative, two federal states were selected for the in-depth analysis. More specifically, I created a sample consisting of textbooks from the federal states of Hesse and Mecklenburg-Vorpommern (MVP). This decision was driven by two criteria. Firstly, the sample also ensures that the still important political divide between West Germany (Hesse) and (formerly communist) East Germany (MVP) does not distort the results. Secondly, in

Germany, civil servants in the ministries of education (appointed by the relevant ministers in office) are mainly responsible for setting up the curricula and for finally approving the textbooks (Macgilchrist & Marmer, 2015). Hesse and MVP have experienced coalition governments or frequent political changes between the major parties in recent years. The analysis is therefore not distorted by analyzing federal states whose civil servants, curricula and permission practices are strongly influenced by the (historical or recent) dominance of particular (coalitions of) parties, thus undermining inferences from the results to Germany as a whole.

An initial analysis of the curricula suggested that the study should focus on civics[4] and geography textbooks from years eight to 13[5] because issues of peace/conflict/security and environmental change/stress are mainly taught in these contexts. Before starting the main analysis, I randomly compared the respective chapters in the geography and civics textbooks for Hesse and MVP with textbooks for other federal states. The differences in the chapters on environmental and peace/conflict issues were minimal. Eventually, all 49 textbooks which were on the May 2015 permission lists for civics and geography teaching in the schools of Hesse and MVP for year eight upwards were analyzed.

The primary goal of the analysis was to investigate how environment-conflict links are depicted in the textbooks and which geographical imaginations are conveyed by these depictions. In order to do justice to the character of school textbooks as multimodal, the study employed a multi-method approach, which combined quantitative and qualitative approaches and focused on texts as well as on images. Firstly, I conducted a quantitative content analysis of the schoolbook texts along the guidelines described by Krippendorff (2004). Since visuality plays a central role in geopolitical and environmental discourses (Campbell, 2007; Manzo, 2012), this was complemented, secondly, by a visual content analysis as discussed by Rose (2005) and Jank & Knecht (2014). More specifically, I conducted a quantitative visual content analysis in order to get an overview about the data, subjects and places depicted by the maps, photographs and figures in the textbooks (Bell, 2004; Methmann & Rothe, 2014).

Categories for both content analyses were developed in accordance (a) with the existing literature on environmental security (e.g. Dalby, 2009; McDonald, 2013), environmental conflicts (e.g. Gleditsch & Nordås, 2014; Ide & Scheffran, 2014), critical geopolitics (e.g. Culcasi, 2006; Rech, 2014) and textbook research (e.g. Durrani, 2007; Marmer et al., 2011) and (b) with the empirical material. Both quantitative analyses were mainly used to discern basic patterns in the data. Each section of text referring to environment-conflict links and the accompanying illustrations were coded by two separate persons working independently of one another. Dissonances between both coders were afterwards resolved by discussion, resulting in an agreement of 97%. Summaries of the coding manuals are provided by the online appendix.

In a third step, I conducted a qualitative assessment of the texts and illustrations. In order to do so, the coding procedure of Grounded Theory was used. Coding in this context means "taking raw data and raising it to a conceptual level […] deriving concepts to stand for those data, then developing those concepts in terms of their properties and dimensions" (Corbin & Strauss, 2008: 66). In other words, the raw data were developed inductively into more abstract concepts which could then be related to each other and used as the building blocks for the qualitative analysis. Each code was accompanied by a memo elaborating why the code was allocated, how it could relate to other codes and which uncertainties or questions remained for further analysis. After codes had been kept open and flexible in the first stage of the analysis (open coding), they were increasingly specified and synthesized (axial coding) and related to each other (selective coding) during the research process (Glaser & Strauss, 1967).

RESULTS

German curricula do not devote a lot of space to environment-conflict links. Of the 42 curricula analyzed for civics and geography at various types of schools in Hesse and MVP, only four (10%) mention environment-conflict links as a phenomenon that should be studied. However, the

curricula only briefly and generally list the issues to be covered, thus leaving considerable freedom to both textbook authors and teachers. 73% of the school textbooks under study discuss the relationship between environmental stress and conflict. Altogether, eighty text passages dealing with environment-conflict links were detected, ranging from a few words referring to the causes of conflicts to entire subchapters on water conflicts. These text passages are accompanied by 76 illustrations.

The results of the quantitative analyses are discussed together with the findings of the qualitative analysis in the remainder of this section. The textbook content will also be compared to broader discourses in formal, practical and popular geopolitics and related to the arguments put forward by the environmental security literature. This discussion will be structured along four central and related codes which emerged during the ground theory-inspired analysis: conflict and cooperation, spill-over, environmental determinism and global south. The full results of the quantitative content analysis are shown in the online appendix.

Conflict and Cooperation

The majority of text pieces analyzed (52%) discuss a link between environmental stress and conflict in general, while 39% focus specifically on the link between environmental stress and violent conflict (for the remaining 9%, the focus is unclear). The nature of these conflicts is often either not specified (40%) or characterized as interstate (37%). This is surprising given that research considers violent interstate conflicts triggered by environmental stress very unlikely. Furthermore, 84% of the school textbook pieces analyzed claim the existence of a link between environmental stress and conflict, 12% consider such a link at least hypothetical or possible in the future, and only 4% are skeptical about it. This tendency is confirmed by several strong statements on the existence of an environment-conflict link, such as: "A US report warns about an era of water wars. According to US intelligence services, water scarcity will trigger conflicts

around the world in the future" (Korby et al, 2014: 176).[6] By contrast, the possibility of environmental peacebuilding is only mentioned in 6% of the textbook pieces under study and nowhere discussed in greater detail or by referring to a concrete case.

Correspondingly, 11% of the accompanying photographs show military personal or equipment, only outnumbered by the categories "resources" (43%) and "others" (17%). Particularly relevant in this context are illustrations such as the one reproduced in Figure 1. This collage provides the opening for a chapter on "Peace and Security as Tasks of International Politics" and combines photos of a tank, land mines, terrorism and migration with photos associated with drought, water scarcity/pollution and poverty. The collage thus not only represents environmental stress along the categories of danger and catastrophe (Manzo, 2010), especially as the dangerous phenomena (the tank, the drought, the explosion etc.) appear to be very close to the viewer. It also suggests a link between environmental stress, poverty and violence even before a single word has been written on the issue.

INSERT FIGURE 1 AROUND HERE

German school textbooks thus overstate the risk for environmental conflicts (especially violent and interstate conflicts). Simultaneously, they play down the possibility that environmental stress is unrelated to conflict or can even facilitate cooperation and conflict resolution (environmental peacebuilding). But does this representation reflect wider intertexts in formal, practical and popular geopolitics?

This is clearly the case for practical and popular geopolitics. A large number of high-ranking policy makers and forums, including Barack Obama, Ban Ki-Moon, the UN Security Council, the European Commission and the G7 foreign ministers, have publicly identified environmental stress as a driver of insecurity and conflict (Brauch, 2009; McDonald, 2013). Katz (2011)

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demonstrates how policy makers, NGOs and the media systematically overemphasize the risk of water wars since the 1990s, a result confirmed for the discussion of climate conflicts in various newspapers (Gleditsch & Nordås, 2014). And the movie "The Age of Stupid", a blend of documentary and dystopia which was well-received in Germany, portrays nuclear wars over water between India and Pakistan as a possible consequence of climate change in the 2050s (von Mossner, 2013).

The picture is more ambivalent when it comes to formal geopolitics. Studies finding a strong link between environmental stress and violent conflict are still being published and widely received (e.g. Gleick, 2014; Hsiang et al., 2013). In the German context, the well distributed popular scientific book *Klimakriege* ("Climate Wars") by Harald Welzer (2012) claims a strong link between climate change, environmental stress and violent conflict. On the other hand, the edited volume *Klimawandel und Konflikte* ("Climate Change and Conflicts") indicates that German researchers engaging more seriously with the topic are reluctant to claim a strong environment-conflict link in the face of ambiguous empirical evidence (Brzoska et al., 2011). But environmental peacebuilding is also hardly an issue in the volume (or similar publications of German academics).

With regard to conflict or cooperation as a consequence of environmental stress, German school textbooks thus reveal citational practices circulating within and between the domains of practical, popular and partially formal geopolitics. They also reproduce some of the discourse fragments criticized by environmental security research. As discussed in section 2, overstating the risk of (violent and interstate) environmental conflicts provides argumentative support for military budgets and militarized policies, and runs the risk of being accused of ill-founded alarmism.

Spill-over

In their discussion of environment-conflict links, German school textbooks strongly focus on the global south. All concrete cases of (potential) environmental conflicts discussed refer to locations in the global south, with the partial exception of water conflicts between the OECD members Israel and Turkey and their respective neighbors (each mentioned in 13% of the textbook pieces analyzed). Next to these two cases from Asia, textbooks frequently refer to Africa, either in general (5%) or more specifically to conflicts in Darfur (10%) and around the Nile River Basin (3%). Similarly, nearly two thirds of the photos printed show locations or people (usually Africans or Arabs) in the global south. This focus is pretty much in line with academic, political and media discourses on environmental conflicts, which also largely limit their attention to the global south (Selby & Hoffmann, 2014; Verhoeven, 2014).

The environmental security literature has criticized how academic and especially policy and media discourses in Germany, as well as in other countries, portray environment-conflicts links in the global south as a security threat to the global north (the depiction of the global south itself is discussed in a separate section further below). Wider regional instabilities (Brzoska, 2009; Methmann & Rothe, 2014) and international migration flows (Bettini, 2013; Hartmann, 2010) are the mechanisms most frequently mentioned in this context. Academic studies and policy documents which depict regional conflicts and large-scale migration caused by environmental change as a security threat to the global north are widely discussed in German news media (e.g. Spiegel Online, 2012; SZ.de, 2013). And the German Federal Minister of Economic Cooperation and Development Gerd Müller has already warned that millions of climate refugees have the potential to overwhelm Europe's absorption capacities (Welt.de, 2014). Are such citational practices reflected in German school textbooks as well?

The answer is yes. Many of the textbooks explicitly or implicitly discuss potential spill-over effects of environmental conflicts which could create insecurities for other regions and states, including those of the global north. Migration is depicted as a key mechanism in this regard. Several of the respective text passages are rather general and vague, sometimes only stating that

"a growing number of climate refugees could threaten world peace" (Flath & Rudyk, 2011: 178). Other textbooks are more concrete and portray migration caused by environmental stress as undermining regional stability or even as a direct threat to northern societies: "And this [migration] can cross continents, and the conflicts and the associated security problems therefore reach our affluent societies" (Betz et al., 2013: 83). Those particularly exposed to and suffering from environmental stress are hence portrayed as a security threat to those who are not only well equipped to adapt to such stress, but who are also to a large degree responsible for this environmental stress due to their consumption patterns and CO_2 emissions (see also Dalby, 2014).

An impression of danger and insecurity for the global north is intensified by the relatively high number of school textbook pieces referring to environmental stress as a cause of wars/violent conflicts (39%) and of interstate conflicts (37%) as well as to environmental conflicts involving countries with political relevance for Germany, such as Turkey (13%) and Israel (13%).

Just like in the popular and practical geopolitical discourses in Germany (Methmann & Rothe, 2014), school textbooks convey the notion of environmental conflicts as a potentially global security problem with strong origins in the global south on the visual level as well. For instance, the map reproduced in Figure 2 shows the locations of 15 water conflicts on a world map (colored in order to indicate the dependence of water flows from neighboring states), accompanied by short information on each conflict in a related box. Only two of these conflicts are confined to the global north (the Ogallala aquifer in the US and the Ebro River in Spain[7]) and four more involve states that can be considered as part of the global north (Israel, Turkey and the US). However, the large number of arrows pointing to different world region gives the impression that water conflicts are a ubiquitous phenomenon that is prevalent in many regions of the world, thus highlighting a sense of global relevance and insecurity. This impression is reinforced by the first sentence of the text accompanying the map: "Conflicts about water, which occur in many regions of the earth, have become a global problem" (Willert, 2014: 60).

Such portrayals of the world as full of (violent) environmental conflicts which can negatively affect the security of other regions clearly reflect the geographical imaginations dominant in German formal, practical and popular geopolitical discourses. By relating them to the security interests of the global north (especially via migration flows), they also provide argumentative support for military budgets (in the context of constant insecurity) and northern engagement in the affairs of countries in the global south.

Environmental Determinism

Environmental determinism, defined as the belief that environmental factors have a very strong impact on human behavior and social dynamics, has long been criticized by human geographers and political scientists (Gemenne et al., 2014; Peluso & Watts, 2001). This accusation does not apply to the majority of academic studies (Ide & Scheffran, 2014), but certainly to some highly visible publications on environment-conflict links such as those by Dyer (2011), Kaplan (1996), Parenti (2011) or Welzer (2012), all of which are available in German. Environmental determinist approaches can also be detected in practical and popular geopolitics. German public-service broadcaster ZDF (n.d.) for instance aired the documentary *Machtfaktor Erde* (Power Factor Earth), which describes a quasi-automatic link between water scarcity and war in South Asia and Peru. This mirrors earlier dire predictions of future water wars in renowned German newspapers (e.g. Jacob, 1999). According to Methmann & Rothe (2014), pictures used by German news media and policy reports indicate a direct link between environmental change, population growth and political instability as well. However, much more differentiated media reports also highlight human agency and the potential for cooperation in the face of environmental stress (e.g.

Bojanowski, 2015; Schulte von Drach, 2007). Similarly, Brauch (2009) has compiled a large number of policy statements on environment-conflict links, some of which reflect environmental determinist ideas while others do not.

In German school textbooks, environmental determinist and more nuanced approaches compete with each other, and often exist in parallel within the same textbook. On the one hand, several text passages portray conflicts as a quasi-natural consequence of environmental stress:

> "The growing population has to be supplied with fresh water, food from irrigated agriculture and energy from hydropower plants. More and more people have to get along with less and less water, because the resources are limited. Their use is increasingly becoming a trigger of conflicts." (Haberlag et al., 2011: 227)

Such statements frequently refer to violent conflict as well: "Hunger and misery as a consequence of natural disasters, which are also induced by climate change, cause violent distributional conflicts" (Riedel, 2013: 267). This impression of a strong and direct link between environmental stress and conflict is reinforced by the fact that 84% of the textbook passages analyzed assert that an environment-conflict link exists.

On the other hand, there are textbook passages which claim the existence of an environment-conflict link, but situate such a link in wider political, cultural and economic settings. By doing so, they stress the importance of social dynamics and human agency vis-à-vis bio-physical (and demographic) factors:

> "Economically motivated water conflicts erupt if water prices are introduced or raised, as in Mexico City. The consequence is that the poor have to pay disproportionally high prices for fresh water, which threatens their water supply. In some tourist regions of Thailand, farmers often do not have enough water to irrigate their rice fields because they cannot afford higher water prices caused by the demands of golf courses. […] The real water conflicts always […] have […] a societal dimension as well." (Willert, 2013: 60)

The illustrations used in the civics textbooks further support such a nuanced approach. Maps provide social information (54%) more frequently than physical information (42%). Also, the clear majority of diagrams and tables communicate social information (80%), for example on religious diversity or past conflict dynamics. Such a visual framing highlights the relevance of political, cultural and economic factors for understanding environment-conflict links.

In geography textbooks, by contrast, texts on environment-conflict links are mainly accompanied by photos of resources (59% of all photos) and illustrations providing physical or demographic information (72% of all diagrams/tables and 74% of all maps). Readers can thus easily gain the impression that physical or hydrological factors are central drivers of the conflict dynamics, while socio-political factors only play a minor role. The map reproduced in Figure 3 for instance, used to illustrate a page on freshwater conflicts, conveys such an impression by showing the hydrological availability of freshwater per capita in the year 2000. Other information, for example on the utilization and distribution of water or on existing conflict dynamics, are neither provided by the map nor by other illustrations on the same page, which also focus on the hydrological and per capita availability of freshwater.

INSERT FIGURE 3 AROUND HERE

Altogether, school textbooks strongly reflect the simultaneous existence of environmental determinist and more nuanced, socio-ecological approaches in German formal, popular and practical geopolitical discourses. This provides further support for the argument that school textbooks are well-suited to identify citational practices resonating in various societal domains. In line with the environmental security literature, I also argue that environmental determinist approaches as partially reflected in German school textbooks depoliticize conflicts (which are supposedly caused by environmental stress rather than by political decisions or economic

structures) and provide legitimation resources for militarized policies (as conflicts caused by environmental stress are considered more or less inevitable).

Global South

As already discussed, German school textbooks overwhelmingly focus on the global south when discussing environment-conflict links. While the section on spill-over above analyzed whether environmental conflicts in the global south are portrayed as a threat to other regions (including the global north), I now focus on the specific representation of the global south.

First of all, German school textbooks consider the people of the global south responsible for the environmental stress they face. The negative impacts of colonialism are frequently noted, but not discussed in greater detail. Climate change and CO_2 emissions from the global north are sometimes mentioned, while issues such as land and water grabbing, interventions by international institutions or consumption patterns in rich countries are not discussed. Rather, outdated technologies and especially population growth are most frequently mentioned as causes of environmental stress.

An example of the former is shown by Figure 4. A discussion of water conflicts around the Euphrates and Tigris rivers is illustrated by a photograph of a dry irrigation channel in an arid and rural landscape. According to Sidorov (2009), such a lack of reference to built-up areas and advanced economic activities communicates the impression of (economic) backwardness. The landscape itself is shown in the colors of brown and yellow, which (in contrast to blue or green) also suggest decay and backwardness (Monmonier, 1996: 170). The dryness of the landscape and the irrigation channel suggest that the people of the region were not successful in addressing their environmental problems (water scarcity). This impression of backwardness and responsibility is strengthened by (i) the caption of the photograph ("M5: Old-fashioned irrigation system with a high evaporation rate") and (ii) the accompanying task on the same page ("Name measures used

20

to distribute the water" – with the only measure mentioned being the "[o]ld fashioned irrigation system") (Geisler et al, 2013: 71).

INSERT FIGURE 4 AROUND HERE

The importance attributed to population growth is reflected by the relatively large number of tables and graphs providing demographic information (16%). Text passages like the following also represent a growing population in the global south as a key driver of environmental stress and of conflicts:

> "Poor countries are responsible for more than 95 percent of the world's population growth […] But even with slightly more than six billion people today, conflicts surrounding land have intensified in Asia, African and Latin America. The plot of land available for each farmer is decreasing from generation to generation. And as soon as in 20 years' time, it is likely that more than two billion people will live in water-scarce regions. The example of West Sudan shows the potential consequences. Pastoralist nomads are competing there with sedentary farmers for water and land." (Floren 2006: 521)

People in the global south are not only portrayed as being responsible for the environmental stress they face, but also as unable to solve their (environmental or conflict-related) problems. On the visual level, most photos show them as combatants, as refugees or as helpless individuals, communicating an impression of danger, chaos and passiveness. Figure 5, which reproduces two photographs illustrating a text on the causes of conflict, provides an example of this. People from the global south are shown here either as violent (combatants) or as helpless and passive (burying their child). Like the photograph shown in Figure 4, both photographs show rural, non-built-up areas, thus communicating a sense of backwardness and hence incapability. The picture on the

left also underscores a notion of danger as a large number of armed men seem to run towards the viewer of the picture.

INSERT FIGURE 5 AROUND HERE

German school textbooks either do not mention efforts by people or governments from the global south to solve their (environmental) problems or portray these efforts as largely unsuccessful (e.g. based on backward technologies) and at times even odd. As a chapter on population, environment and conflict reports on efforts to mitigate population growth: "A no less dubious path is pursued by the Indians. The authorities in the north of the subcontinent are using the prospect of a lottery win to tempt its people into voluntary sterilization. The jackpot: a compact car" (Betz et al., 2013: 81).

The responsibility of the global south for the environmental problems it faces combined with its inability to solve them and the threats this poses to regional and global peace/stability (see section on spill-over above) communicate a clear, although implicit message: expertise and intervention from the global north or from international organizations are necessary. This confirms the assumption of the environmental security literature that the discussion of environment-conflict links can provide legitimation resources for external interventions and reproduce stereotypes of an uncivilized and dangerous other.

Again, German school textbooks clearly reveal the intertextual representation of the global south in wider environment-conflict discourses (Brauch, 2009; Hartmann, 2014). Welzer's (2012) book on climate wars portrays inhabitants of Sudan as reacting to environmental change either by migrating or by fighting. According to Methmann & Rothe (2014), policy reports and magazine articles on climate change and security in Germany are often accompanied by photos of non-white people portrayed as backward, helpless and lacking agency (see also Campbell, 2007). A

broad literature in critical geopolitics has also criticized the representation of the global south as dangerous and anarchistic and analyzed how such representations legitimize northern interventions (Grove, 2010; Nguyen, 2014; Rech, 2014). In line with such representations, the German government (Bundesregierung, 2008: VIIf.) stated several years ago:

> "The analysis of the WBGU is correct in stating that many already fragile states face the threat of further destabilization due to the consequences of climate change. Resolute, prompt and prevention-oriented action […] with regard to partner states threatened by climate change […] is necessary."

CONCLUSION

The main argument of this article is that school textbooks are a relevant, yet largely ignored subject of analysis for research on critical geopolitics. Their relevance comes from school textbook's role as interfaces of formal, practical and popular geopolitical discourses, which makes them well-suited to reveal the geographical imaginations which resonate between these three domains. The empirical findings of this study provide support for this argument. As the detailed analysis along the categories conflict and cooperation, spill-over, environmental determinism, and global south has shown, German school textbooks significantly reflect the depictions of environment-conflict links in German (and to some extent international) political, media and popular science discourses. Since there is growing recognition that intertextual geographical imaginations resonating between various societal domains are most influential in shaping political practices (Bialasiewicz et al., 2007; Dittmer & Gray, 2010; Saunders, 2012), school textbooks provide a fruitful area of future critical geopolitics research.

The findings of the paper also strongly relate to the literature on environmental security and the critical geopolitics of environmental change. German school textbooks at least partially overemphasize the risk of (violent, interstate) environmental conflicts and portray such conflicts

as a risk for regional stability and even for the security of the global north. They also reproduce stereotypes that depict the global south as backwards, incapable and dangerous. These representations have an alarmist tendency and provide legitimation resources for external interventions and high military budgets (Barnett, 2009; Hartmann, 2014). Alternative discourses, which focus on northern CO_2 emissions, the negative impacts of neoliberal economic reforms or environmental peacebuilding are largely marginalized. In other words, German school textbooks' depictions of environment-conflict links facilitate a partially misguided and potentially dangerous political agenda.

In doing so, school textbooks have the potential to shape and constrain the political agency of children and young people, either as youths or later as adults. Several recent publications suggest that school textbooks indeed have a lasting impact on young people's political worldviews (Christou & Spyrou, 2016; Voightländer & Voth 2016). However, some caution is necessary here. Various studies point out that "schoolteachers regularly contextualize, rethink, and change textbook contents" (vom Hau, 2009: 130), thus having a significant influence on classroom activities (Benwell, 2014; Bhattacharya, 2009). It is also possible that school textbooks are not properly understood (von Borries, 2010), are received in a rather subjective way (Kallio, 2014), or (especially in economically less developed states) are not widely available (Peacock & Cleghorn, 2006). Finally, other factors would appear to have a greater impact on political and spatial socialization, such as families, peer-groups, or recent political events (Porat, 2004; Staeheli & Hammett, 2013).

The findings of this study suggest several promising avenues of future research, three of which I would like to highlight here:

Firstly, given that school textbooks are indicators of citational practices in a given society, critical geopolitics should aim to uncover the geographical imaginations provided by school textbooks on other issues (e.g. terrorism, migration or economic liberalization). In doing so, critical geopolitics could think beyond the traditional domains of formal, practical and popular

geopolitics and uncover how specific power relations and policy practices are legitimized in larger intertexts. Analyzing textbooks from different time periods would show how such intertextual structures change over time. From a postcolonial point of view (Light & Young, 2009; Sharp, 2011), the comparative analysis of textbooks from the global north and the global south would be a worthwhile undertaking. It could reveal whether different geographical imaginations are dominant in various regions of the world, how such imaginations are influenced by the position of a country in the international system, and how some visions of world politics are marginalized at the expense of others.

In this context, scholars should also consider how textbook contents and pedagogical approaches travel between various regions, and especially how countries from the global north are able to structure educational material in the global south. Examples include the publication of various African and some Indian textbooks by northern publishing houses, donor campaigns to send used northern textbooks to "deprived" regions in Africa (Bhattacharya, 2009; Brock-Utne, 2005), or the promotion of seemingly universal concepts of education for reconciliation by international organizations in very diverse post-conflict settings (Hart, 2011).

Secondly, an important trend in critical geopolitics is to conduct audience studies in order to assess the actual impact of the geographic imaginations analyzed (Dittmer & Gray, 2010; Kirby, 2015). Similarly, school textbooks are only one aspect of the complex geographies of education and learning (Collins & Coleman, 2008). Analyzing empirically how textbooks are used, received and evaluated by students and how they shape political worldviews and agency vis-à-vis a couple of other factors is therefore of crucial importance. Doing so would also enrich the growing literature on children's and young people's political geographies by revealing not only how political agency is executed by young people, but also how it is directed and constrained (Benwell & Hopkins, 2016; Kallio & Häkli, 2010).

Thirdly, critical geopolitics successfully deconstructs dominant geographical imaginations but hardly expands on how such imaginations can be transformed or by which knowledge they

should be replaced (Jones & Sage, 2010). Mamadouh (2010: 321) thus diagnoses a "poor achievement in terms of societal relevance." The same is true for environment security research. This is unfortunate as there are several ideas regarding how to discuss environment-conflict links either more constructively in terms of environmental cooperation (Ali, 2007; Conca et al., 2005) or more critically in terms of neoliberalization, inequality and justice (de Châtel, 2014; Houston, 2013). Picking up on these suggestions and discussing them with ministries of education, textbook publishers and school teachers would enable critical geopolitics and environmental security research to provide transformative knowledge and hence increase their societal relevance.

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Endnotes:

[1] I will critically discuss these propositions below.

[2] Such criteria include understandability, age-specificness or relation to previous and forthcoming learning activities (pedagogical criteria) and complementarity with dominant political discourses and norms.

[3] A modality is a semiotic mode which provides specific opportunities for and restrictions to the expression of meaning (van Leeuwen, 2005).

[4] Civics, also known as civic education or social studies, aims to teach German students about the basic characteristics of the German political, economic and juridical systems as well as their international context. It is a separate subject next to history and geography.

[5] Students are usually aged 14 in year 8 and aged 19 in year 13.

[6] All translations of quotes from German textbooks are my own.

[7] The other 13 case are: fossil groundwater in Libya, the Aral Sea., the Euphrates and Tigris rivers, groundwater resources in the West Bank, the Nile, the Three Gorges Dam, the Mekong, the Indus, the Jordan River, Lake Chad, the Paraná, the Lauca River and the Rio Grande.