

Implementing “Critical Cartography” in higher education: a cross-university module proposal

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Abstract:

As argued in previous research (Ernstberger et al., 2024), contemporary critical cartography education at the university-level may have much to gain from explicitly outlined curricular aims, standards, and expectations. Based on a developed critical cartography education criteria framework, this study details the proposal of an elective, 3-credit, university-level “Critical Cartography” module. In particular, and in line with critical pedagogic frameworks, the module is developed along four key curricular elements: (1) critical content, (2) critical instruction methods, and (3) aligning learning outcomes and (4) assessment methods. Taking inspiration from examples in geography programs that apply critical elements to higher education modules, such as Laing (2020), the proposed module is intended to be seen as one example of many alternative routes for implementing critical theory and practice within higher education cartography curricula.

With a main objective of developing a module ready for implementation in an existing university-level curriculum, the study makes use of the International Cartography M.Sc. (<https://cartographymaster.eu/>) as its case study program. This program provides a contemporary example of university-level cartography education dispersed across three European countries¹ with an international student cohort. Thus paying attention to the program’s case-specific needs, limitations, and institutional boundary conditions, the module development followed a multi-stepped process with various data sources and mixed qualitative-quantitative methods. Applying the foundational concepts of critical pedagogic praxis outlined in a criteria framework specifically for cartography education (Ernstberger et al., 2024), the module development proceeds from an extensive literature review, analyses of existing critical cartography syllabi, and in-depth interviews with instructors of such courses based around the world. With this knowledge in hand, the study thus conducted an in-depth examination of the case study program’s curricular documentation, applying both text mining and qualitative document analysis, in order to understand to what extent critical curricular elements are missing or existing in the case study example. Text mining made use of key words associated to critical cartography curricular elements, for example of the presence of critical curricular content addressing “feminist theory” or “indigenous cartography”, or the presence of critical instruction methods utilizing “discussion”, “reflexivity”, and “non-hierarchical methods”. This focus on explicit formulations follows the argument that curricula which aim to represent critical education follow this through concretely. As limitations to the curricular document analysis emerged, interviews were conducted with the case study program’s four local program directors. Each interview provided meaningful insights from the respective partner university on expectations and possibilities for improving critical praxis within the case study curriculum. Taken into consideration with the institutional boundary conditions outlined by the program’s coordinating university, these contributions aid in framing the module structure and foci.

From the analysis of all findings, the resulting module proposal comprises three module units spanning three semesters of the two-year International Cartography M.Sc. curriculum timeline. These units are divided into “Critical Cartographic Perspectives” (Unit 1, Semester 1), “Applied Critical Cartography” (Unit 2, Semester 2), and a final “Critical Reflection” (Unit 3, Semester 3). Whereas content in Unit 1 is more theoretically-based, discussion-based instruction methods that encourage argumentation and reflexivity remain a priority in classroom assignments and activities. Intended as an introduction to the module, content covers diverse perspectives on critical cartographic praxis, positionalities and ethics in mapping, engagement with socio-politics issues or social justice, and the multiple controversies, epistemologies, and ontologies across cartography. Considering the program’s European hosting locations, special attention is paid to diversified teaching staff and guest contributions in such classroom discussions. This knowledge is applied in Unit 2 for a more practical part of the module. In this unit, instruction methods focus on the facilitation of creative practice and a horizontal classroom structure, in which students co-lead classroom activities as well as their own mapping projects. As its name proposes, the third and final unit concludes the module with attention to students’ capabilities of critical

¹ Studies are dispersed across four semesters between the Technical University of Munich (TUM, coordinating university), the Technical University of Vienna (TUV), the Technical University of Dresden (TUD), and the University of Twente (UT).

reflexivity. Proposing no new content, the unit provides space for students to review all learned material with the support of peer- and self-critique. Students may use the collaborative contact sessions to prepare for final one-on-one oral exams, in which they demonstrate their understanding of critical praxis in cartography at large. Altogether, learning outcomes—outlined along Bloom's Revised Taxonomy (Krathwohl, 2002)—place particular focus on higher order thinking capabilities. Emphasis is consistently placed, for example, on students' abilities to discuss, evaluate, argue, and present perspectives on critical cartographic praxis, as well as to implement critical praxis in students' own works. The assessment of those learning outcomes brings the proposed module elements to a closed circle. As per suggestions from Chase (2019), assessment methods remain diverse and dispersed across the module units. From in-class exercises and individual essays in Unit 1, group projects and presentations in Unit 2, and the final oral exams in Unit 3, assessment methods are intended to incentivize recursive and reflexive student learning throughout the module timeline.

Though effort has been taken to achieve module applicability within the case study context, challenges to such an application in practice are likely to arise. This study has limited itself on critical implementation in cartography education via curricular content, instruction methods, learning outcomes, and assessment. Studies and literature, however, such as by Stein et al. (2004) demonstrate how critical education praxis extends beyond these elements alone. The research of this study should thus be seen as a necessary step in progressing the discourse on critical cartography education, as well as a call for additional holistic examinations into the field. Such discourse may provide meaningful findings into broader constructions of knowledge and learning specific to the cartographic discipline. Finally, the developed module may be used as a template for any critical cartography university-level module, with case-specific adjustments taken into consideration accordingly.

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