Learning and Teaching with Geomedia
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Our lives are thoroughly ‘geomedialized’. Geomedia technologies that emerged and – particularly important – were popularized in the course of the last decade shape the opportunities we have to appropriate the world around us and to act within society. Global positioning systems, ubiquitous computing, web mapping in connection with remote sensing and the convergence of media contribute to a geoweb providing an increasingly powerful aspect of our everyday action in space. The use of these technologies is a very specific aspect of an emerging digital culture that our schools have to prepare for.

We receive news such as twitter messages, ‘just in time, geo-localized’ on digital globes. Web information is available everywhere, as is the cloud. Our lives can be recorded within social networks, visualized in a framework of time and space. We are guided in both the countryside and cities by GIS navigation systems. Our view of the city is extended by applications combining geo-localization, image recognition and web content, adding meaning to the things we see. The smartphone alerts us when we are near to certain sites, and spatial referencing offers the possibility of combining personal interests with spatial information. Apps synchronize geo-location with our personal timetable on a tablet providing the latest traffic and transport information for our current position. We know where our social network friends are and can arrange spontaneous (face-to-face) meetings. We produce spatial data by evaluating a restaurant we have visited, or simply, even without realizing it, by having been in an area while looking up a certain word in a search engine. Each photo taken with data glasses is uploaded while being enriched with various metadata. Finally, we can produce and design our own maps with user-friendly web mapping tools. In the end, we may encounter mixed realities enriched by digital and geolocalized data and a merging of real and virtual spaces.

In sum, we constantly consume and produce media which carries geo-referenced information. In the context of this book, we refer to these kinds of media as ‘geomedia’. Geomedia are not only cartographic media but also geo-tagged pictures and written descriptions of paths and places. Today, geomedia come with an enormous semantic field closely linked to web2.0, the Internet of social interaction. To be more concise, geomedia connects the web2.0 with the lifeworld by providing a reference to
physical human beings. The ‘virtual world’ of the web seems to belong to yesterday; the web of today clearly enriches our everyday lives. A renaissance of space and place foils the idea of overcoming space in a digital age. At the same time, geomedia and the resulting data sets are media of surveillance and control, of intrusion into intimacy and the use of very private spatial data for commercial aims, and these clearly change our concepts of privacy and culture as a whole. To conclude, geomedia are ever-present in everyday life; they shape action and encourage thinking and reasoning – and their use needs reflection and reflexivity.

Education has to enable students and teachers to come to terms with this development. This carries two main aims: learning to act with geomedia in everyday contexts, and utilizing geomedia to understand spatial problems in the domain of science. In other words, the geomedia society requires abilities and capabilities to utilize geomedia, as they are a central medium for learning, thinking and communicating about spaces, as well as for achieving and retaining power and influence over places. Participation in society therefore increasingly needs geomedia literacy. The task for geomedia education is, in a minor way, to teach technical skills; in a major way, it is to enable the mature and self-directed utilization of geomedia.

The aim of this book, therefore, is to support teachers and teacher trainers, through an overview of current technical, social and pedagogical approaches and through ready-to-use learning environments. The collection of learning environments utilizes geomedia to support learning and problem solving in the spatial domain. The book offers new ideas for implementing teaching strategies with geomedia that foster students’ creativity and participatory abilities. It contributes to the education and empowerment of spatial citizens who are able to act in a complex, geomedia-ized world, while being adapted to it, but also constructing, shaping and reinventing it.

This book is an outcome of the digital-earth.eu project, an EU Comenius Multilateral Network that aims at the promotion of geomedia usage and teaching in schools. It is congruent with the network’s purposes to share innovative best-practice examples to inspire and encourage transfer beyond national borders. This book unites contributions from researchers and practitioners from all over Europe. All learning environments are field-tested and transferable and provide the basic considerations and materials to be adapted by the reader.

The structure of this book is given by placing the learning environments (Part II) in a kind of continuum. It starts with simple technical aspects of mapping, and introduces the challenges of spatial thinking. These learning
environments support consumption as well as map production abilities and capabilities, encompassing single-step analytical tasks leading to hypothesis construction, as well as exercises to collect, select and modify spatial data, to comment on visualizations and to design one’s own. Further papers in this book address the necessity for the reflective and reflexive utilization of geomedia. Reflection refers to the deconstruction of societal discourses hidden in geomedia, a change of perspective that allows the evaluation of a geomedium’s ability to handle a certain task or problem. Reflexivity relates to the capacity to produce conscious hypotheses by being aware of one’s own construction of spatial scenarios based on medium, preconditions, and one’s own interests, which prepares for conscious, mature and responsible communication with geomedia.

The book concludes with learning environments aiming at participation in society through geomedia. These environments refer to the expression of interests and broad communication and negotiation using geomedia in a web2.0 context and address citizenship competences, as described in Spatial Citizenship.

This order is not necessarily an order of complexity: each learning environment may be used in, or transferred to, different levels of achievement.

The book is framed by three introductory chapters to contextualize the learning environments (Part I). The first envisions the rapid technological development of geomedia; the second discusses the influence of geomedia on society, societal power-relations and the consequences for everyday action and decision making; the third discusses and illustrates the pedagogical background of learning with and about geomedia.

The editors hope that the book will help teachers to use the learning environments, adapt them to their classroom situations, and enhance them or build similar learning environments for their own teaching. The book should inspire teachers to experiment and creatively develop similar or altogether different learning environments, helping students to navigate more competently the emerging geoinformation society. The technology is there and easy to use, so teachers and teacher trainers are encouraged to contribute to geomedia education through their own approaches.

The editors strongly believe that this endeavour is not simply about adaptation to a new technology and its associated culture. We suggest that geomedia are helpful for our students to re-invent their world and society; they are not just a means of handling the given world. Geomedia in this case become a medium of empowerment for young people to actively design their worlds.
The editors are indebted first to the authors who have borne with them through delays in the process. All of the papers underwent several rounds of review, and even so, we could not publish all papers on offer. Beyond the editorial team, Nicole Ferber (Salzburg) has been incredibly helpful with all institutional issues at the coordinating institution of the digital-earth.eu network, as well as with the final version of the book. John Lyon did proofreading despite being always busy at the Geographical Association, Sheffield, UK. Mary Rigby (Glasgow) was amazingly helpful doing copyediting. Viola Geiger (Salzburg) expertly did the final formatting with help from various staff at Cambridge Scholars Publishing.

During work on this book, four digital earth natives were born to members of the editorial team in late 2012 and early 2013, enlivening editorial meetings, and both hampering and inspiring our work: Camille, Anouk, Eleanor and Hannah.

We would like to dedicate the book to them.