

“Heaven. #shopping #Frankfurt #weekend #joy” – Hashtags, Constructions of Space, and Geography Education

GI_Forum 2016, Vol.1

Page: 282-294

Full Paper

Corresponding Author:

ch.reithmeier@stud.uni-frankfurt.de

DOI: 10.1553/gjscience2016_01_s282

Christina Reithmeier, Karoline Buschbaum, Andreas Blitz and Detlef Kanwischer
Goethe-University Frankfurt, Germany

Abstract

In this article, we explore the relationship between location-dependent hashtags and the construction of space, as well as the implications that their interplay has for geography education. Hashtags referring to a specific place, e.g. #Frankfurt, acquire spatial impact when they are combined with certain traits of that place in a single post. We argue that social media activities combined with statements about places or spaces are becoming increasingly important for the understanding of digital geographies. Thus, geography education must respond to changes in the field of media culture that generate new practices of spatial construction. This means in particular that geographical media education should focus on reflective and reflexive analyses instead of a technical-based approach. To this end, we present a case study based on two urban districts of Frankfurt am Main, where we traced and interpreted the process of spatial construction via hashtags in social media, and define its pedagogical potential for geography education.

Keywords:

construction of space, social media, hashtag, geomedial, geography education

1 Introduction

Social media applications are steadily replacing traditional forms of communication and their use will continue to expand in the future. In doing so, they are altering the composition and organization of social interactions by inducing new forms of participation, communication and collaboration. When users tag their posts with a location, their posts manifest themselves as a construction of space. In 2012, 17 billion Facebook posts were connected to a specific location (Woolf, 2014). This phenomenon affects the spatial characteristics of life and the general conceptualization of space in a community. As the number of social media users reached almost the two billion mark worldwide in 2015, these new forms of spatial construction are enjoying an even greater impact, because our lives are determined by the interplay of on- and offline contexts. In other words, in the post-modern era of information and networks, tangible space is increasingly complemented by virtual interactions. Graham &

Zook (2013) refer to this kind of addition to reality through interactive intersections as 'augmented realities' which influence the appropriation and perception of places in particular.

Since new media create new kinds of places and new modes of interaction, the social aspect of life is gradually becoming digitally mediated. Social media are therefore also part of the world as well as suppliers of information about the world. Considering these developments, Jörissen & Marotzki (2009) assume that social media will have far-reaching implications for our subjective perception and lead to changes in our self-view and worldview. Geographical media education has a responsibility to react to this. Yet it is not as if this is completely new or has caught us unprepared. We can always fall back on various geographical approaches that have been developed over the past several years. These include critical thinking with regard to cartographic representations, which have significantly improved for geography education in recent years (e.g. Gryl & Jekel, 2012; Schulze et al., 2015). In addition, intense discussion about the links between geospatial technologies, spatial thinking and geography learning has been ongoing for a number of years (e.g. Sinton et al., 2013, and Baker et al., 2015). An important aspect in the discussion surrounding geospatial technologies and learning are the construction and production of space by the authors of digital maps. In this article, we are interested in addressing the construction of space as it relates to social media, because this form of spatial information has so far been somewhat neglected in the discussion of geography education and geospatial technologies.

Spatial construction is growing within social media through subjective opinions and user-assigned significance. In this regard, hashtags play a particularly prominent role. Whether #JeSuisCharlie, #ThisIsACoup or #BlackLivesMatter, we encounter hashtags more frequently every day. Hashtags highlight particular terms and can bundle specific topics together. In this way, they serve as meta-comment and are a new way of attributing and categorizing meaning. Their use as an instrument for coordinating conversations, identifying themes, organizing meetings in the real world, and substantiating certain emotions and impressions is becoming ever more relevant (Bruns & Stieglitz, 2014). As an example, the hashtag #JeSuisCharlie was used upwards of 3.5 million times within its first 24 hours of existence. Hashtags referring to a specific place, e.g. #Frankfurt, acquire spatial impact when combined with certain traits of that place in a single post.

More geographical research has been dedicated to analysing geo-referenced and location-dependent posts or tweets in recent years. This has led to a diverse range of cartographic analyses that describe spatial distribution patterns. However, this research provides little evidence of the social dynamics that these distributions generate. In this regard, Crampton et al. (2013) challenge us to go beyond the geotag. They suggest that "a closer attention to the diversity of social and spatial processes, such as social networks and multi-scalar events, at work in the production, dissemination and consumption of geoweb content, provides a much fuller analysis of this increasingly popular phenomenon" (p. 137).

As a new practice of allocation of spatial meaning, posts combined with location-dependent hashtags are an untapped area of research that we consider from two perspectives. By reconstructing and interpreting the process of spatial construction through the use of location-dependent hashtags, we aim first to demonstrate how meaning is allocated in social media posts. Building on this, we then discuss the implications for geography education.

First of all we outline our social-geographic approach and illustrate some methodological implications. Then we delve into our principal case study – an analysis of two Frankfurt districts, where we traced and interpreted the process of spatial construction via hashtags in social media. We follow this with a short introduction to our educational approach, and questions about the potential as well as the implications for geography education. The paper closes with a discussion of essential requirements for successful education in the use of geomedial.

2 Social-geographic framework and methodological background

The impact of media on constructions of space

The term ‘space’ can be viewed as a theoretical construct, in that space is produced and constructed by means of social acts. Latent knowledge (i.e. everyday practices, or “routines”, based on practical consciousness) can be converted into discursive knowledge through the articulation of the practices. The common practice of social control in spatial and temporal ways influences our actions. According to this logic, the meanings of ‘space’, ‘spatial order’ and ‘materiality’ can all change depending on the action. Werlen (2009) describes these practices as “Everyday Regionalization”. For example, the analysis of media-generated geography examines primarily the question of how attitudes towards social spaces are produced and reproduced. Subsets of society differ not only in their methods of production of social spaces, but also in their attitudes towards them. However, social media fundamentally alter the construction and the representation of spatial realities. At the same time, the social meaning of space and medial communications are closely linked, as media (including social networks) can be viewed as an extension of the human body and consciousness. They become an intermediary for experiencing places which are remote from the individual. Experiences are pre-interpreted and pre-selected, which leads to a dependence on allocations of meaning. Ascribing meaning like this occurs in acts of communication which stimulate the reproduction of a social awareness of different regions. Symbols, being a part of communication, can be spatially relational and seen as a medium for constructing social realities. Hashtags are place-referred symbols and markings in the new media landscape. Taking Werlen’s concept of ‘Everyday Regionalization’ into account, one aim of this work is to show the process and construction of space via location-dependent hashtags as an example of such regionalization.

Digital methods

Rogers (2013) claims in his book *Digital Methods* that the emergence of a new web context requires new research practice. He argues that a distinction exists between content that is natively digital and content that is digitized: content born in and of the new medium is natively digital, whereas content migrated to the new medium is digitized. This conjuncture necessitates the implementation of a new approach: “The issue no longer is how much of society and culture is online, but rather how to diagnose cultural change and societal conditions by means of the Internet” (Rogers 2013, p. 21). This new approach mirrors the medium, captures its dynamics, and offers information about social processes through the

analysis of social communication on the internet. Web 2.0 enables users to generate, edit and share content with one another. This participatory nature of content-production makes social networks particularly attractive for our research regarding constructions of space. Therefore, it is no surprise that data originating from social networks, in particular Facebook and Twitter, have become part of contemporary scientific research (Weller & Strohmaier, 2014).

3 Case study: Hashtags and the construction of the urban districts Bockenheim and Kalbach-Riedberg of Frankfurt am Main

Based on two urban districts of Frankfurt am Main, we traced and interpreted the process of spatial construction via hashtags in social media. Our underlying research question was: “What kind of spatial constructions are being created by location-dependent posts and hashtags, and how can they be categorized?” We relied on ‘digital methods’ (as outlined in 2.2) to handle content that is available only online and combined it with content analysis methods.

Data collection and analysis

First, we investigated posts on the social networks Facebook, Instagram and Twitter in which Frankfurt neighbourhoods were marked with a hashtag. To do this, we used the software ‘talkwalker’, a social media monitoring and analytics tool that filters large numbers of posts from various social networks by date or specific content. One problem with using automated search engines is that they inevitably miss some content relevant to the research question. This shortcoming is related to keyword selection, in our case hashtag descriptors (Bruns & Stieglitz, 2014). In addition to clear terms for neighbourhoods, such as #Bockenheim, users often modify tags to read #FFM-Bockenheim or #Bockenh. In order to capture as many relevant posts as possible, we synchronized a glossary of search terms with the database. For each of the 43 districts in Frankfurt, we considered 13 search items. Finally, we defined the period of data collection, from 1 December 2014 to 31 May 2015.

Instead of developing our own methods as we did to collect the data, we were able to use existing methods of qualitative research for our analysis. Our initial questions dealt with the theoretically derived data material. Here we asked questions such as ‘What is the content of the post and how does it relate to the “hashtagged” neighbourhood?’, ‘How is the content represented?’, ‘What is the thematic subject?’ or ‘Who posted it?’. This allowed us to identify categories on which we could build the structure of relationship networks. The documents analysed – in our case, posts to social networks – were defined as methodological communication features (Wolff, 2013). In order to capture these communication features, we filtered the data and the associated metadata using a spreadsheet program.

Results

General overview

Initial results of the data processed provided distributions for the frequency of tagged posts in Frankfurt (see Figure 1). In total, 9,985 posts were recorded during the six-month period.

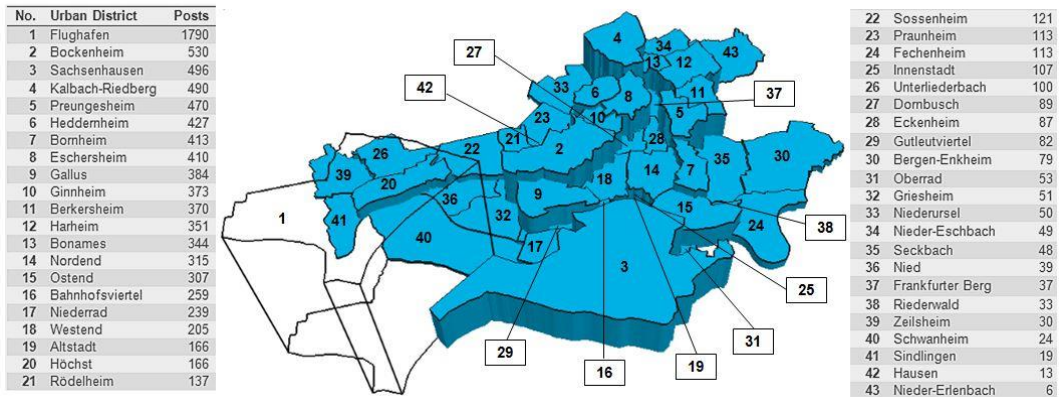


Figure 1: Number of posts tagging a district of Frankfurt on Facebook, Twitter and Instagram for the period 12/01/2014 to 05/31/2015, by district. (Source: Own illustration, 2015)

The figure illustrates that the airport district (shown as transparent in Figure 1) was by far the most-tagged area. This is not surprising given the large numbers of people who travel to and from there every day. The Bockenheim, Sachsenhausen, Kalbach-Riedberg and Preungesheim districts were also tagged often during the period of analysis. Districts in the far western and eastern portions of Frankfurt were tagged less frequently. Based on these frequencies, we chose the neighbourhoods of Bockenheim, with 530 posts, and Kalbach-Riedberg, with 490 posts, for further analysis. To make the large amount of data manageable for interpretation, the period was limited to the month of May 2015, and therefore to 93 and 96 posts respectively for the two areas of the case study.

The districts Bockenheim and Kalbach-Riedberg

Bockenheim and Kalbach-Riedberg were chosen for several reasons. First and foremost, they were the subject of a relatively high number of posts during the period of study. Since they have different geographical locations within Frankfurt as well as different socio-economic and population structures, we expected differentiated results. Located in the city centre, Bockenheim is one of Frankfurt's most densely populated districts. It is characterized by the presence of a convention centre and the majority of the university's buildings and services. Kalbach-Riedberg, in contrast, is situated north of the city centre. It is, however, currently experiencing a localized population boom and an increase of popularity due to its development both as a satellite location for the natural sciences departments of the university and as a new residential area (Stadt Frankfurt am Main, 2015).

During the month of May, a total of 93 posts tagged Bockenheim. More than half of these were posted on the short-message network Twitter, about one-third were uploaded to the photo platform Instagram, and 10 were made on Facebook. During the same period, 96 posts mentioned Kalbach-Riedberg. The majority of these posts were on Instagram, whereas Facebook was not represented at all. Few of the posts about Kalbach-Riedberg consisted purely of text, which is to say posts containing images dominated. In the Bockenheim dataset, about half of the posts contained at least one image or photo, while one-third of them had one or more links to other websites.

Nearly every post consists of different tags which are linked together. In addition to the terms "#Bockenheim", "#Kalbach" or "#Riedberg", either "#Frankfurt" or "#FFM", as well as thematically relevant tags can be found in almost every post. In particular, a high number of Instagram posts consist of entire rows of tags. A comparatively high proportion of posts mentioning Bockenheim are written in German and English, or are otherwise multilingual.

With regard to authorship, the majority of posts were contributed by individuals. Public and political organizations, such as the Frankfurter Studentenwerk (university student services) and the party "Die Linke", frequently posted about Bockenheim as well. Residence service providers (primarily estate agents) played a much greater role in Bockenheim than in Kalbach-Riedberg. Newspapers or blogs were hardly represented in the dataset at all. The greatest numbers of posts about Bockenheim were contributed by the political party CDU Bockenheim (5 posts), the estate agent Salz & Brot Frankfurt (6 posts) and the art gallery The Dream Factory (5 posts). The author of the highest number of posts about Kalbach-Riedberg was a private individual, who, with 57 posts, was by far the most prolific poster.

A broad range of thematic areas was covered by the various posts, which can be summarized in five main categories (see Figure 2).

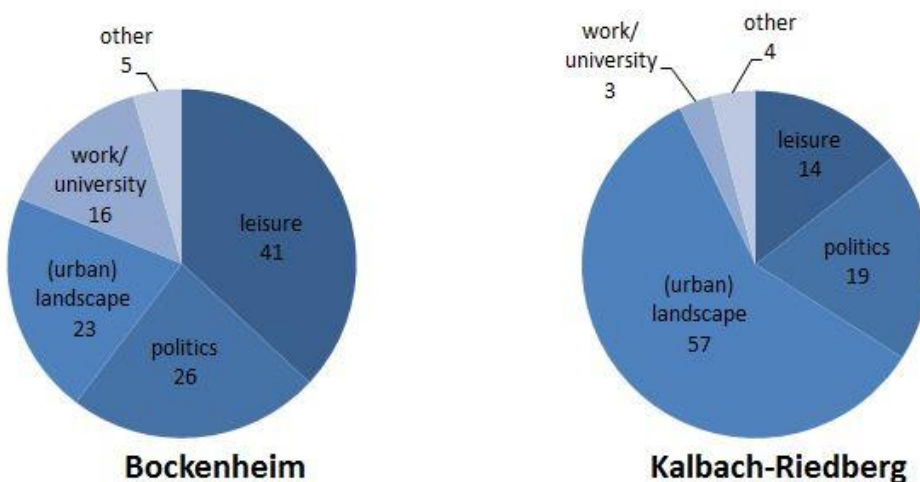


Figure2: Thematic categories in social media posts
(Source: Own illustration, 2015)

Posts mentioning Bockenheim present a relatively balanced picture of the topics. The largest number refer to leisure activities, such as visiting restaurants, bars and shops. Matters of public interests, such as local policy content, are also the subject of a considerable number of posts.

During the period of investigation, the issue of limited school places stood out as well. Some of the posts dealt with topics related to work and university, such as announcements of various university events and job offers. Other posts expressed views about the surrounding urban landscape. The vast majority of posts in Kalbach-Riedberg were of this type. Public issues and the topic of leisure (especially sports) were also important in Kalbach-Riedberg. With respect to content, a definite connection to the author is recognizable: posts from political organizations focus mainly on political content, while academic organizations focus mainly on academic content. Individuals' posts cover all subject areas, with a particular focus on leisure and the surrounding (urban) landscape.

Based on the content and components of the posts, each can be assigned a specific purpose. Announcements of news make up the majority of posts tagging Bockenheim. In these posts, the use of social networks to advertise certain products, transactions or property can be observed. Individual intentions also play an important role. These include status updates and selfies, which make up the largest number of posts in Kalbach-Riedberg.

Discussion

Regarding the two case study areas, different spatial constructions can be identified on the basis of the data. Posts marked with the tag Bockenheim indicate a lively and diverse district through their wide range of topics. The high proportion of advertising and frequent mention of specific shops and bars like 'Heaven. #shopping #Zalando #Outlet #Frankfurt #Bockenheim #girls #weekend #joy #shoppingmakeshappy #bargain'¹ indicate an entertainment and consumer-oriented district with a wide range of social offerings. Due to information about cultural events and references to the university there, posts about Bockenheim foster an impression of an attractive, urban, leisure-oriented district for young people. Moreover, political discussions and public expressions of opinion indicate a lively exchange within Bockenheim. However, the lack of school places is frequently a topic of discussion, as in 'No way! #Ihavenoplace #Frankfurt #Bockenheim Please share for a right to a school place!'² and can shine a negative light on the district. Kalbach-Riedberg is characterized by different spatial constructs. Nearly every author in this district was an individual. Moreover, recreational activities, consumption and university play a subordinate role, which gives the impression that the district is mainly residential. The rapid spread of the report of a local missing person serves as an indication of a helpful neighborhood. Due to the high number of posts with pictures of rural landscapes, the impression emerges that Riedberg-Kalbach is a suburban village with green surroundings and little urban flair (see Figure 3).

¹Original tags: 'Heaven.#shoppen#Zalando#Outlet#Frankfurt#Bockenheim#Mädels#Weekend#Freude #shoppenmachtglücklich#Schnäppchen' (Source: https://instagram.com/p/3XAUZrsT_L/. 31/05/2015).

²Original: 'Sowas gibts doch nicht! #ichhabekeinenplatz #Frankfurt #Bockenheim Bitte teilen für ein Recht auf Schule!' (Source: <http://twitter.com/JanineGeorg/status/596679838729150464>. 08/05/2015)



suchbild: finde frankfurt! #riedberg
pic.twitter.com/lv15Ga4IP

veröffentlicht am 10 Mai 2015 um 15:42 | twitter.com

Figure3: Post at the topic Riedberg landscape³
 (Source: <http://twitter.com/oehmiche/status/597396185473777664>)

Although there is a certain amount of noise about the lack of children's daycare centres, the district appears child-friendly. On the other hand, a typical negative tweet broadcasts problems such as theft, noise and break-ins, providing a mixed picture of the neighbourhood: 'Car burglars wreaking mischief in Riedberg. They're after the electronics in BMW vehicles.'⁴

According to Werlen (2013), acts of communication allocate meanings to space. When combined with hashtags, the posts we analysed can be identified as acts of communication within the new media that assign spatial meaning. When users of these social media platforms post local information for districts combined with hashtags with spatial references, they attribute new, spatial meaning to these places. As the case studies show, different users can create different spatial constructions of the same district. So the image of a child-friendly neighbourhood can coexist with that of a purportedly unsafe neighbourhood, as in the example of Kalbach-Riedberg. These spatial constructions seem contradictory. However, these contradictory constructions are made by different individuals, who assign different spatial meanings by acts of communication. This means that spatial and temporal dimensions may be altered, thus freeing spatial constructions from fixed attributions. Information in new media is no longer generated exclusively through news agencies; social networks function also as mediators of experience. The spatial constructions of the Bockenheim district indicate a lively and diverse neighbourhood. Although we did not study the spatial impact of such posts on the readers, we can assume that our pre-interpretations may influence their actions directly, by encouraging readers of the posts to visit or avoid the district. Through hashtags with spatial references, these constructions of space are becoming more common and more visible and, thus, will increase in range. The Internet has become the new space for the articulation of social life, and social media sites can serve as informal social spaces. Being connected in a virtual space through abstract systems requires us to readdress and rethink our conventional concepts of space.

³ English: 'Hidden object: find Frankfurt! #riedberg'.

⁴ Original: 'Autoknacker treiben ihr Unwesen am Riedberg. Ihr Ziel: Die Elektronik aus BMW-Fahrzeugen.'
 (Source: <http://twitter.com/IGRiedberg/status/603220428476252160>. 26/05/2015)

4 Educational implications – Enabling spatial experiences with digital architecture

Now that we have demonstrated how spaces can be created and analysed through the filter of hashtags, we would like to consider how this can be used for educational purposes in geographic media literacy. To answer this question, we outline some aspects of the structural media education approach which provide four orientation dimensions (Jörissen & Marotzki, 2009) as the basis of our analysis.

Structural media education

The theoretical educational framework of our study is based on structural media education (“Strukturelle Medienbildung”) (Jörissen & Marotzki, 2009). This concept assumes that the media determine the structures of worldviews on a fundamental level. This means that we do not react to media but behave as part of them. In this sense, media education is defined as the structural changes in patterns of reference to oneself and the world brought in and by the media. Consequently, this change to the defining form of media, as it is currently happening with the shift from the “Gutenberg Galaxy” to the “Internet Galaxy”, also necessitates the development of new conceptual forms of media education. Media education cannot, however, be reduced to a know-what and know-how basis. The concept used here (with reference to Kant) draws special attention to critical analysis of, and autonomous reflection on, (a) knowledge-, (b) action-, (c) boundary-, and (d) biography-related aspects of human life. Jörissen & Marotzki (2009, pp. 30–32) describe these four dimensions of everyday orientation as follows:

1. Reflection on the terms and limits of knowledge, such as how different media are arranged.
2. Reflection on the moral consequences of one’s own actions that result from concrete social contexts, such as courses of action that result from information from social media.
3. Reflection on boundaries as the fundamental structure of education, such as the boundaries between self and other, or between the body and technology, which are becoming increasingly vague in the digital age.
4. Reflection on the process of creating a biography, such as questions about one’s individual identity and its biographical facts and events, or about subjective relevance and values.

The four dimensions of orientation and reflection provide a means for individuals to grasp and assess the power of digital media as channels that structure and deliver reality to the world. At the same time, however, they can also serve as an analysis matrix for investigating individual uses of digital media for their educational potential. We demonstrate this using our case study.

Reflection on the terms and limits of knowledge, such as how various media are arranged and their inherent significance

Posts to social media can be identified as acts of communication, which, when posted together with location-dependent hashtags, allocate meaning to a space. As demonstrated by the case study, different spatial constructions can be developed for the same district. This involves the regionalization of various individuals, in which spaces acquire different meanings based on the actions, in this case acts of communication, of those individuals. In addition, the use of different types of information, e.g. hashtags, text, hyperlinks and photos, can be understood as provoking critical reflection. Photographs, for example, can always be interpreted differently from the description given by the corresponding hashtag or text. The study also brought to light the variability of spatial and temporal dimensions and, hence, that constructions of space are not subject to fixed attributions. Geography education processes require this type of reflective analysis with regard to sources of information, to comprehend from a geographical perspective the contextualization of places and spaces as well as the resulting constructions of space, while also scrutinizing spatial constructs resulting from geomediality, since these may occasionally influence one's actions.

Reflection on courses of action resulting from concrete social contexts

Location-dependent hashtags move and exist in an area of tension between enactment and authenticity. Producers as well as consumers must be aware that location-dependent hashtags are an intermediary between experience and information, and that hashtags can impact the consumers' courses of action. The constructions of space related to Bockenheimer point to a lively and diverse district. Such a pre-interpretation can lead consumers of the post either to visit or to avoid the district and, thus, it influences their actions. As well as to reflect on the validity of this type of geoinformation and its influence, there is a need within education to cultivate a responsible community in social networks. Today spatial constructions are easy to find thanks to location-dependent hashtags in posts, and enjoy a greater range through social media, which will only increase in the future. Every producer of content and information must be aware of their responsibility: they must be able to assess which acting forces their constructs of space could develop, even if the suitability and quality of their geoinformation available on social media are subject to social validation on the web. This suggests a relationship between self and other.

Reflection on boundaries, such as between self and other, or between the body and technology

Due to the ever-greater influence that information and communication technologies have on humans, it is a valid exercise within geography education to reflect upon where we draw the boundaries between human and technology, and between self and other. Social media, in particular via smartphone applications, supplement the user's physical body in public spaces. This gives rise to the novel phenomenon of the phoneur, a pedestrian who is simultaneously an observer of, and a commentator on, the world, by being on their smartphone while at the same time also changing others' perception of that same space. The smartphone has thus reconfigured how subject and space relate to one another (De Souza e Silva, 2006). In this

relationship, reflection on the relationship between self and other also comes back into focus. Location-dependent hashtags are more than just an individual's means of self-expression – others relate to them as well, which can, in turn, affect the original individual's self. The connection between digital communication and patterns in social interactions that exists today cannot be viewed in isolation; rather, this connection is a result of social conditions and circumstances, making it an integral component in the method of producing space. This is therefore a valid topic to broach in geography education, because our biography is also shaped by the human social realm.

Reflection on the process of creating a biography and on subjective relevance and values

This last point is based on the assumption that media change more than just human beings' modes of perception – they change the human beings per se. Media structure the manner in which we experience the world and, consequently, structure our relationships to ourselves and our world. In general, a decisive factor here is that we select information, and it is the perceived relevance of this information that serves as our mechanism of selection. With regard to the human social realm, our current situation is constituted of sensory and media processes within the framework of our life. When location-dependent hashtags have a direct connection with our social area, then a central task must be to resolve how these spaces are constructed in social networks and how these spaces, in turn, affect an individual's relationships with themselves and the world.

The type of analysis that we have presented here in outline makes it clear that media-related aspects of space are becoming more and more pervasive. Childhood and youth are spent in spaces steeped in media, resulting in a far-reaching influence on the relationships that young people especially have with themselves and the world. And this implies the need for a pedagogical debate about these new spaces.

5 Conclusion: Making sense of digital geographies

This study set out to explore the potential and suitability of geographical media education with regard to digital geographies. Even though the geographical and pedagogical discussion presents only preliminary insights into the triplet of hashtags, production of space and geography education, it offers intellectual food for thought.

With regard to the geographical analysis in the case study, it is noteworthy that it served primarily as a catalyst to shine light on aspects of educational theory. It should be noted that the analysis hardly takes the contextual assessment of consumers and producers into account. We did not survey the users' intention or their contexts; nor did we analyse the reach and impact of the hashtagged posts. The differences in content and the meaning of the information in the posts were likewise barely considered. These are just two aspects that further research projects should take into account, as they demonstrate the increased attention required by the diversity of social and spatial processes occurring on social networks (Crampton et al., 2013; Kitchen, 2014, pp. 184–85). In this respect, analysts must

also reflect upon the frequently unknown algorithms used by various software applications during data collection. As well as the 'Everyday Regionalization' approach used in this study, there are – at least at the theoretical geographic level – links to additional concepts such as Soja's concept of Third Space, which reverts to Lefebvre's trialectics of space: the perceived, conceived and lived space.

These theoretical aspects are not without implications for geography education. Underpinned by conceptual approaches, the analysis demonstrated that interactions with location-dependent social media applications provide an active and authentic opportunity for young people to engage with geography in investigating places and spaces (Lambert & Morgan, 2010). Digital geomedias, which have become firmly established in human experience, offer more than just new occasions and new opportunities for educational experiences. Children and young people with access to these new spaces of experience also contribute to their design. Here, the question of educational concepts re-enters the picture, in particular with respect to fostering social responsibility through different forms of reflection and evaluation. Suitable for this objective are the four dimensions of orientation and reflection which we used for the analysis of the case study. It must further be stated that the digital revolution is simply too complex, manifold and unpredictable to be addressed by a technology-oriented approach that targets solely the handling of the technology of the existing medium, or understanding the content conveyed. To make sense of digital geographies and understand geomedias use, geographical media education must apply a reflective, rather than a technical, approach, in order to enable learners to bring critical awareness and responsibility to their consumption of new media.

References

- Baker, T. R., Battersby, S., Bednarz, S. W., Bodzin, A. M., Kolvoord, B., Moore, S., Sinton, D. S., & Uttal, D. (2015), A Research Agenda for Geospatial Technologies and Learning. *Journal of Geography* 114 (3), 118-130.
- Bruns, A. & Stieglitz, S. (2014), Twitter data: What do they represent?. *it - Information Technology* 56 (5), 240-245.
- Crampton, J.W., Graham, M., Poorthuis, A., Shelton, T., Stephens, M., Wilson, M. & Zook, M. (2013), Beyond the Geotag? Deconstructing 'Big Data' and Leveraging the Potential of the Geoweb. *Cartography and GIScience* 40 (2), 130-139.
- De Souza e Silva, A. (2006), From cyber to hybrid: mobile technologies as interfaces of hybrid spaces. *Space & Culture* 9 (3), 261-278.
- Graham, M. & Zook, M. (2013), Augmented Realities and Uneven Geographies: Exploring the Geolinguistic Contours of the Web. *Environment and Planning A* 45 (1), 77-99.
- Gryl, I. & Jekel, T. (2012), Re-centering GI in secondary education: Towards a spatial citizenship approach. *Cartographica: the international journal for geographic information and geovisualization* 47 (1), 18-28.
- Jörissen, B. & Marotzki, W. (2009), *Medienbildung – eine Einführung. Theorie – Methoden – Analysen.* Stuttgart, UTB.
- Kitchen, R. (2014), *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences.* Sage, London.
- Lambert, D. & Morgan, J. (2010), *Teaching Geography 11 – 18: a conceptual approach.* Maidenhead, Open University Press.
- Rogers, R. (2013), *Digital Methods.* Cambridge, MIT Press.
- Schulze, U., Gryl, I. & Kanwischer, D. (2015), Spatial Citizenship education and digital geomedial: composing competences for teacher education and training. *Journal of Geography in Higher Education* 39 (3), 369-385.
- Sinton, D. S., Kolvoord, B., Gersmehl, P., Bednarz, S. & Uttal, D. (2013), *The People's Guide to Spatial Thinking.* Washington, DC, National Council for Geographic Education.
- Stadt Frankfurt am Main (2015), Stadtteile. <http://frankfurt.de/sixcms/detail.php?id=2835> (January 2016).
- Weller, K. & Strohmaier, M. (2014), Social media in academia: How the Social Web is changing academic practice and becoming a new source for research data. *it - Information Technology* 56 (5), 203-206.
- Werlen, Benno (2009), Zur Räumlichkeit des Gesellschaftlichen: Alltägliche Regionalisierungen. In: Hey, M. & Engert, K. (Eds.), *Komplexe Regionen – Regionenkomplexe.* Wiesbaden, VS Verlag für Sozialwissenschaften, 99-118.
- Werlen, Benno (2013), *Gesellschaft und Raum: Gesellschaftliche Raumverhältnisse. Grundlagen und Perspektiven einer sozialwissenschaftlichen Geographie.* *Erwägen Wissen Ethik*, 24 (1), 3-16.
- Wolff, Stephan (2013), Dokumenten- und Aktenanalyse. In: Flick, U., Kardorff, E. von & Steinke, I. (Eds.), *Qualitative Forschung. Ein Handbuch.* Reinbek, Rowohlt, 502-513.
- Wolf, A. (2014), *Let's Think about the Internet and Social Media.* London, Raintree.