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Viral Constructions of Space and Content Knowledge: What Teachers Need to Know

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Abstract

Digital spatial processes have been widely explored and investigated in subject-specific geographic research. So far, however, this research has not been sufficiently reflected in classrooms or teacher education, and remains unconnected to notions of geographical digital literacy. Viral constructions of space – realities shaped in everyday life that are experienced and (re-)produced by students and teachers alike through social media – present an opportunity for Geography education to adapt to the digital society. This paper attempts to connect viral constructions of space, the digital society and the knowledge teachers need to include viral constructions of space in the classroom using Mishra and Koehler's (2006) TPACK model, a well-established means for summarizing teachers' technological, pedagogical and content knowledge for a specific topic. The paper focuses on content knowledge, identifies five sub-types of viral constructions of space, and extracts nine descriptors of teachers' content knowledge. By focusing on content knowledge, the paper presents a starting point for future investigations of pedagogical and technological teacher knowledge as well as their intersections. It also raises awareness of viral constructions of space as both a new essential topic in the Geography classroom and a phenomenon already shaping learning environments for spatial acquisition.

Keywords:

viral constructions of space, digital space, TPACK, teacher education

1 #okboomer…?

Young people responding to a statement by saying or typing #okboomer is a viral phenomenon which started in autumn 2019. Using the hashtag, however, is not limited to online contexts: 'ok boomer' has become part of everyday language as a way for young people to dismiss an older person's 'narrow-minded' or 'old-fashioned' views. The hashtag and phrase are thus part of young people's everyday lives and so demonstrate the blurred lines between 'offline' and 'online' realities. #okboomer is therefore emblematic of a society characterized by the hybridity of 'analog' and 'digital' environments, which, following Stalder (2016: 20), are central to the digital condition beyond digital media themselves. This digital condition is marked out by 'referentiality', 'communality' and 'algorithmicity' (Stalder, 2016: 13) – all of which are illustrated by the rise of #okboomer, which has become validated collectively by the

continual on- and offline referencing of it, such that the two words incorporate a whole discourse on intergenerational tension conflict.

That digital phenomena are ingrained in young people's lives and are therefore of exceptional relevance for future didactic considerations can be recognized if we analyse current studies on (social) media use, which suggest that youngsters are almost never offline and use social media and their smartphones on a daily basis (Ofcom, 2019; Rideout & Robb, 2019; Medienpädagogischer Forschungsverbund Südwest, 2018). It is not only the frequency of social media use, however, that demonstrates its relevance for Geography education. Even more relevant is the structure of social media use, which facilitates constructions of space through 'new forms of participation, communication and collaboration' (Kanwischer & Schlottmann, 2017: 60, own translation). In this way, social media enable societal changes to surface (ibid). The rapid spread of these changes and content are referred to as having gone 'viral', prompting Kanwischer and Schlottmann (2017: 61) to coin the term 'viral constructions of space'. Through 'everyday regionalizations' (Werlen, 2009), viral constructions of space acquire efficacy regarding actions and decision making, which subsequently (re-)shape spatial realities (Kanwischer & Schlottmann, 2017; Reithmeier et al., 2016). Consequently, space is constructed through 'everyday virality' and a place's social media representation merges with its 'real-life' version. Navigating these hybrid viral constructions is thus key in spatial action. In summary, viral constructions of space are powerful instruments ingrained in interpersonal communication and thus in the construction of space itself.

If Geography education is to live up to its curriculum-defined claim of connecting 'space' with 'orientation' (DGfG, 2014), the inclusion of viral constructions of space in teaching contexts is vital. Otherwise, both hybrid spaces and their implications for students' acquisition of space would be ignored. The current understanding and presentation of viral constructions of space in a classroom context may be enhanced by studies on teachers' digital competence. While the terms 'digital competence' and 'digital literacy' are occasionally used by different authors to refer to the same idea, two lines of argument dominate the discussion: (1) technology-focused definitions; (2) citizenship-oriented approaches. Both García-Martín and Cantón-Mayo (2019: 203) and López-Belmonte et al. (2019) use 'digital competence' to refer to teachers' ability to navigate specific online contexts and to use specific applications. That implies a focus on technology, with digital innovations as new tools for teaching. On the other hand, Godhe (2019: 27-28), Yue et al. (2019: 101-103) and Krumsvik (2008: 283) combine digitality with societal participation – the central goal of education in a digitalized world. Citizenship thus includes digital competences that go well beyond the use of online applications simply as tools. This second view mirrors notions of the 'actualizing citizen' as summarized by Bennett et al. (2009), who connect citizenship education to interactive online learning focused on informal involvement in flatter hierarchies. This view of citizenship is reflected in the Spatial Citizenship approach (Gryl & Jekel, 2012), a prominent concept in current Geography education that provides insights into reflexive map competences. In contrast to the descriptors developed in this paper however, the all-encompassing digital hybridity is not considered by Gryl & Jekel (2012) as a core or starting point, and the domains of content and pedagogical knowledge are connected. The isolation of content knowledge attempted in this paper is more suited to the TPACK model (see Section 2). (Didactic knowledge is an exclusive area of knowledge not covered in this paper.)

While the inclusion of digital media in the classroom increased significantly between 2013 and 2018, the ICILS report does not find any increase in German 8th graders' digital competence (Eickelmann et al., 2019: 214, 122). This suggests that the increased use of digital devices in the classroom does not make for increased digital competence, which is all the more noteworthy as possession of smartphones with internet access has also increased over recent years (Medienpädagogischer Forschungsverbund Südwest, 2018: 31). The ICILS report suggests, furthermore, that digital media use in German schools focuses on copying information from the internet, as teachers feel competent using online material for lesson planning and believe online information to hold the greatest potential for teaching (Eickelmann et al., 2019: 226, 18). The potential of online environments as facilitators of new teaching challenges and topics is not explored in the ICILS report – which, however, is not to be expected, as only instrumental digital competences are assessed. Viral constructions of space can be assumed not to play a role in German classrooms, as social media – which are powerful tools in viral constructions of space – are barely used (Bos et al., 2014: 206).

The potential of viral constructions of space consequently remains unaddressed, while they consistently shape learners, teachers and school environments in a digitalized world. For Geography education, this is going to prove a missed opportunity for providing socio-spatial orientation. The power of viral constructions of space on students' spatial existence thus needs to be acknowledged.

This paper aims to provide a starting point for discussions in Geography teacher education by examining the following question:

What content knowledge do Geography teachers need for the inclusion of viral constructions of space in the classroom?

In order to answer this, teachers' abilities to include viral constructions of space in the classroom need to be investigated. This is achieved through (in the first step) a normative analysis of the relevant literature by means of the TPACK model (Mishra & Koehler, 2006). Oriented towards classroom-relevant teacher knowledge, in the second step essential content is selected and assigned concrete descriptors. These allow areas of content knowledge of viral constructions of space to be classified. Open questions regarding further teacher knowledge and viral constructions of space are discussed in the conclusion, along with future prospects.

2 The TPACK model

Mishra and Koehler's (2006) TPACK model describes teachers' Technological, Pedagogical and Content Knowledge. Combining these areas of knowledge enables teachers to master the complex task of teaching as technology evolves throughout their career (Mishra & Koehler, 2006: 1020, 1024). While each domain is essential in its own right, this paper focuses on content knowledge as one part of digital competences in the area of viral constructions of space. Content knowledge goes beyond memorized facts to include a subject's 'concepts, theories and procedures' (Mishra & Koehler, 2006: 1026). Therefore, when adapting TPACK for viral constructions of space, related and specific concepts and theories need to be included, while also keeping in mind subject-specific working methods in Geography education.

Various publications demonstrate the adaptability of the TPACK model, which has been used across subjects, with different aims and target audiences (see e.g. Ouyang & Scharber, 2018 or Mouza et al., 2014). A search for the use of TPACK for specific geography topics, carried out on the Web of Science and GoogleScholar, provided only two relevant examples (Hong & Stonier, 2015; Doering et al., 2014). However, both adaptations focus heavily on technological skills – a misinterpretation of TPACK – and cannot therefore serve as useful examples for the present endeavour.

2.1 Scope of the present investigation

Material for comparison and research on teachers' knowledge of viral constructions of space is scarce. However, to investigate here the whole TPACK model would be far too great a task, and this paper focuses specifically on developing a normative model for describing teachers' necessary content knowledge. The challenge of developing accurate descriptors of teachers' content knowledge is to formulate statements that are broad enough to remain valid throughout the shifts of viral environments and specific enough to be empirically verifiable and adaptable.

3 Content Knowledge for Viral Constructions of Space

The subject-specific content knowledge teachers need in order to implement viral constructions of space in the classroom is based on theoretical conceptions of the digital society (see e.g. Jandrić et al., 2018; Stalder, 2016; Leszczynski, 2015). While these cannot be separated from viral constructions of space, they are not of immediate didactic relevance for classroom implementation and are hence not included in the descriptors of teachers' content knowledge. Instead, characteristics of viral spaces essential for teachers are investigated.

As digital geographies have received vast attention in recent years, it is not possible to analyse all available material and publications. For this paper, therefore, I selected authors who represent popular strands of discussion while following the premise of space as a construct by means of the Web of Science database. The ability of individuals to contribute to constructions of space, a concept inherent in viral constructions of space, is consequently maintained.

A subject's concepts and ideas constitute the core of content knowledge (Mishra & Koehler, 2006: 1026) – therefore viral constructions of space are considered in relation to the digital society. The concepts behind the digital society are not made explicit but are at the core of the approach. Central concepts as part of teachers' content knowledge are also important in TPACK (Mishra & Koehler, 2006: 1026). For the present paper, these concepts are viral constructions of space and their characteristics. Teachers' understanding of the theoretical considerations regarding viral constructions of space is essential if they are to integrate viral constructions of space in the classroom pedagogically and technologically.

While in TPACK, subject-specific methods, referred to as 'proceedings', are part of teachers' content knowledge (Mishra & Koehler, 2006: 1026), methods for designing scientific studies are deliberately excluded here as irrelevant for teachers in our specific context. Instead, analysing viral constructions of space in view of their characteristics and implications by means

of content analysis is emphasized. This 'excising' of core features contributes to very precise knowledge descriptors and can contribute to teachers' continuously updated content knowledge.

3.1 Viral Constructions of Space

A subject is said to be 'viral' once it has spread rapidly online, is viewed extremely frequently, and inspires reactions that may be positive, negative or mixed (Kanwischer & Schlottmann, 2017). Viral trends include anything from politically charged hashtags, such as #sharphiegate (used to criticize US American president Trump's hand-marked map of hurricane Dorian), to funny cat videos. Hashtags facilitate communication on a subject, as using a specific hashtag links a single post to others published under the same hashtag (Kanwischer & Schlottmann, 2017: 63; Reithmeier et al., 2016: 283). Georeferencing a post or connecting it to a place by means of a hashtag opens up the possibility of this hashtag contributing to a place's construction on social media (Kanwischer & Schlottmann, 2017: 63; Reithmeier et al., 2016: 283). At the same time, this social media portrayal is inseparable from the 'analog' place. Online actions – such as posting a georeferenced comment on a place – can influence 'analog' behaviour, as peoples' perceptions of this place can be influenced positively or negatively, resulting in behaviour that is adjusted accordingly. Individuals may thus decide to favour one place over another 'rival' place. Following these fundamental features of viral constructions of space, teachers need the ability to

(1) Explain the term 'viral constructions of space'.

A basic understanding of the term provides a starting point for looking at different manifestations of viral constructions of space – different aspects of the same phenomenon (explained further in subsections 3.1.1 to 3.1.5 below).

3.1.1 Reproduction of Pre-existing Structures

The connection between social media users and specific urban spaces is investigated by Boy and Uitermark (2017: 613). They explore Instagram users as 'performers' who stage their own personae in connection to the city of Amsterdam. Their orchestration of what they see as a desirable life in the city is manifested in the photos they post, while these postings are based on and refer back to other related posts (ibid.). Boy and Uitermark (ibid.) highlight the reproduction of social inequality and existing power structures, as access to 'desirable' places in the city is limited by financial possibilities. For example, people who cannot afford to go to a particular expensive restaurant are excluded from producing this space online, as they cannot enter it 'offline' either. Popularity indicated by a large following allows particular Instagram users to set (viral) trends, which are subsequently reproduced by their followers (Boy & Uitermark, 2017: 623). These popular users' embellishments of particular places online result in the places being reproduced by further (less popular) users (ibid.). Consequently, the popular users dominate the discourse. This discourse-governing characteristic is also seized on by Butler et al. (2018: 497), who focus on the further marginalization of marginalized groups and minorities whose contributions remain unheard due to popular users dominating discussions. Negative depictions of residential areas by outsiders, but also by residents of the areas themselves who have adopted ascriptions made to their living space, can result in a place's stigmatization while silencing alternative presentations by other residents (Butler et al., 2018:

497). As one result of this practice, Butler et al. (2018: 507) point to the increased cultural and social segmentation of urban spaces.

Part of the effectiveness of viral constructions of space is consequently their reproductive power, which reinforces both existing structures and already existing social and cultural barriers. The teacher whose classroom is situated in a space that is virally constructed in one way or another thus needs to be able to

> (2) Analyse viral constructions of space regarding the reproduction of social inequalities and prevailing structures of power, and how these are connected to and visible in the 'real' urban space.

One major aspect of this regards presentations on social media, which, through individuals' reproductions of them, have the power to repeatedly shape life and actions in (urban) spaces. These (re)presentations are ultimately a precondition for broader-scale developments (see (5) below). Furthermore, this self-perpetuating and self-reinforcing aspect of viral constructions of space provides material for the classroom, giving students an opportunity to participate in analysing the online spatial material of which they are both consumers and producers, its connection to spatial decisions, and their awareness of the interweaving of online space with their perceptions of 'offline' spaces as well as of the power structures involved.

3.1.2 Spatio-temporal Segmentation

Segmentation on the spatiotemporal scale is another form of segmentation of the urban space identified by Kovacs-Gyori et al. (2018). They demonstrate how, on Twitter, a single place – in this instance a sports complex – can attract significantly differing allocations of meaning (Kovacs-Gyori et al., 2018: 91). It can be concluded that the value assigned to a place can be extremely flexible and change over time. Viral constructions of space, the results of a mass of individual social media posts, are thus characterized by their fast-changing nature and variability. This requires teachers to use examples in the classroom of open-to-interpretation viral constructions of space that illustrate their spatiotemporal nature and variability. To do this depends on teachers' ability to

> (3) Connect viral constructions of space to 'realspace' phenomena and individual actions, and to differentiate between the three.

This enables teachers to contextualize viral constructions of space as unstable results of both 'analog' influences and individual ascriptions.

Kovacs-Gyori et al. (2018) further demonstrate that the same coordinates do not necessarily refer to one homogeneous society over the course of 24 hours. As people move from their home to work or school, visit restaurants, parks or sports clubs, they carry with them their mobile devices, which allow them to continuously consume and produce (georeferenced) social media content. As a result, places are permanently being reproduced as new realities depending on individuals' contributions that depend on spatiotemporal decisions. To do justice to these characteristics, teachers need to be able to

> (4) Analyse viral constructions of space in terms of spatiotemporal segmentation.

This is a prerequisite for exploring further interrelations of viral constructions of space and society. As has surfaced above, viral constructions of space can only ever be understood in interplay with social, societal and political development. Hence, teachers need also to be able to

(5) Evaluate the relevance of viral constructions of space in relation to political and societal developments.

This ability, which is also connected to (2), enables teachers to establish viral constructions of space both as teaching content and as variable in classroom discussions.

3.1.3 Conceptions of Space

The mobility of individuals addressed by Kovacs-Gyori et al. (2018) is viewed from another perspective by Shelton et al., who introduce personal online interconnectedness beyond city borders and across the globe as behaviour-influencing factors (Shelton et al., 2015: 200). This illustrates that overemphasizing georeferenced social media posts may lead to establishing unfounded causal relationships between coordinates and those posts: a place could be falsely interpreted as a 'container' pooling different characteristics assigned by posts (ibid.). As a solution, they suggest a more refined socio-spatial classification of posts according to global and/or local contexts. Reducing digital space to its 'container' properties goes against the spatial concepts identified by Wardenga (2002): as digital space is only created through individuals' actions within specific structures, linking posts to their georeferenced places without considering contextual connections violates the property of the digital space being produced only by individuals themselves.

Navigating this area of conflict is a task that teachers have to face constantly when addressing viral constructions of space in the classroom. While they need to be aware of different concepts of space, they also need to be able to

(6) Reflect in terms of spatial concepts on their personal mindset and teaching regarding viral constructions of space.

Thereby, teachers can create a meta-awareness of both their teaching and their own positions, and adjust their teaching accordingly while aiming for the preservation of digital spaces as spaces created and recreated by individuals.

3.1.4 Alternative Images

Rivalling depictions of a single place were addressed in 3.1.1. While these stressed the oppressive power of dominant discourses, creating counter-narratives can also contribute to activist approaches and spark change. This is illustrated by Lundgren and Johansson (2017: 80), who analyse rural areas and their discursive construction on social media in the categories 'alive' or 'dying'. They conclude that some discussions purposely oppose dominating ascriptions and follow activist approaches in order to change public perceptions (Lundgren & Johansson, 2017: 81). Following this, teachers need the ability to

(7) Analyse viral constructions of space in relation to dominant and alternative images.

Through this, teachers acquire a basis for including viral constructions of space and their inherent spectrum of depictions and opinions in the classroom while distinguishing between dominant and less popular voices.

While the introduction of alternative images pluralizes spatial discussions, these alternatives can be as ideologically infused as popular discourses. This is why teachers must be aware of underlying political and societal preconceptions before including viral constructions of space in the classroom. Therefore, they must be able to

(8) Analyse the ideological backgrounds of producers of dominant viral discourses and alternative images.

While this prevents the undesirable manipulation of learners, it also opens up an opportunity to analyse differing basic motivations for participating in viral constructions of space, and emphasizes content-producers in contrast to content itself (as in (2) and (5)).

3.1.5 Participation

Because viral constructions of space derive from the contributions of individuals on social media, social media allow individual spatial participation. As illustrated by Kelley (2013: 182), shared mental images of a place are rendered possible by associating digital presentations with personal experiences and opinions in combination with georeferenced data. Each person is thus both digital consumer and producer (ibid.) – their perception of place and space develops through the entanglement of the two 'roles'. Participation in the construction of space is consequently easy: only access to social media and a smartphone or other device with georeferencing ability are required (Kelley, 2013: 201). Active participation that involves the creation of political and socio-spatial alternatives on social media is also implied by Jekel et al. (2017) and Shelton et al. (2015).

Although the successfulness of participatory endeavours depends heavily on the didactic implementation in the classroom, research demonstrates the potential of social media for fostering participation. Here, teachers must be aware that social media use does not causally determine participation but only facilitates it. Therefore, they must be able to

(9) Reflect on the reciprocal relationship between social media and participation.

This is a continuous challenge for teachers who include viral constructions of space in the classroom: they have to be open to the possibility of students' spatial participation while developing participatory preconditions without suggesting miraculous outcomes.

4 Conclusion and Future Prospects

Using the TPACK model to identify necessary teacher content knowledge has proven beneficial, as it allowed for the separation of content knowledge as a distinct area of knowledge and the identification of other areas of knowledge within viral constructions of space. However, content knowledge is but one essential part of teacher knowledge and is not sufficient in itself to innovate educational processes. Nonetheless, the characteristic domains of viral constructions of space and the related descriptors of teachers' content knowledge

cover one central area necessary for future discussions: the identification of appropriate educational approaches to mirror the nature of viral constructions of space as well as the interweaving of human activity and technology that underlies such constructions. The importance of technological knowledge in the field of social media and viral constructions of space has to be addressed, and the role of didactic concepts within Geography needs to be discussed. These can be targeted towards the development of a model for viral constructions of space in Geography didactics, while opening up interdisciplinary approaches to society's overarching characteristics mirrored in viral constructions of space.

Because this paper has used a normative approach, the results need to be transferred into a research design suitable for the empirical assessment of educators' content knowledge of viral constructions of space. Seminars for student teachers or continued professional development for in-service teachers could serve as frames for empirical investigations. Subsequently, pupils could be included in empirical considerations. Just how teachers can integrate viral constructions of space into the curriculum also has to be explored further, as do the ways in which curricular limitations currently hinder viral constructions of space from becoming fruitful orientation-content in the classroom.

Finally, the question posed at the beginning of this paper, 'What content knowledge do Geography teachers need for the inclusion of viral constructions of space in the classroom?', was answered in detail through concrete descriptors of teacher knowledge. However, the relevance of viral constructions of space and how to include them in the classroom have only just begun to be illustrated. Future discussions and analyses need to further explore teachers' knowledge so that eventually students can profit from the spatial orientation which Geography education claims to provide.

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