

Spatial Citizenship and Service Learning – Breaking the Mould of Geography Teacher Education

GI_Forum 2018, Issue.2

Page: 131 - 142

Full Paper

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DOI: 10.1553/giscience2018_02_s131

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Abstract

Although Spatial Citizenship Education calls for real life-oriented and context-based teaching and learning within cooperative learning environments to foster students' participation in society, a corresponding didactic strategy has not so far been integrated into pre-service teacher education. This article therefore describes the implementation of the service learning approach into a project module in geography teacher education at Goethe-Universität Frankfurt am Main. The module allows students to participate in authentic, experience-based learning using digital geomedial, and covers aspects of children's and adolescents' spatial socialization in cooperation with educational and municipal institutions at local level. Our action research on the recent implementation process shows that the new, action-based learning environment increases students' content knowledge as well as their technical and pedagogical skills. Furthermore, it prompts a positive change in students' perceptions of, and perspectives on, the social-spatial action routines of children and adolescents. Discussing the potentials of service learning for Spatial Citizenship Education in pre-service teacher education, we argue that service learning is a suitable strategy for vital geographic learning in relation to society and civic participation.

Keywords:

spatial citizenship, service learning, geography, pre-service teacher education, higher education

1 Introduction

The scientific development of Spatial Citizenship (Gryl & Jekel, 2012) has so far comprised three major fields of interest: (1) the theoretical and pedagogical foundation and configuration of a competence-based learning approach for Spatial Citizenship Education (SCE) that aims to enable people to critically use digital geomedial for political participation and for decision-making in spatial discourses in society (Jekel, Gryl, & Schulze, 2015; Jekel, Gryl, & Oberrauch, 2015); (2) in the context of the SPACIT project, a number of learning materials have been developed to support the integration of SCE within situated and cooperative learning environments in schools and, thus, to foster active teaching for geomedial-based communication and reflection in real-world contexts (SPACIT, 2014); (3)

the actual implementation of SCE into learning environments in schools and teacher education, in the form of lesson plans and practice examples (see e.g. Gryl, Könen, & Pokraka, 2017; Pokraka et al., 2017). All the contributions cited provide details of how to integrate SCE into teaching and learning, in terms of critical cartography and emancipatory map production, the use of digital geomeia for participation in political discourse, and citizenship education in general. However, they do not offer a comprehensive didactic strategy for the implementation of SCE within higher education that fulfils the claim of SCE, which is that it provides action-based learning within authentic learning environments in order to realize the learner's civic engagement in the public domain. In this context, Schulze, Gryl and Kanwischer (2015) have argued for a shift from subject-specific contents in the field of geospatial technology to the use of everyday digital geomeia as a multifaceted way of teaching and learning that allows for the learner's critical encounter with the use of geospatial technology for social practices. Similarly, Pokraka et al. (2017) state that geomeia education 'must be anchored in promoting the needs of daily life and emancipating capabilities' in order to come to the fruitful 'triplet' of 'digital geospatial education, context-based learning and Spatial Citizenship' (pp. 225–26). Therefore, one wonders why SCE has not yet been linked to the pedagogies of service learning (SL), even though SL offers a worthwhile endeavour to support the goals of SCE by constructivist and transformative learning. In general terms, the basic idea of SL is to foster the democratic participation and active assumption of civic responsibility by students as part of their professional learning, while the unity of action and reflection for the acquisition of knowledge from experience is central (Reinders, 2016). In this context, SL has been attributed with a positive impact on students' development of subject-specific competences and academic achievements, as well as on cross-curricular skills and abilities such as self-awareness, social competence, problem solving, enhanced civic engagement and responsibility in society (Pritchard, 2002).

Against this background, our article explores to what extent SL represents a useful didactic method for implementing SCE in the field of pre-teacher education in geography and thus for addressing the challenge of the so-called 'theory–practice problem' in teacher education (Kanwischer, 2013). In the sections that follow, we first discuss the potential benefits of integrating SL into teacher education in geography and SCE. Then, as a case example, we present a re-conception of the two-semester-long compulsory project module on 'Spatial Socialization and School' for pre-service teacher education in geography at Goethe-Universität Frankfurt am Main. We demonstrate how to move from a conventional semester process towards creating an SL environment that provides future geography teachers with the means to analyse and evaluate the social-spatial development of pupils through authentic and situational geomeia-based learning in cooperation with educational and social institutions at city district level.

2 Service learning and Spatial Citizenship Education

The focus of our work is the implementation of academic SL as a strategy to combine professional and academic learning with providing social service to the local community. The SL approach derives from the Anglo-American tradition of experiential learning put forward by John Dewey and David A. Kolb. Basically, the approach is understood as a 'course-based,

credit-bearing educational experience that allows students to (a) participate in an organized service activity that meets identified community needs and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility' (Bringle & Hatcher, 1995, p. 112). Alongside such traditional understandings of SL, various authors, such as Pompa (2005) and Mitchell (2008), argue for a critical SL interpretation that has become central for our work. To counter SL as an educational practice of 'charity or "forced volunteerism," and deemed paternalistic' and to 'encourage students to see themselves as agents of social change, and use the experience of service to address and respond to injustice in communities' (Mitchell, 2008, p. 51.), SL pedagogy 'demands a social change orientation, working to redistribute power, and developing authentic relationships as central to the classroom and community experience' (p. 52).

Following Reinders (2016, pp. 23ff), SL quality standards were formulated as early as the late 1970s, and have continued to the present to be further developed into didactic standards for K-12. In summary, these standards integrate the main aspects of subjects and of students' community involvement. They often refer to three core didactic principles:

- 'Reference to reality: SL projects have to be carried out in real life and must meet the real needs of the community instead of remaining in the artificial learning setting of a school or university.
- Reciprocity: students and cooperative partners and institutions are mutually dependable; they learn from each other and respond to each other's needs.
- Reflection: students should have sufficient time and pedagogic guidance to reflect on the relationship between academic theory and actual life practice' (own translation from *ibid.*, p. 27).

If we compare these guiding ideas of SL with the core didactic principles of SCE, a conformity of the approaches becomes obvious. The Curriculum for Spatial Citizenship Education formulates the following didactic principles:

- '(...) strategies for teaching Spatial Citizenship should be based on a constructivist understanding of learning in order to foster the implementation of the theoretical subjects of Spatial Citizenship within real-world contexts, and the daily routines and actions of the learners.
- (...) appropriate classroom activities should support active and authentic learning, integrating multiple perspectives and contexts on GM [geomedia] use for communication, participation and negotiation processes in society through situated and cooperative learning environments, i.e. meaningful learning, problem based learning, and resource based learning' (Schulze, Gryl, & Kanwischer, 2014, p. 366).

Furthermore, the curriculum comprises six major learning fields that focus on the theoretical construct of 'spatial citizenship competence' and the learner's individual knowledge, skills and abilities 'to interpret and critically reflect on spatial information, communicate with the assistance of maps and other spatial representations, and express location-specific opinions using geomedia' (Jekel, Gryl, & Schulze, 2015, p. 38). The competence facets within the core

learning fields of ‘Technology and Methodology’, ‘Reflection’ and ‘Communication’ integrate digital geomeia use and geospatial technology to enable people to participate in collaborative Web2.0-based environments by sharing and/or creating alternative spatial narratives and visions in terms of everyday social constructions for discourse (Schulze, Gryl, & Kanwischer, 2015). In comparison to SL, these core competences are related to the processes of action-based knowledge-acquisition through learning with ‘reference to reality’ and by ‘reflection’. In more detail, experiential learning is linked here to the development of the learners’ technical, practical and emancipatory knowledge and includes instrumental and interpersonal skills and abilities, such as expressing spatial knowledge, creating digital maps and other spatial representations, information processing, technological maturity, and communication and negotiation in political discourse.

For the successful development of the core competences, the ‘Spatial Domain’ and ‘Citizenship Education Domain’ learning fields both provide the necessary subject-specific knowledge. The ‘Spatial Domain’ includes the declarative, conceptual and metacognitive knowledge on absolute and relative concepts of space, as well as the skills and abilities of spatial thinking for fostering the learner’s change of perspective on space that are a prerequisite for the processes of his/her mature appropriation of space (Schulze, Gryl, & Kanwischer, 2015). The ‘Citizenship Education Domain’ provides the knowledge and concepts for emancipatory citizenship education based on the civic learning dimensions put forward by Bennett et al. (2009). Civic-related, social and intercultural skills, which are also covered through informal learning, are also relevant. This domain not only includes content knowledge on human rights, democratic values, politics, sustainable development, culture etc., but also involves critical thinking, analytical skills, and development towards active participation in society (Schulze, Gryl, & Kanwischer, 2015). There are many noticeable overlaps with the SL approach, which generally has significant positive effects on citizenship outcomes and political value-formation, such as civic engagement, social justice, political participation, volunteer motivation and personal responsibility (see Reinders, 2016 for an overview of meta-analysis on SL). A final learning field, ‘Implementation Strategies’, deals with the development of teachers’ Technological Pedagogical Content Knowledge (Mishra & Koehler, 2006) as well as motivational orientations of teaching and learning for SCE. This learning field is also of importance for the creation of SL environments, for several reasons: (1) it enables teachers to consider the didactics of SL, while both (2) taking into account teaching values and beliefs to support students’ engagement in political and spatial discourse within the local community, and (3) purposefully strengthening self-paced formal and informal learning (Pokraka et al., 2017).

3 Service learning in geography education in Germany

It is noteworthy that SL as an established teaching and learning method has become widespread, especially in anglophone countries, over the course of recent decades (see, for example, Campus Compact, 2018). In the German-speaking academic landscape, SL has received attention for the last decade (see Bildung durch Verantwortung, 2018). In particular, through connections to contemporary approaches of constructivist teaching and learning, SL is regarded in higher education didactics as a method in which the practical involvement of

students in social engagement ideally becomes the vehicle of advanced professional and personal-effective learning (Reinders, 2016). Nevertheless, Thönnessen (2015) argues that the SL approach in connection to geography education in Germany has so far been disregarded in schools as well as in universities. In contrast, in anglophone geography higher education there is wider discussion on the adaptation of SL to the subject. Common application areas of SL are related to the collection of geospatial information, for example in the context of projects in the fields of Public Participation GIS (PPGIS), Volunteered Geographic Information (VGI) and Citizen Science. These areas of SL integration can be described as technology-focused, since they aim to enhance teaching and learning through geospatial science and technology (in higher education), based on the need for community services (Sinton, 2012). SL in the form of community–university partnerships is also found, for example, in order to deal with social inequality in marginalized urban areas in the context of critical urban geography (Allahwala et al., 2013).

As outlined above, such an SL approach assumes that ‘different from charity, service-learning involves a critique of social systems, challenging participants to analyse what they experience, while inspiring them to take action and make change’ (Pompa, 2005, p. 189). By encouraging critical thinking, SL can be regarded as having ‘the power to turn things inside-out and upside-down for those engaged in it’ (p. 191). This interpretation of SL explicitly brings in the political dimension of social action and citizenship. It challenges students to reflect not only on their social engagement, but also on the causes of social issues and disparities, and prevalent power relations. From the perspective of neogeography, SL in combination with SCE therefore has the potential to open up new opportunities for real-world centred academic teaching and learning, involving extra-curricular actors at the local community level while effectively incorporating ‘strategic political formation’ and ‘visual spatial tactics’ in order to bring the ‘citizen voice’ to the map (Elwood & Mitchell, 2013, pp. 277ff).

The project module ‘Spatial Socialization and School’ presented below seizes on this critical SL approach. As part of geography teacher education at the Goethe-Universität Frankfurt am Main, it attempts to link theory and practice in teacher education through university–community partnerships with schools, extra-curricular education institutions, and other social actors in the city of Frankfurt am Main.

4 Redesign of the service learning project module ‘Spatial Socialization and School’

The overall goal of the two-semester-long module is to foster prospective geography teachers’ comprehension of the social-spatial perception, construction and physical appropriation of urban spaces by children and adolescents, taking into account the ongoing mediatization of society. In this context, the module focuses on two guiding questions. First, in what ways do digital geomedial influence the lifeworld and spatial socialization processes of children and adolescents? Second, which competences regarding reflexive digital geomedial use need to be developed among future teachers as well as pupils in the classroom? From this it can be seen that the module is not a scientific research project. Rather, it enables

students to recognize and evaluate social-spatial influences, and to relate these to pedagogical, technical and organizational teaching knowledge by applying their previous professional knowledge of geography education. Frankfurt Ostend was chosen as a spatial study area because of its dynamic gentrification process, which is the result of urban policy strategies implemented since the 2000s (Mösgen & Schipper, 2017). As focuses for the teaching and learning process, one can find here many ‘worthwhile problems’ of socio-spatial divergences typical of a pluralistic urban society.

Thematic aspects, curricular frame and former structure of the module

The compulsory project module with a total of 12 ECTS is offered in the discipline of geography teaching for secondary and lower secondary schools in the student teachers’ last academic year. Each year, approximately 50 students complete the module in two parallel runs. The module comprises three consecutive sections. Figure 1 illustrates the module’s structure, its previous content, as well as the newly designed SL content.

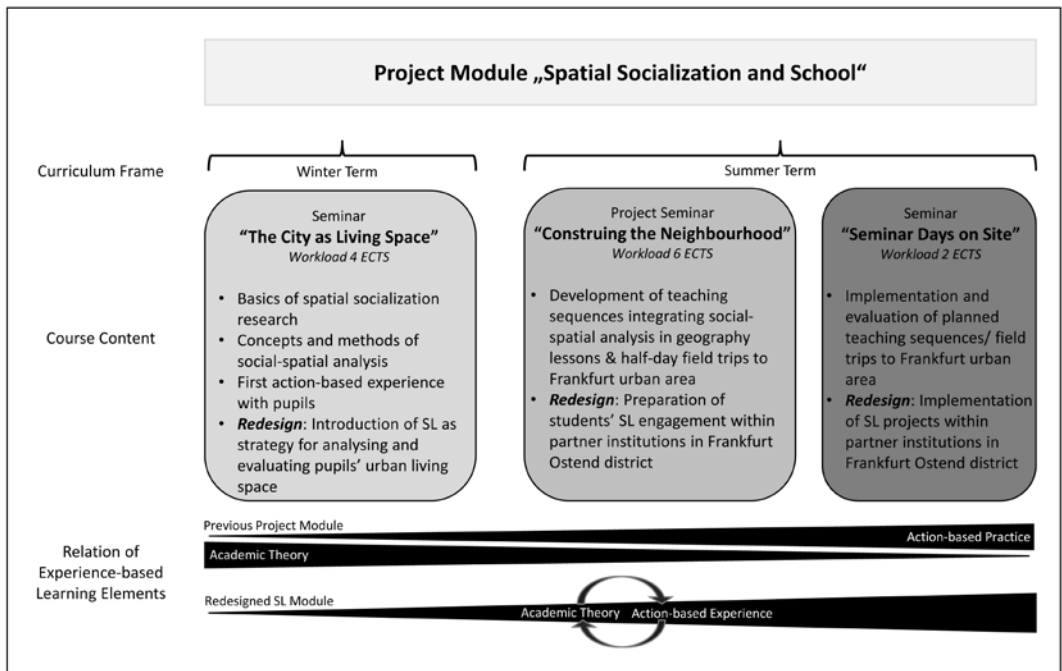


Figure 1: Allocation of the module’s curricular course components (authors’ own design).

In the first phase of the module (winter term; t1), the basic content knowledge and methods for conducting social-spatial analysis of pupils’ living spaces were taught within a ‘traditional’ seminar setting, including students’ presentations for assessment. Building on this, in the second phase of the module (summer term; t2) students had to develop teaching sequences to practise how to integrate contents and methods of social-spatial analysis into geography lessons. In order to encourage pupils to reflect on their daily living spaces, students had to

arrange half-day field trips to nearby districts of Frankfurt am Main. Activities included, among other things, tasks involving spatial orientation, explorations of school surroundings by means of map-based activities and geocaching, and digital mapping of pupils' favourite haunts. Finally, in the third phase of the module, these teaching sequences were carried out in the city area. Students had to perform in an authentic learning environment outside the lecture room and to reflect on the practical implementation of their field trip activity. This element of the course took place without the involvement of pupils.

Development of the service learning concept

The integration of SL into the earlier module structure offers students the opportunity to acquire both content and pedagogical knowledge of spatial socialization processes through authentic and situational learning on site with children and adolescents. The goals of the module's redesign can be summarized as follows:

- Teaching level: Connecting geographical learning, society relations and civic participation in academic teaching processes.
- Learning level: Increasing the proportion of experience-based learning in the pedagogical practice of geography education and education of future teachers.
- Organizational level: Implementation of SL as a basic element of geography teacher education at Goethe-Universität Frankfurt am Main.
- Research level: Evaluation of challenges and effects of SL in higher education geography teaching.

The conception and the stepwise integration of the SL components into the project module were realized with students of the first revised module run in 2016/2017. The changes introduced included: the phrasing of expectations and goals with regard to the students' engagement at local level in Frankfurt am Main; the exploration of suitable methods for the implementation of social-spatial analysis; contacting possible cooperation partners and public interest groups for SL engagement. The SL offer formulated by the seminar's participants reads as follows:

- Our SL idea is to jointly explore and map Frankfurt Ostend from the perspective of children and adolescents to capture their everyday living spaces. As 'service agents', we offer children and adolescents the opportunity to 'rediscover' their everyday urban spaces in order to articulate their own socio-spatial needs, and spatial conflicts of interest to public and political decision-makers. As 'service receivers', educational and social institutions get a well-designed pedagogical offer in which reliable socio-spatial data are collected and made available to interested third parties.

Figure 2 illustrates the SL project module environment from the organizational point of view. The major service components and learning aspects are shown next to the grouping of SL players in the centre of the figure.

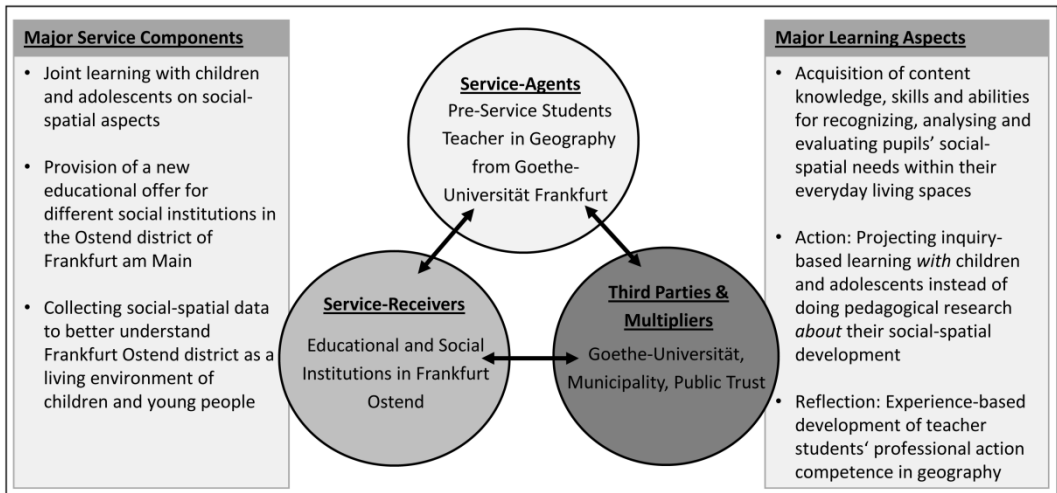


Figure 2: Structure of the SL project module environment (authors' own design).

In what follows, we present essential aspects of the SL components integrated so far into the separate module phases in the winter and summer terms.

Service learning aspects of the winter term

The new syllabus of the seminar 'The City as Living Space' (Figure 1) follows the basic principle of experience-based learning through consistently pairing the examination of the subject-specific content knowledge with a practical encounter with a relevant learning subject. The following two examples illustrate this new form of practical experience with reference to geomeedia applications in particular:

- Students' change of perspective towards the 'everyday urban space' as a social action space for children and adolescents is realized through tracing their typical whereabouts in the Ostend district, in the context of students' map-based photo documentation during a self-organized city excursion. Using Google Maps® allows the students to easily visualize and describe their geotagged photos on a digital map. The resulting corpus of automatically clustered photographs allows for further multimedia-based analysis of supposed socialization spaces of children and adolescents. This corpus also forms the basis of a subsequent hashtag analysis to work out theoretical aspects of the digital construction and communication of spaces (Kanwischer & Schlottmann, 2017).
- Over a period of four seminar weeks, the students are introduced to the Spatial Citizenship approach through the corresponding lesson 'My City – My Life' by Pokraka (2015) and a half-day visit by pupils of a partner school. In a classroom setting, students have to prepare, implement and evaluate different forms of critical map work, such as paper-and-pencil subjective mapping and digital pin mapping with Scribble Maps®, to elaborate on pupils' spatial perception and on basic aspects of participation in local urban planning.

Service learning aspects of the summer term

The module phase in the summer term (t2) is dedicated entirely to students' cooperation with partner institutions in Frankfurt Ostend, which to date are secondary schools and youth centres. In order to realize the implementation of small group-based projects according to SL engagement as outlined above, the 'Construing the Neighbourhood' and 'Seminar Days on Site' sections (Figure 1) are closely interrelated in content and time. Consequently, the opportunity arises to conduct action phases within the partner institutions, accompanied by coaching and reflection phases within the seminar at university.

Working within the partner institutions is in two stages:

Stage 1: Student groups meet individually with professionals from the partner institutions to prepare project work (see Stage 2). These meetings allow them to:

- Get to know the partner institution and gain insights into daily (teaching) routines and conditions.
- Start working with pupils / youth groups to ascertain their existing subject-specific knowledge.
- Start to plan the project work, in terms of content, methods, use of (geo-)media etc.

Stage 2: Students and pupils / youth groups realize small group projects (3 to 4 days) that deal with different aspects of the social-spatial analysis of their living environment and school surroundings. The main pedagogical principles are:

- Teaching and learning follow the inquiry-based learning approach in combination with out-of-school work at local level.
- Learning outcomes and content of the individual projects are oriented towards the social-spatial interests of the pupils / youth groups and address geographical, environmental, social or political problems.
- The projects seek to collect social-spatial data based on simple but worthwhile research questions, for example on the qualities of favourite public spaces and those that the pupils / young people avoid, or on environmental topics (e.g. noise, traffic, waste) using geomedia-based methods, including (digital) pin mapping, mobile mapping, reflective photography or short surveys.

During the project work, place-based mapping and geodata production is realized by using various Web2.0-based applications, in particular Google Maps®, Scribble Maps®, Actionbound, Geotagging and GPS. Although these tools are limited in their GIS functionality, they allow for the collective use and control of the mapped geodata. This means that both the students and the children and youth groups involved trustfully share the same logins and can determine the content, form and approval of their data for communication purposes.

5 Discussion

The recent implementation of SL within the project module outlined above was accompanied by pedagogical action research comprising group discussions among the course participants at the end of the winter and summer terms (t1 and t2), a follow-up online survey (t3), and the evaluation and qualitative analysis of students' portfolios (n = 27). The results from the first run of the revised module demonstrate that students assess SL as a teaching form which, by and large, facilitates the fruitful connection of geographic learning to civic participation. Compared to traditional university courses, the majority of students perceived an increase in content knowledge as well as in technical and pedagogical knowledge, in project work, inquiry-based learning, and working with digital tools. Furthermore, students stated that the SL activities provide new perceptions of, and multi-perspectivity on, the daily actions of children and adolescents. Finally, for the most part they believed that interest in participating in urban planning processes among children and adolescents can be encouraged effectively through the integration of SL into geography lessons.

Despite the overall positive module evaluation, students also formulated some challenges facing the future realization of the SL project. Whilst students evaluated positively the implementation of projects in 'relation to reality', they also perceived them as still being too constructed, in the sense of taking place in an 'artificial learning setting at university' (translated from Reinders, 2016, p. 27). This could be due to a lack of true reciprocity between our SL offering and the needs of the partner institutions involved to date. In addition, students criticized the investment required to deal with organizational issues as being considerably greater than for other university courses – for example for scheduling meetings with partner institutions, additional paperwork (e.g. letters, permission forms), and transport between the different institutions and places of learning in the city. To address these aspects, we need to form solid cooperation agreements with our partners, which will guarantee more straightforward but vocationally oriented organization that will save students and us time.

To summarize the use of geotechnology in the SL environment as outlined in section "Development of the service learning concept", we observed that neither our students nor the pupils (aged 10 to 15) experienced major technical problems. Of course, there are a variety of GIS applications, such as ArcGIS Online® and ArcGIS Collector®, which we could have used for the geospatial data collection and mapping. However, due to our experience with working with professional GI-Systems for teaching and learning, we intentionally avoided using these tools in the project module because of the technical and conceptual GIS preparation and training that they require. As the students' portfolios indicate, working with 'easy-to-use' digital geomeia applications helps to put the geotechnical operation into the background and clears the way for viewing the applications conceptually, as tools for spatial-critical thinking.

Although the implementation of innovative forms of teacher education is worthwhile (i.e. pedagogical approaches which do not focus on a single learning path for all students, on frontal instruction and ready-made solutions, but which are action-oriented and allow for continuous reflection as part of the learning), these approaches are often met with scepticism. Altmann (1983) in particular reflected the need for an altered learning culture in

the field of teacher education, stating: ‘Teachers teach as they were taught, not as they were taught to teach’ (p. 20). We consider it vital to break the mould of geography teacher education with courage and caution in order to enable the shift from content-centred imparting of subject-specific teacher knowledge towards constructing experiential knowledge among student teachers through curricular practice. This is why we welcome the educational potential of SL as a vehicle for the integration of SCE into school and society.

References

- Allahwala, A., Bunce, S., Beagrie, L., Shauna, B., Hawthorne, T., Levesque, S., Mahs, J., & Spotton, B. (2013). Building and Sustaining Community – University Partnerships in Marginalized Urban Areas. *Journal of Geography*, 112(2), 43-57. doi: 10.1080/00221341.2012.692702
- Altmann, H. (1983). Training foreign language teachers for learner-centered instruction: deep structures, surface structures, and transformations. In Alatis, J. A., Stern, H. H., & Strevens, P. (Eds.) *GURT '83: Applied linguistics and the preparation of second language teachers: Towards a rationale*. Washington, D.C.
- Bennett, W. L., Wells, C. & Rank, A. (2009). Young citizens and civic learning. *Citizenship Studies* 13(2), 105-120.
- Bildung durch Verantwortung (2018). Retrieved from <http://www.bildung-durch-verantwortung.de/>
- Bringle, R., & Hatcher, J. (1995). A service learning curriculum for faculty. *Michigan Journal of Community Service Learning*, 2(1), 112-122.
- Campus Compact (2018). Retrieved from <https://compact.org/initiatives/service-learning/>
- Elwood, S. & Mitchell, K. (2013). Another Politics Is Possible: Neogeographies, Visual Spatial Tactics, and Political Formation. *Cartographica: The International Journal for Geographic Information and Geovisualization*, 48(4) 275-292. Project MUSE. Retrieved from muse.jhu.edu/article/531250.
- Gryl, I. & Jekel, T. (2012). Re-centering GI in secondary education: Towards a spatial citizenship approach. *Cartographica*, 47, 18-28. doi:10.3138/carto.47.1.18
- Gryl, I., Könen, D., & Pokraka, J. (2017). Limits of freedom - defining a normative background for spatial citizenship. *GI_Forum* 2017(2), 3-12.
- Jekel, T., Gryl, I., & Oberrauch, A. (2015). Education for Spatial Citizenship: Versuch einer Einordnung. *GW-Unterricht*, 137, 5-13.
- Jekel, T., Gryl, I., & Schulze, U. (2015). Education for Spatial Citizenship. In Solari, O.M., Demirci, A. & van der Schee, J. (Eds.): *Geospatial Technologies and Geography Education in a Changing World*. Springer.
- Kanwischer, D. (2013). Fachbezogenes Wissen in der geographischen Lehrerbildung. In Kanwischer, D. (Ed.): *Geographiedidaktik. Studienbücher der Geographie*. Borntraeger.
- Kanwischer, D. & Schlottmann, A. (2017). Virale Raumkonstruktionen – Soziale Medien und #Mündigkeit im Kontext gesellschaftswissenschaftlicher Medienbildung. *Zeitschrift für Didaktik der Gesellschaftswissenschaften*, 8(2), 60-78.
- Mishra, P. & Koehler, M. J. (2006). Technological Pedagogical Contents Knowledge: A Framework for Teacher Knowledge. *Teachers College Record*, 108, 1017-1054.
- Mitchell, T. D. (2008). Traditional vs. Critical Service-Learning: Engaging the Literature to Differentiate Two Models. *Michigan Journal of Community Service Learning*, Spring 2008, 50-65.
- Mösgen, A. & Schipper, S. (2017). Gentrifizierungsprozesse im Frankfurter Ostend. Stadtpolitische Aufwertungsstrategien und Zuzug der Europäischen Zentralbank. *Raumforschung und Raumordnung*, 75(2), 125-41.
- Pokraka, J. (2015). Meine Stadt – mein Leben. Subjektives Kartographieren und partizipative Stadtgestaltung. *GW-Unterricht*, 137, 41-48.

- Pokraka, J., Gryl, I., Schulze, U., Kanwischer, D., & Jekel, T. (2017). Learning and teaching with geospatial technologies: Theoretical background and practical application. In Leite, L., Dourado, L., Afonso, A. S., & Morgado, S. (Eds.): *Contextualizing Teaching to Improve Learning. The Case of Science and Geography*: Nova Science Publishers.
- Pompa, L. (2005). Service learning as crucible: Reflections on immersion, context, power, and transformation. In D. Butin (Ed.): *Service learning in higher education*: Palgrave Macmillan US.
- Pritchard, I.A. (2002). Community service and service-learning in America: The state of the art. In A. Furco & S.H. Billig (Eds.), *Service-Learning. The essence of the Pedagogy*: Information Age Publishing.
- Reinders, H. (2016). *Service Learning – Theoretische Überlegungen und empirische Studien zu Lernen durch Engagement (Service Learning. Theoretical Considerations and Empirical Research)*. Weinheim: Beltz.
- Schulze, U., Gryl, I., & Kanwischer, D. (2014). Spatial Citizenship: creating a curriculum for teacher education. *GI_Forum 2014*, 230-241.
- Schulze, U., Gryl, I., & Kanwischer, D. (2015). Spatial Citizenship education and digital geomedia: composing competences for teacher education and training. *Journal of Geography in Higher Education*, 39(3), 369-385. doi: 10.1080/03098265.2015.1048506
- Sinton, D. (2012). Making the case for GIS&T in higher education. In D. Unwin, D. J., Foote, K. E., Tate, N. J. & DiBiase, D. (Eds.) (2012), *Teaching geographic information science and technology in higher education*: Wiley-Blackwell.
- SPACIT (Spatial Citizenship) (2014). Retrieved from <http://www.spatialcitizenship.org>
- Thönnessen, N. (2015). Implementationsstudien in der Geographiedidaktik am Beispiel von Service Learning. In Budke, A., & Kuckuck, M. (Eds.): *Geographiedidaktische Forschungsmethoden. Praxis Neue Kulturgeographie*: LIT Verlag.