Seminar Academic Report

Emotions and Maps – The Affective Dimension of Visualisation

Participant:	Maria Mushtaq, Geoinformatics Engineer
Program:	Copernicus Master in Digital Earth
Event:	ISSonVis 2026 (International Spring School on Visualization)
Format:	Digital Participation
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Credits Awarded:	3 ECTS

1. Executive Summary

This report synthesizes the theoretical and technical methodologies covered during the ISSonVis 2026 seminar. The program focused on the intersection of cartography, spatial cognition, and human emotion, challenging the traditional view of maps as purely objective data carriers. Through a detailed review of the seminar's content, this report outlines how the affective dimensions of geographic visualization integrate with modern spatial analytics and web GIS infrastructure.

2. Key Technical and Conceptual Takeaways

Context-Aware Mapping and GeoAI

A critical focus of the seminar was the fusion of human sensing with environmental data. The sessions detailed how individual-level behavioral metrics—captured via eye-tracking, EEG, and EDA—can be combined with environmental covariates like earth observation data. Applying machine learning and GeoAI to these datasets enables the creation of highly adaptive, context-aware maps that respond to a user’s cognitive state and surroundings in real-time.

Prompt Cartography and LLM Workflows

The evolution of map design interfaces was explored in-depth, highlighting the paradigm shift from traditional coding toward natural language, AI-driven mapping systems. Understanding how

LLMs bridge the gap between complex spatial logic and end-user interfaces is crucial for the future of geovisualization, emphasizing the need for ethical and persuasive map design within automated environments.

Participatory Emotional GIS

The seminar provided practical frameworks for visualizing subjective spatial experiences. Methodologies for capturing emotional responses to urban mobility demonstrate how qualitative GIS can systematically chart public perception. This integration of volunteered geographic information with traditional spatial databases enriches urban planning and spatial justice initiatives.

Cognitive Mechanics of Cartography

Foundational lectures established the cognitive and semiotic principles of modern mapping. These sessions reinforced the importance of understanding how users visually and emotionally process geographic information, which is essential for optimizing map readability and UI/UX in digital environments.

3. Professional Application

The methodologies acquired during ISSonVis 2026 directly enhance my practice as a Geoinformatics Engineer. The integration of human sensing and cognitive cartography provides a sophisticated framework for improving UI/UX in full-stack web GIS development. By factoring the affective dimension into spatial analytics, I can engineer interactive mapping applications that are not only technically robust and data-rich, but also highly intuitive and responsive to the end user's perception.

4. Conclusion

Participation in this seminar provided advanced insights into the future of interactive cartography. The successful completion of the coursework, session analysis, and this final academic report fulfills the requirements for the 3 ECTS credits and certification, marking a significant step in my ongoing professional development in Earth Observation and Digital Earth technologies.