

ICA Commission on the User Experience

2023 Business Meeting

18 August | Cape Town, South Africa

Commission Chair

Robert E. Roth, PhD | reroth@wisc.edu



What is the “UX” Commission?

First established in 1984 as the **Map Use** Commission

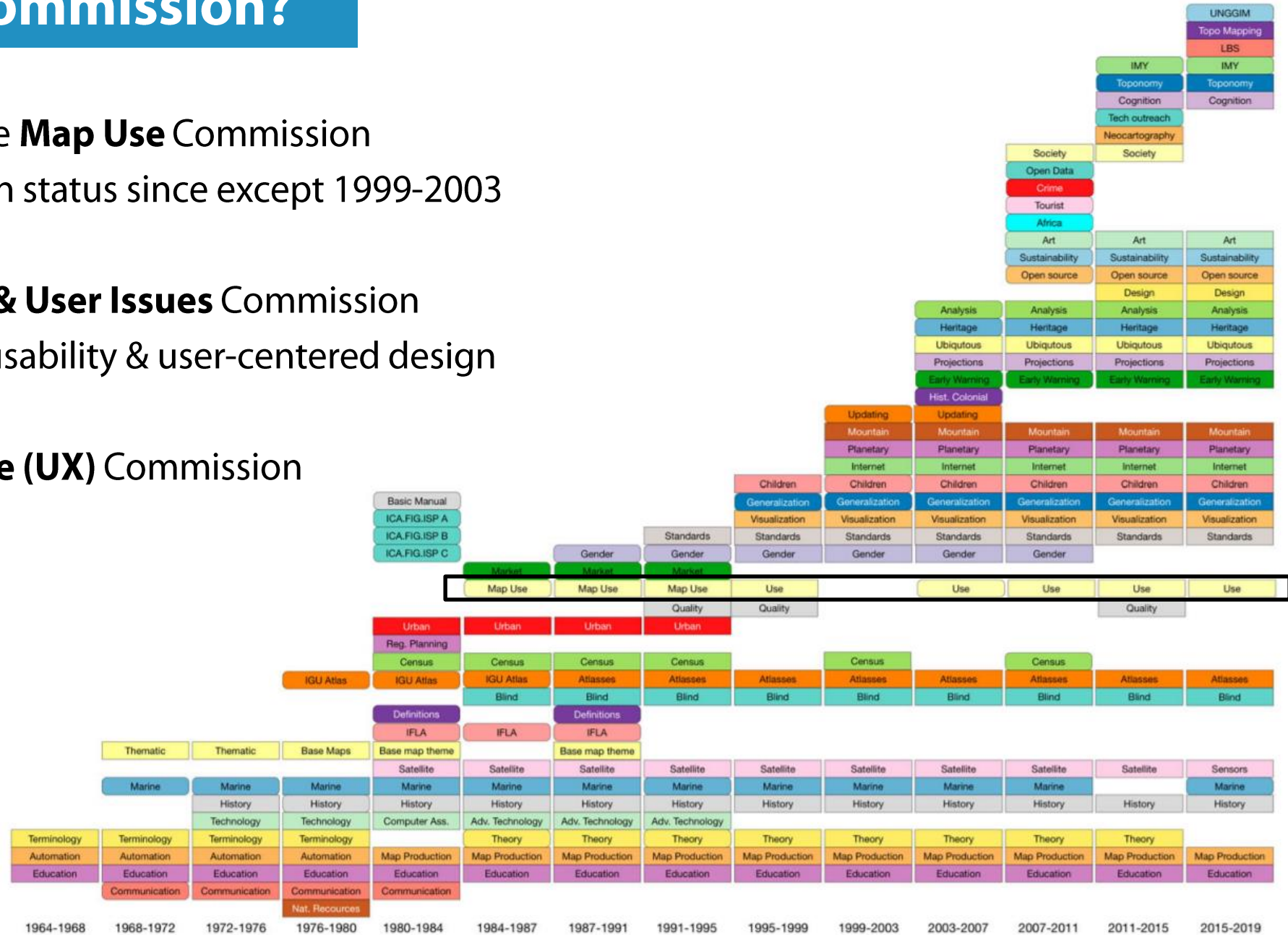
- continual commission status since except 1999-2003

Refreshed in 2003 as the **Use & User Issues** Commission

- added treatment of usability & user-centered design

Currently the **User Experience (UX)** Commission

Image: Kraak & Fabrikant (2017) *Of maps, cartography, & geography of the ICA*



What is “UX” Design?

maps



What is “UX” Design?

maps
data

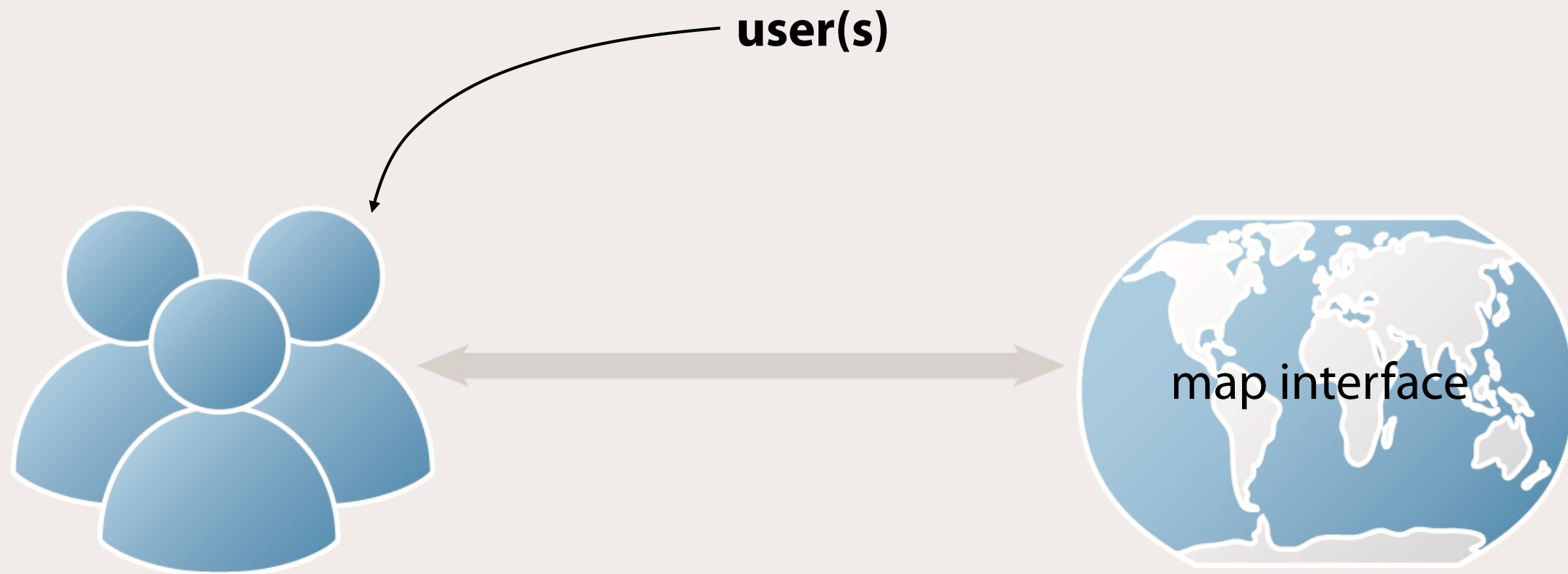


What is “UX” Design?

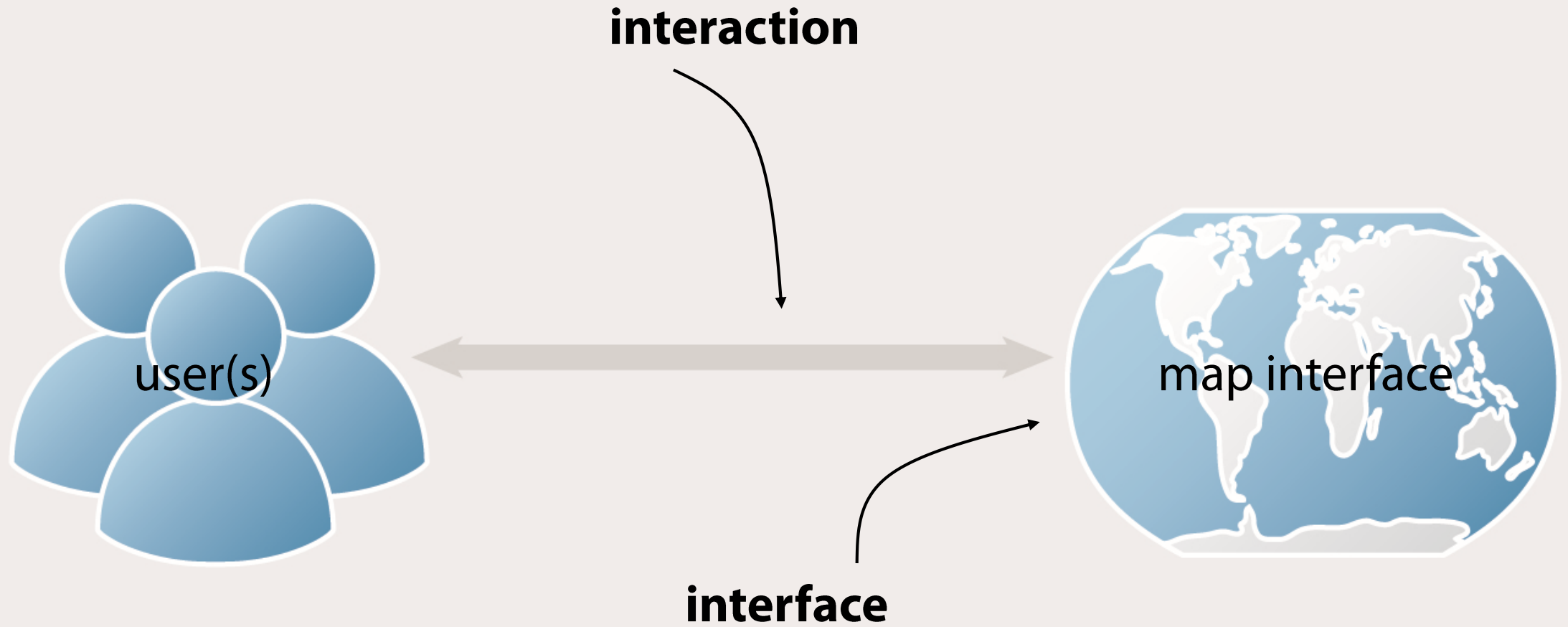
**data
map interface**



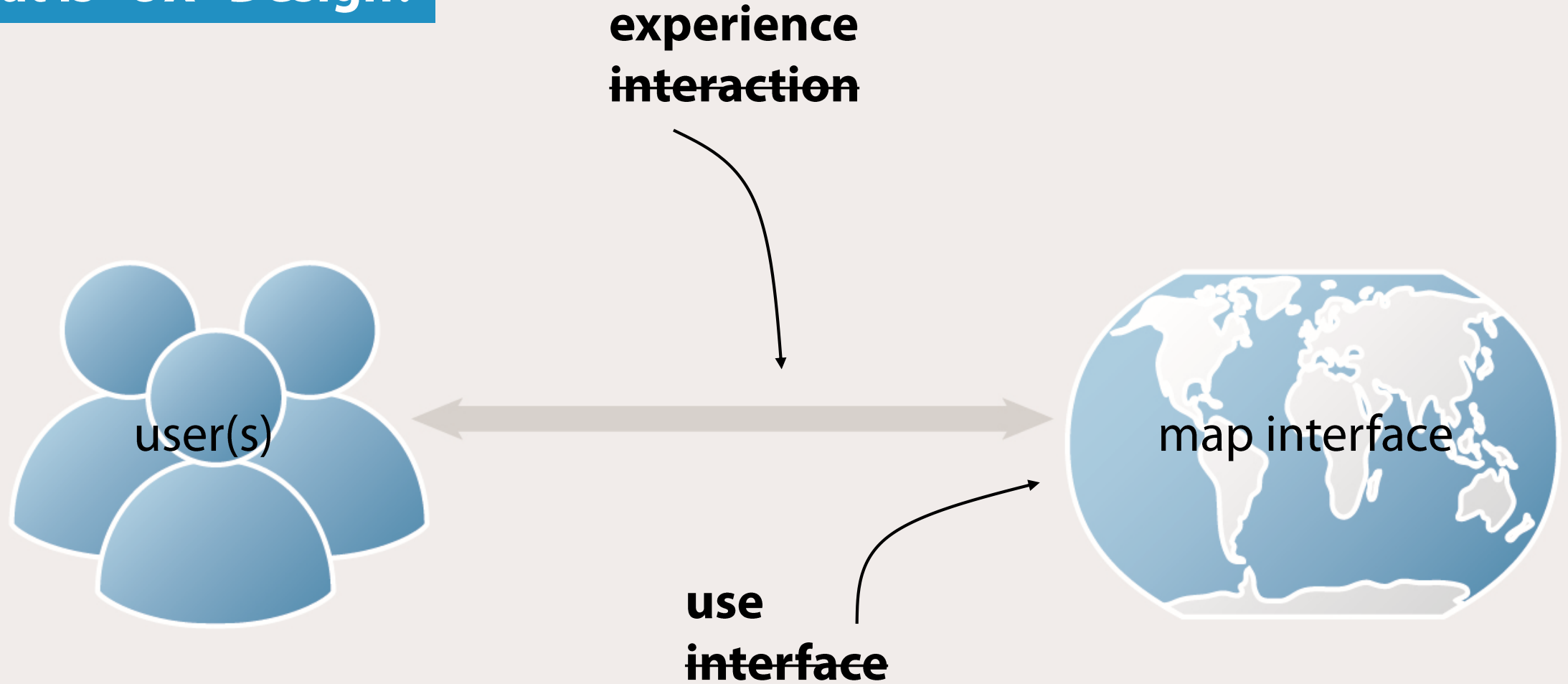
What is "UX" Design?



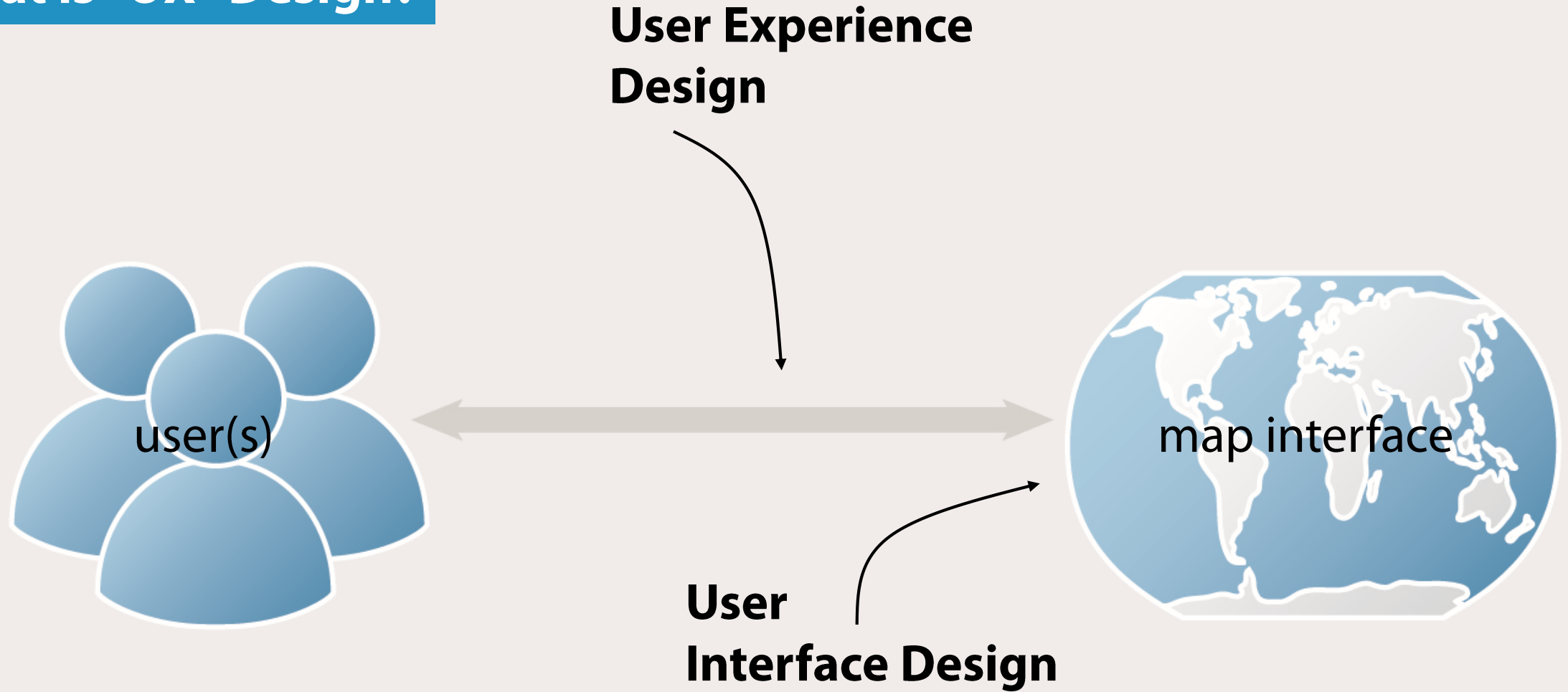
What is "UX" Design?



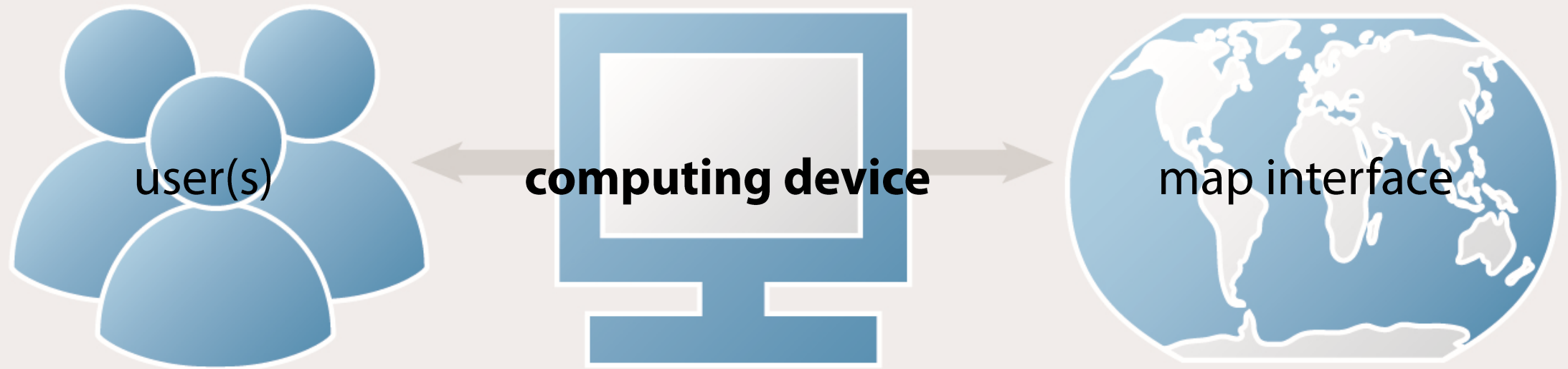
What is "UX" Design?



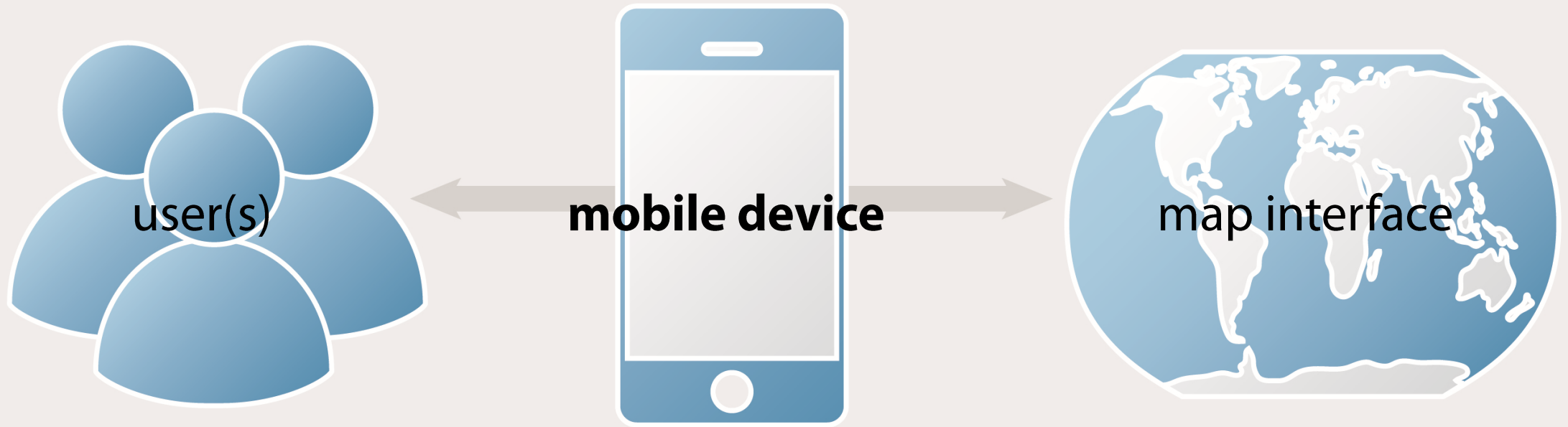
What is "UX" Design?



What is “UX” Design?



What is “UX” Design?



UI = user interface

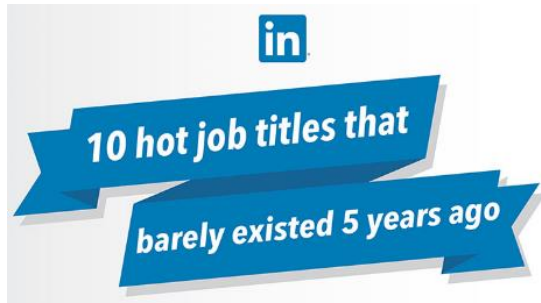
UX = user experience

Designer = sketcher + tinkerer + evaluator

UI = implemented interactive features

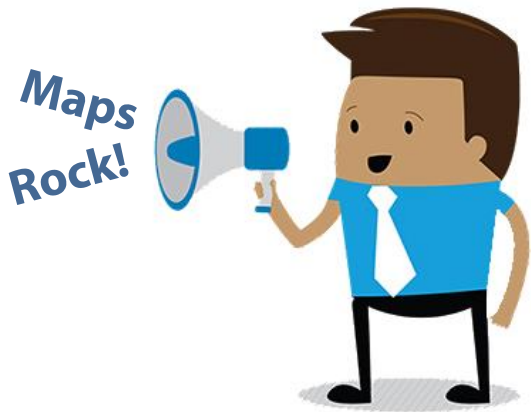
UX = processes & outcomes of interaction

Designer = decider of how it “works”



Source: LinkedIn

#	Job Title
#1	IOS Developer
#2	Android Developer
#3	Zumba Instructor
#4	Social Media Intern
#5	Data Scientist
#6	UI/UX Designer
#7	Big Data Architect
#8	Beachbody Coach
#9	Cloud Services Specialist
#10	Digital Marketing Specialist



**10 New Jobs
for the 2010s**

Data Scientist

Graphic Designer

UX Designer

Usability Engineer

UI Designer

Content Manager

Visual Artist

Data Scientist

Cloud Services
Specialist

Graphic Designer

Creative Director

Big Data Architect

Web Designer

UX Designer

QA/QC Specialist

Client-side Developer

Social Scientist

Usability Engineer

Mobile Developer

UI Designer

User-centered Designer

Content Manager

Visual Artist

Data Scientist

Cloud Services
Specialist

Graphic Designer

Creative Director

Big Data Architect

Web Designer

~~UX Designer~~

Cartographer

QA/QC Specialist

Client-side Developer

Social Scientist

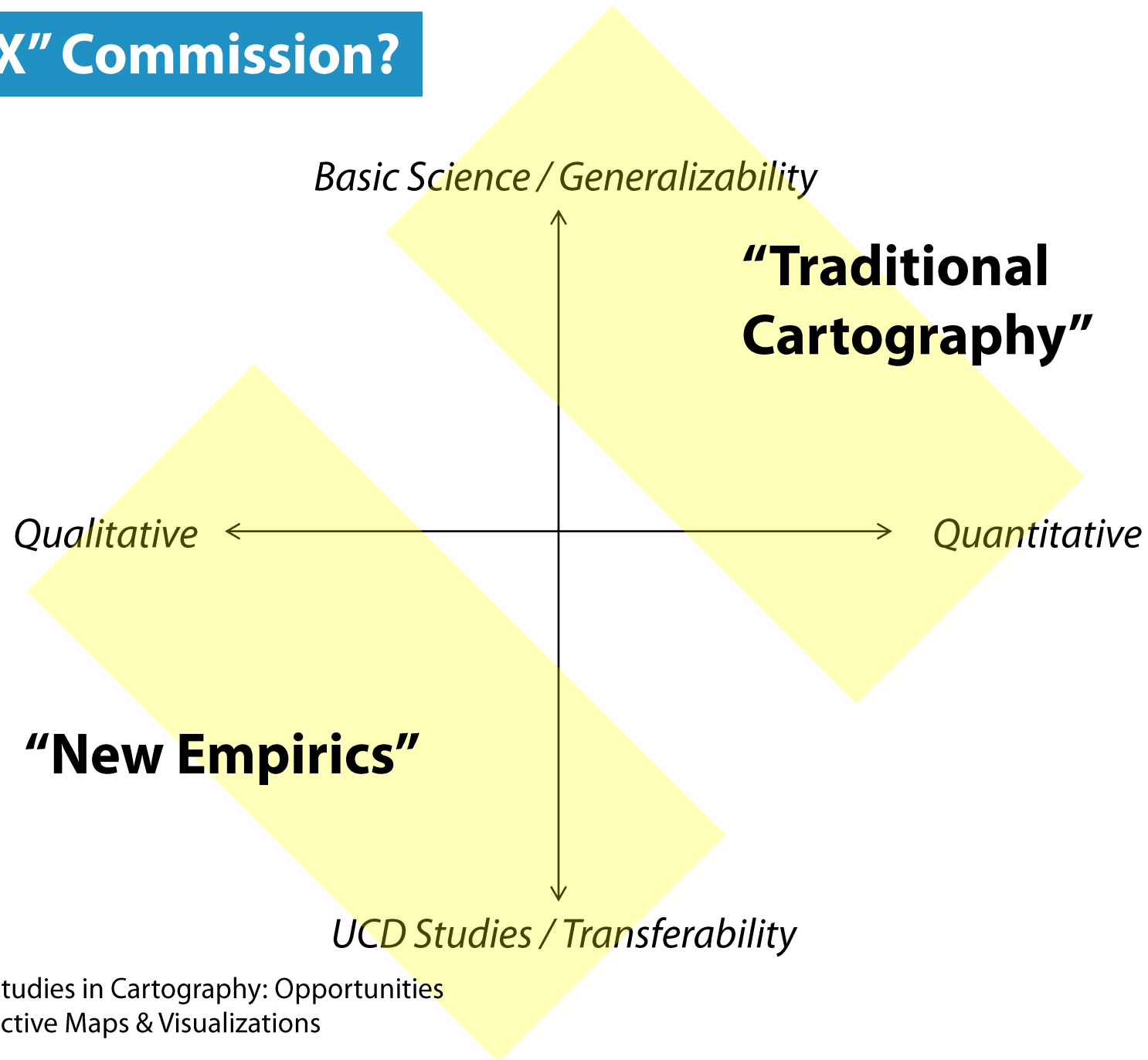
Usability Engineer

Mobile Developer

UI Designer

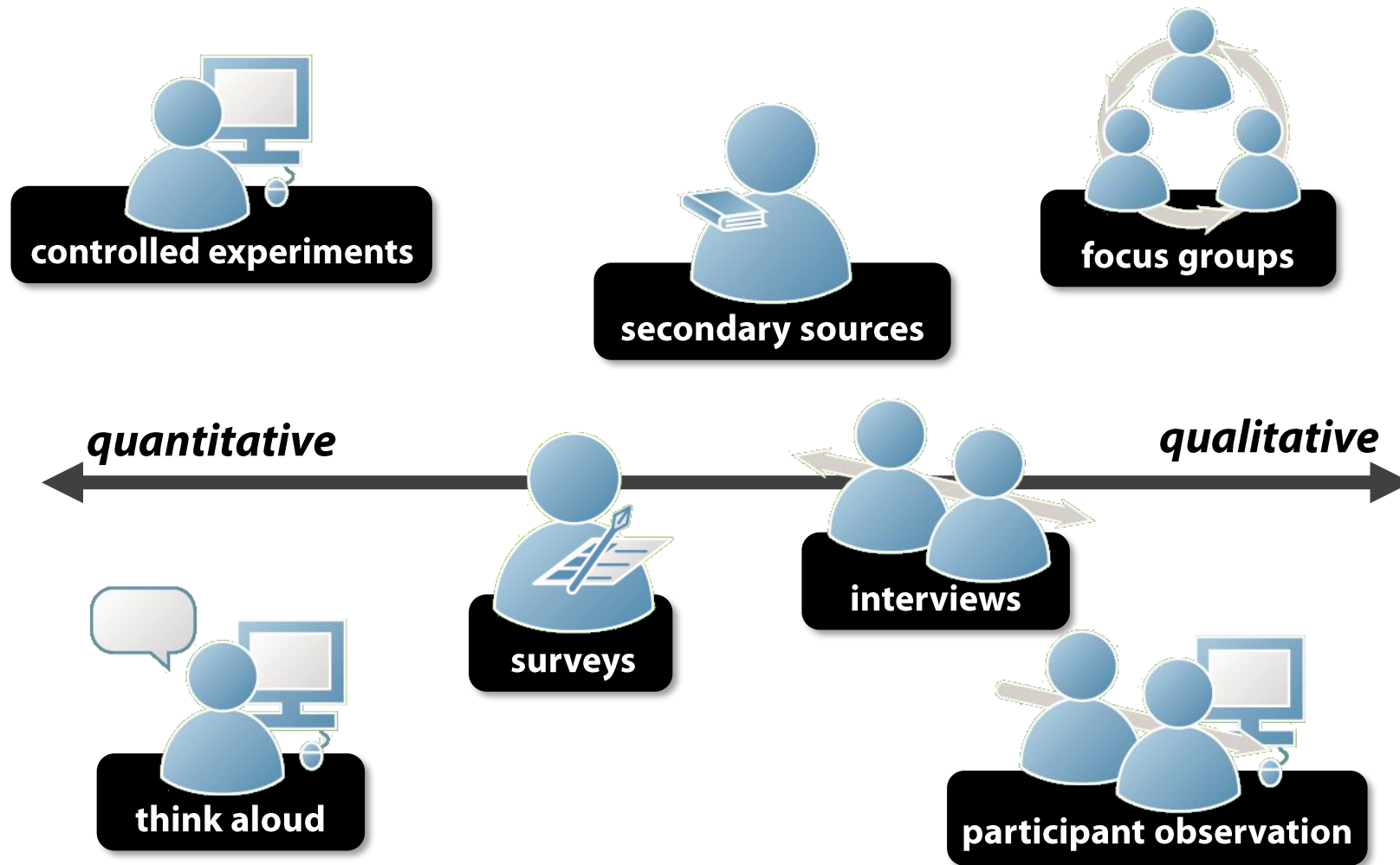
User-centered Designer

What is the “UX” Commission?

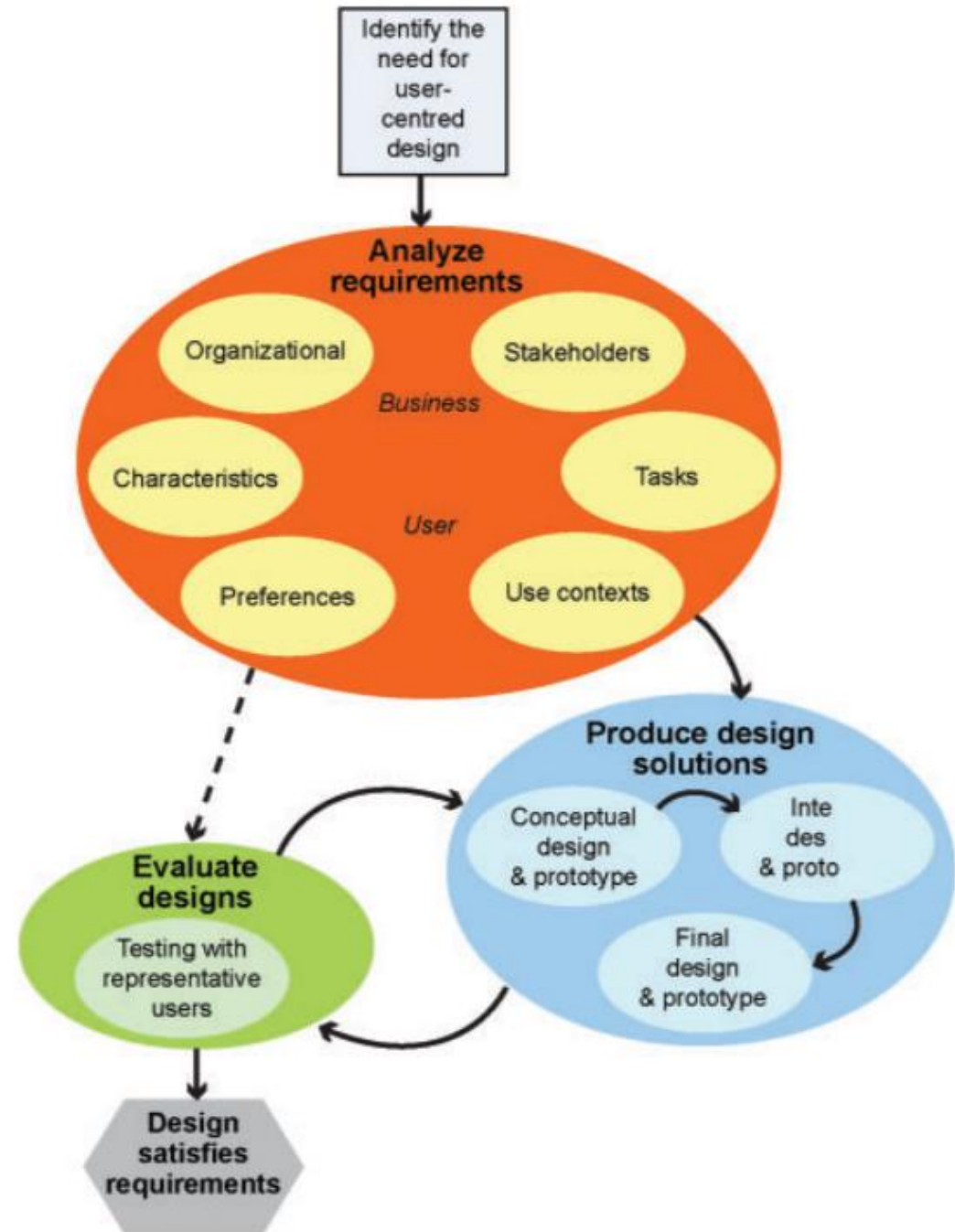


Source: Roth et al. (2017) User studies in Cartography: Opportunities for Empirical Research on Interactive Maps & Visualizations

What is the “UX” Commission?



What is the "UX" Commission?



Source: van Elzakker et al. (2007) *Field-based usability evaluation methodology*

Leadership: 2011–2015



Corné van Elzakker | Netherlands
Chair: 2007–2015



David Forrest | United Kingdom
Vice-Chair:
2007–2015



Kristien Ooms | Belgium
Vice-Chair: 2011–2015



Alex Pucher | Austria
Vice-Chair: 2007–2015

Leadership: 2015–2019



Kristien Ooms | Belgium

Chair: 2015–2018

Vice-Chair: 2018–2019



Alena Vondráková | Czech Republic

Vice-Chair: 2015–2018



Robert Roth | USA

Vice-Chair: 2015–2018

Chair: 2018–2019



Artemis Skarlatidou | United Kingdom

Vice-Chair: 2015–2019

Leadership: 2019–2023



Robert Roth | USA
Chair: 2018–2023



Luciene Delazari | Brazil
Vice-Chair



Katarzyna Słomska-Przech | Poland
Vice-Chair



Zdeněk Stachoň | Moravia
Vice-Chair

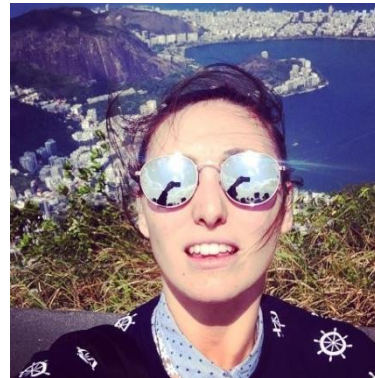
Leadership: 2023–2027



Robert Roth | USA
Chair: 2018–2023



Luciene Delazari | Brazil
Vice-Chair



Merve Keskin | Finland
Vice-Chair



Zdeněk Stachoň | Moravia
Vice-Chair

Terms of Reference: 2023–2027

- 1. Website:** Maintain & expand the commission website on UX design & user issues: <https://use.icaci.org/>.
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UX: Designing the User Experience

A Commission of the International Cartographic Association

1. Commission Website
<https://use.icaci.org/>



AIMS & ORGANISATION ▾

ACTIVITIES ▾

RESOURCES ▾

BIBLIOGRAPHY

LEADERSHIP & CONTACT

Latest Posts

Training Workshop on Mapping for a Sustainable World

Robert Roth | 12/07/2023

Training Workshop on Mapping for a Sustainable World The ICA Commissions on Sustainable Development and the User Experience will offer a free two-day Mapping for a Tuesday 8 August & Wednesday 9...

[READ MORE](#)

Uncategorized

Workshop Spatial information for Virtual Environments – materials

Zdeněk Stachoň | 01/07/2022

Commission on User eXperience organized a workshop as a part of the 8th International Conference on Cartography and GIS (Nessebar, Bulgaria). The workshop was focused on alternative ways of presenting spatial data in immersive virtual geographic environments. Selected materials are...

[READ MORE](#)

Uncategorized

Join us for the 2022 CyberCartography Workshop June 14th, 9:30-13:00 CET+1

Robert Roth | 13/06/2022

2022 CyberCartography Workshop Call for Participation: June 14th (9:30 – 13:00, CET+1) ahead of AGILE 2022

Please see the conference website for complete information on objectives, speakers, and scheduled:

<http://cvbercarto.ntua.gr/events/agile2022/> Video dial-in: <https://lledm.zoom.us/j/8842288829> Please complete this

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News

- [Training Workshop on Mapping for a Sustainable World](#)
Spatial information for Virtual Environments materials
Join us for the 2022 CyberCartography Workshop June 14th, 9:30-13:00 CET+1
8th International Conference on Cartography & GIS – workshop
- [Next Generation Cartographers: A Cartographic Colloquium](#)

Recent Comments

- Eric Swett on [Workshop on lessons learned from volunteers' interactions with geographic citizen science applications](#), 27 April 2018, London

Archives

- [July 2023](#)
- [July 2022](#)
- [June 2022](#)

2. Zotero Database

	Creator	Date
Business of 2D and 3D representations ...	Herbert and Chen	2015
A Meta-evaluation of User Studies on Web-delivered Carto...	Schobesberger	2011
A Methodological Framework for Researching the Usability...	Kveladze et al.	2013
A Process for Keeping Pace with Evolving Web Mapping Te...	Roth et al.	2015-01
A Qualitative Approach to Understanding the Role of Geog...	Roth	2009
A Qualitative Evaluation of MapTime, A Program For Explo...	Slocum et al.	2004
A study of point symbol design for computer based large s...	Morrison and Forrest	1995
A typology of operators for maintaining legible map desig...	Roth et al.	2011-03
A Usability Evaluation of Web Map Zoom and Pan Functions	You et al.	2007
A User Study of a Map-Based Slideshow Editor	Fujita and Arikawa	2011
A User Study of Experimental Maps for Outdoor Activities	Oksanen et al.	2014
Accurately interpreting clickthrough data as implicit feedb...	Joachims et al.	2005
Adaptation to Context - A Way to Improve the Usability of ...	Nivala and Sarjakoski	2005
Adapting Map Symbols for Mobile Users	Nivala and Sarjakoski	2005
Adding Social Constraints to Location Based Services	McKenzie and Raubal	2011
Addressing Map Interface Usability: Learning from the Lak...	Roth and Harrower	2008-06-01
An empirical assessment of the impact of the light directio...	Biland and Çöltekin	2017
An empirical evaluation of three elevation change symboli...	Brügger et al.	2016
An empirical evaluation of three-dimensional pie charts wit...	Schnürer et al.	2020-01-21
An Empirical User Study for Measuring the Influence of Col...	Brychtova and Coltekin	2016-08
An Empirically-Derived Taxonomy of Interaction Primitives ...	Roth	2013
An experimental analysis of three methods for highlighting...	Korpi et al.	2014
An investigation into challenges experienced when route p...	Koletsis et al.	2017
Analysing the spatial dimension of eye movement data usi...	Ooms et al.	2012
Anforderungen an die Mensch-Computer-Interaktion in int...	Dransch	2000
Applying the eye-movement tracking for the study of map...	Brodersen et al.	2001
Assessing the Effectiveness and Efficiency of Map Colour f...	Dunn et al.	2016



Info Notes Tags Attachments Related

Item Type Journal Article

Title Augmenting Printed School Atlases with Thematic 3D Maps

Author Schnürer, Raimund

Author Dind, Cédric

Author Schalcher, Stefan

Author Tschudi, Pascal

Author Hurni, Lorenz

Publication Multimodal Technologies and Interaction

Volume 4

Issue 2

Pages 23

Date 2020/6

Language en

DOI 10.3390/mti4020023

URL https://www.mdpi.com/2414-4088...

Accessed 9/17/2020, 3:38:21 AM

Library Catalog www.mdpi.com

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Date Added 9/17/2020, 3:38:22 AM

Date Modified 9/17/2020, 3:38:22 AM

Added By MapUX

Abstract

Digitalization in schools requires a rethinking of teaching materials and methods in all subjects. This upheaval also concerns traditional print media, like school atlases used in geography classes. In this work, we examine the cartographic technological feasibility of extending a printed school atlas with digital content by augmented reality (AR). While previous research rather focused on topographic three-dimensional (3D) maps,

- 3D Augmented reality
- big data visualization card sorting
- Cartographic design Cartography
- cartography cognitive walkthrough
- color theory colour Colour
- combined techniques competitive analysis

<https://www.zotero.org/groups/928693/uui/items/5AGCKS8I/library>

Filter Tags

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Workshop on Adaptable Research Methods For Empirical Research with Map Users

Thursday 6 May 2021

Everyone globally has been affected by the COVID-19 pandemic, which has disrupted planned research projects as a result of restrictions on movement. Despite these challenges, people have been successful in conducting research. We will share our experiences in adapting user research methods for remote work and help each other solve unsolved problems.



Session 1

22:00-22:20 (AEST)

14:00-14:20 (CET)

8:00-8:20 (US EST)

5:00-5:20 (US PST)

[Experiences with Collaborative Map Use Interface in Remote Courses of Maritime Spatial Planning](#)

Pyry Kettunen, Christian Koski, Mikko Rönneberg

15 minutes presentation + 5 minutes discussion, [slides](#), [recording](#)

22:20-22:40 (AEST)

14:20-14:40 (CET)

8:20-8:40 (US EST)

5:20-5:40 (US PST)

[Investigating Differences in Perception & Cognition of Map Symbols Through Laboratory & Online User Experiments](#)

Bradley Denney, Amy L. Griffin, Zdeněk Stachoň

15 minutes presentation + 5 minutes discussion, [slides](#), recording

3. Educational Workshops

Online | 6 May 2021

5:40-6:00 (US PST)

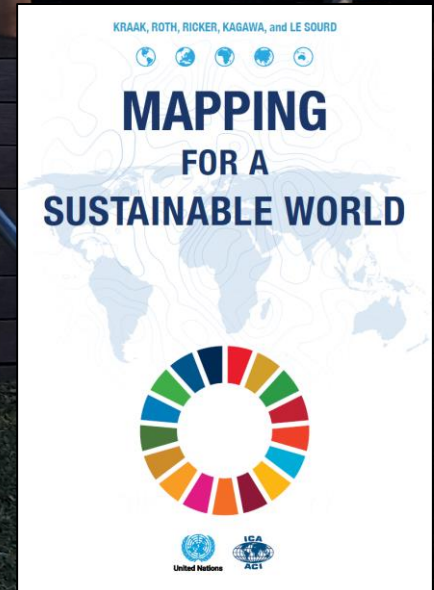
[Interactive visual search experiments online: opportunities and challenges](#)

Stavros L. Kesidis, Athina Pappa, Loukas-Moysis Misthos

+ 10 minutes discussion, [slides](#)

3. Educational Workshops

Harare, Zimbabwe | 8-9 August 2023



4. Next Generation Cartographers

EuroCarto, Vienna | 9 September 2022



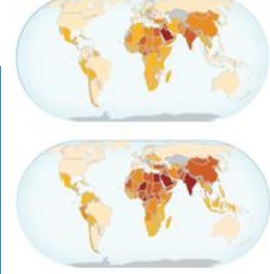
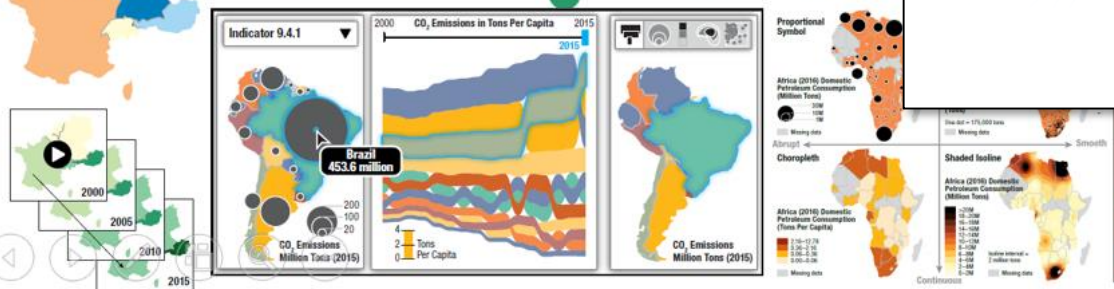
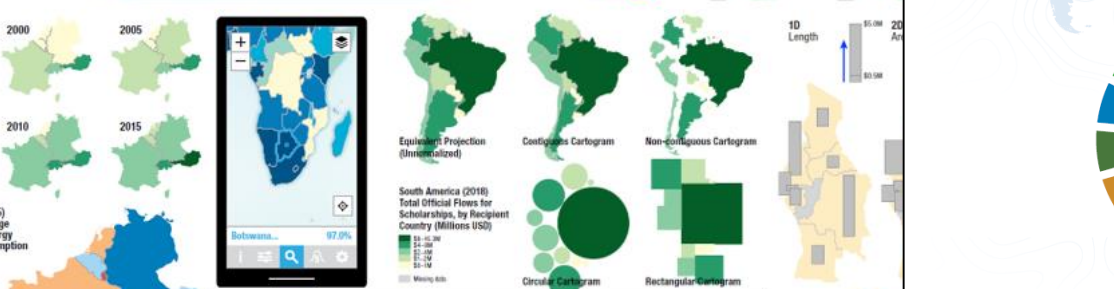
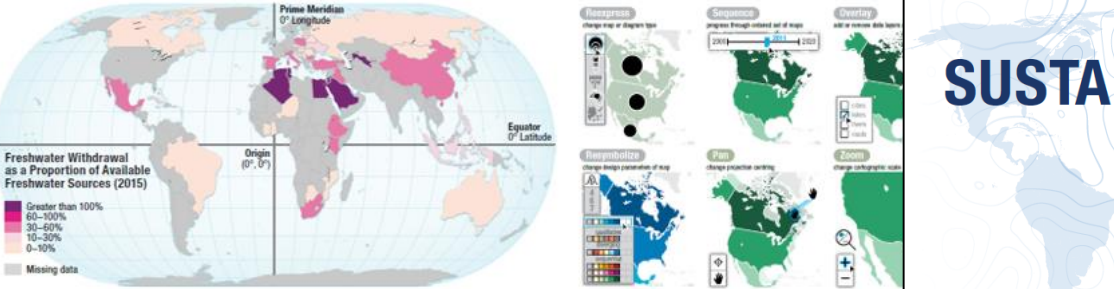
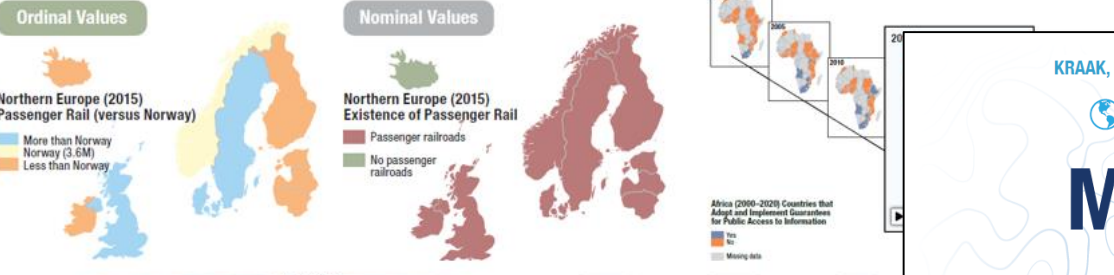


4. NGC Meeting

ICC 2023 Cape Town | 16 August 2023



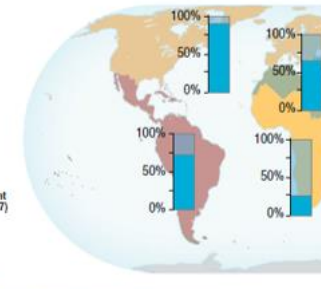
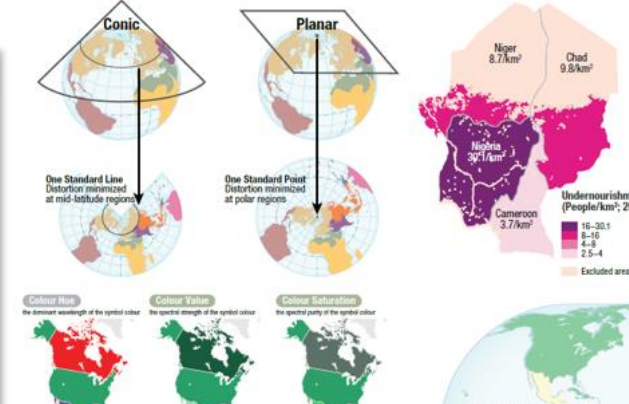
5. Open Educational Resources Mapping for a Sustainable World



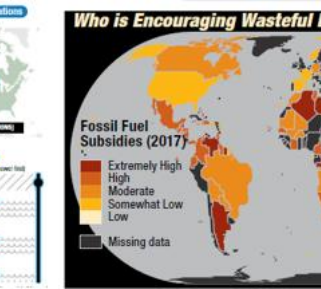
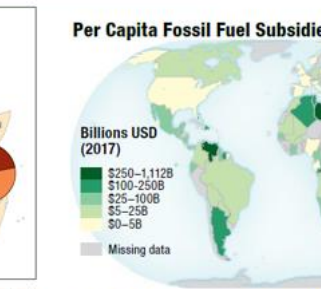
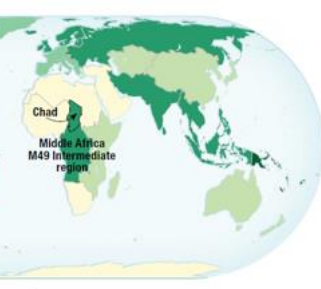
KRAAK, ROTH, RICKER, KAGAWA, and LE SOURD

MAPPING FOR A SUSTAINABLE WORLD

United Nations ICA ACT



94 SDG Maps! 68 Schematic Maps! 35 SDG Diagrams! 30 Other Figures!



Search...

Longform Infographics

Dynamic Slideshows

Narrated Animations

Multimedia Experiences

Personalized Story Maps

Completions

Indicator 15.1.1 Forested Area as a Proportion of Total Land Area

Australia & New Zealand 18.0%

Kenya 17.6

Mapping for a Sustainable World: QGIS technical supplement

Cite/Attribute as: Houtman L, and R.E. Roth. 2021. *Mapping for a Sustainable World: QGIS technical supplement*. The University of Wisconsin Cartography Lab. DOI: 10.5281/zenodo.5585647

About

These tutorials pair with the open-source book *Mapping for a Sustainable World*. The book teaches principles of cartography through the United Nations' 17 Sustainable Development Goals. Mapping for a Sustainable World was developed as a collaboration between the United Nations and the International Cartographic Association with the University of Wisconsin Cartography Lab supporting creation of the book. National Science Foundation CAREER Grant #1555267.

All tutorials demonstrate map design using the open access mapping software. The goal of these tutorials is to enhance the cartographic design thinking described in *Mapping for a Sustainable World* by using map software training, putting concepts into practice.

The tutorials were developed by Lily Houtman and Robert E. Roth of the University of Wisconsin Cartography Lab. NSF #1555267 and are freely available for personal or classroom/workshop use.

How to Use These Tutorials

There are three sets of tutorials that follow the technical design and implementation of a choropleth map, a proportional symbol map, and a nominal map from *Mapping for a Sustainable World*. The tutorials use a number 1.1, 1.2, 2.1, 2.2, etc., to indicate the sequence.

The tutorials are meant to enhance but not replicate information from *Mapping for a Sustainable World*. Tutorials use bold and italics and are followed by a reference to the relevant book section (Note: *Mapping for a Sustainable World*).

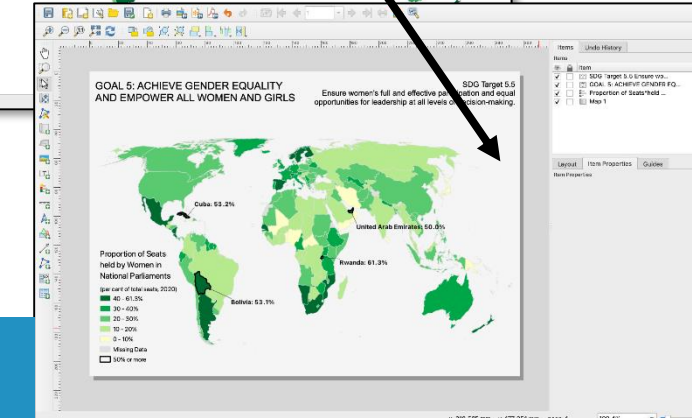
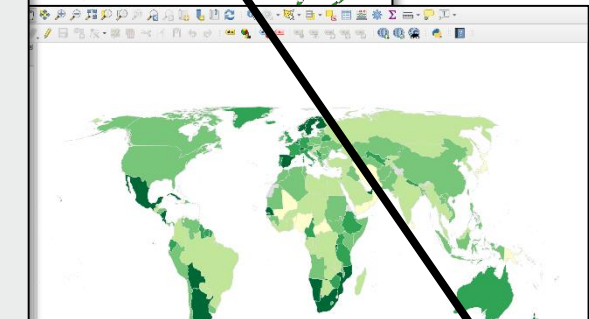
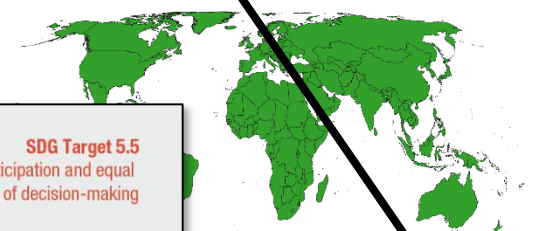
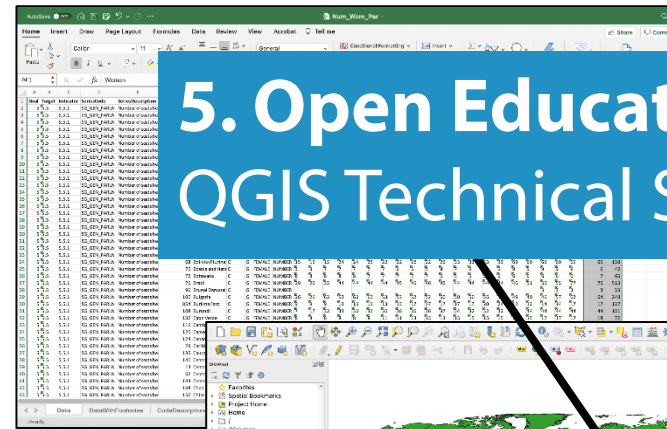
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Introduction

Tutorial 1 - Choropleth Map

- 1.1 - Overview and Project Planning
- 1.2 - Downloading QGIS
- 1.3 - Downloading Location and Attribute Data

5. Open Educational Resources QGIS Technical Supplement



GOAL 5: ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

SDG Target 5.5
Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making

▶ Only 24% of parliamentary leaders were women in 2020

▶ Only four national parliaments have 50% or greater representation by women

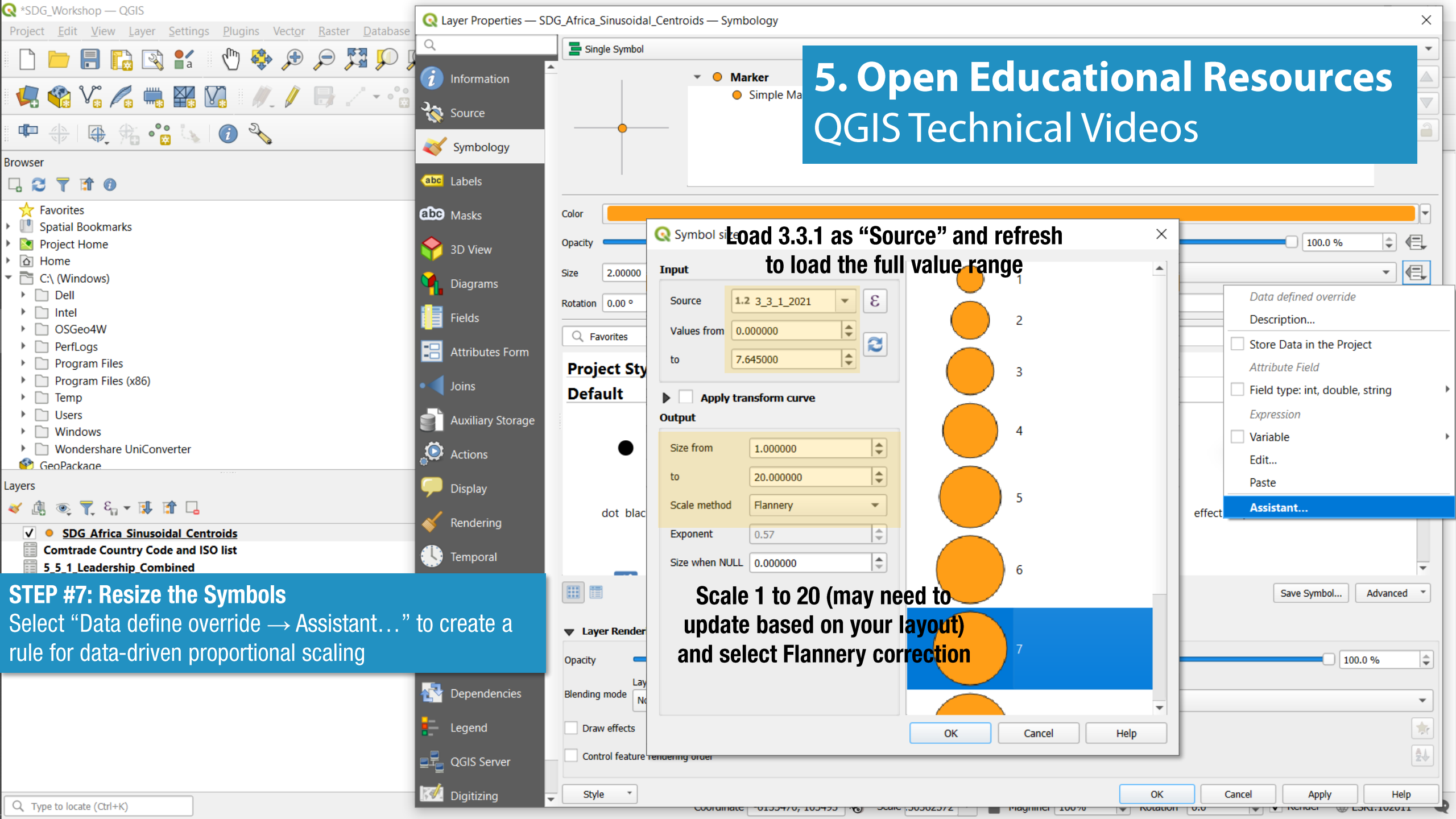
Cuba: 53.2%
Rwanda: 61.3%
Bolivia: 53.1%

United Arab Emirates: 50.0%

▲ The map depicts Indicator 1.5.1 (2020) on the proportion of seats held by women in national parliaments as a choropleth map. Countries for the choropleth map are highly generalized to show only the overall thematic patterns, simplifying the message. This style also increases the visual weight of smaller nations. UN Women promotes this basemap for its publication on "Women in Politics."

Although simplified, the map remains projected in the Eckert IV equivalent projection used throughout the book, allowing for comparison of areas in the choropleth. The choropleth map uses an equal interval classification for the uniform attribute distribution and a sequential colour scheme that crosses yellow to green colour hues but primarily relies on the ordered visual variable colour value.

Try it for Free!
<https://github.com/uwcartlab/MappingSDGsTechnicalSupplement>



5. Open Educational Resources QGIS Technical Videos

Load 3.3.1 as "Source" and refresh to load the full value range

Scale 1 to 20 (may need to update based on your layout) and select Flannery correction

Input
Source: 1.2_3_3_1_2021
Values from: 0.000000
to: 7.645000

Apply transform curve

Output
Size from: 1.000000
to: 20.000000
Scale method: Flannery
Exponent: 0.57
Size when NULL: 0.000000

OK Cancel Help

STEP #7: Resize the Symbols
Select "Data define override → Assistant..." to create a rule for data-driven proportional scaling

Data defined override
Description...

Store Data in the Project

Attribute Field

Field type: int, double, string

Expression

Variable

Edit...

Paste

Assistant...

5. Open Educational Resources GIS&T Body of Knowledge



All Topics

Knowledge Area
 Cartography and Visualization APPLY

History & Trends	Map Design Techniques	Interactive Design Techniques
Cartography & Science	Common Thematic Map Types	User Interface and User Experience (UI/UX) Design
Cartography & Art	Multivariate Mapping	Web Mapping
Cartography & Power	Spatio-Temporal Representation	Virtual & Immersive Environments
	Representing Uncertainty	Big Data Visualization
	Terrain Representation	Mobile Maps & Responsive Design
	Cartograms	Usability Engineering & Evaluation
Data Considerations	Map Icon Design	Geovisual Analytics
Vector Formats & Sources	Narrative & Storytelling	Geovisualization
Raster Formats & Sources	Flow Maps	
	Collaborative Cartography	
Map Design Fundamentals	Map Use	
Scale & Generalization	Lesson Design in Cartography Education	
Statistical Mapping (Enumeration, Normalization, Classification)	Map Reading	
Map Projections	Map Interpretation	
Visual Hierarchy & Layout	Map Analysis	
Symbolization & the Visual Variables		
Color Theory		
Typography		
Design and Aesthetics		

1. Roth RE. 2017. **User Interface & User Experience Design.** In: *The Geographic Information Science & Technology Body of Knowledge* (Ed: J Wilson). University Consortium of Geographic Information Science.
2. Ooms K and A Skarlatidou. 2018. **Usability engineering and evaluation.** In: *The Geographic Information Science & Technology Body of Knowledge* (Ed: J Wilson). University Consortium of Geographic Information Science.
3. Ricker & Roth. 2018. **Mobile maps & responsive design.** In: *The Geographic Information Science & Technology Body of Knowledge* (Ed: J Wilson). University Consortium of Geographic Information Science.
4. Stachoň, Kubicek, & Herman. 2020. **Virtual & Immersive Environments.** In: *The Geographic Information Science & Technology Body of Knowledge* (Ed: J Wilson). University Consortium of Geographic Information Science.
5. Golebiowska, Korycka-Skorupa, & Slomska-Przech. 2021. **Common Thematic Map Types.** In: *The Geographic Information Science & Technology Body of Knowledge* (Ed: J Wilson). University Consortium of Geographic Information Science.

[→ Topic Description](#)[→ References](#)[→ Author and citation info](#)[→ Instructional Resources](#)[→ Related Topics](#)[→ Keywords](#)

CV-38 - Usability Engineering & Evaluation

In this entry, we introduce tenets of usability engineering (UE) and user-centered design (UCD), interrelated approaches to ensuring that a map or visualization works for the target use. After a general introduction to these concepts and processes, we then discuss treatment of UE and UCD in research on cartography and geographic visualization. Finally, we present a classification of UE evaluation methods, including a general overview of each category of method and their application to cartographic user research.

Author and Citation Info:

Ooms, K. and Skarlatidou, A. (2018). Usability Engineering and Evaluation. *The Geographic Information Science & Technology Body of Knowledge* (1st Quarter 2018 Edition), John P. Wilson (ed). DOI: 10.22224/gistbok/2018.1.9

This entry was first published on March 9, 2018. No earlier editions exist.

Topic Description:

1. Definitions
2. Overview
3. UE Approaches and Applications
4. UE Evaluation Methods

1. Definitions

evaluation: the assessment of the extent to which a product, mapping or otherwise, supports user needs


conceptual development: the outline of a product's functional requirements prior to product development, as identified from the work domain analysis

debugging: the process of fixing errors and optimizing code before final release of a product to the end users

Source: Ooms & Skarlatidou (2018)
<https://gistbok.ucgis.org/bok-topics/usability-engineering-evaluation>

5. Open Educational Resources Open (Free) Web Mapping Course!

master 2 branches 3 tags Go to file Add file Code

 reoth Took Intro offline temporarily	85afdc1 18 hours ago	🕒 348 commits
Chapter01	remove fork from Chapter 2	6 months ago
Chapter02	remove fork from Chapter 2	6 months ago
Chapter03	update boilerplate language to match chap 1/2	6 months ago
Chapter04	rephrase language on boilerplate	6 months ago
Chapter05	update image names	8 months ago
Chapter06	Fixed example 3.5	7 months ago
Chapter07	add paragraph to describe fork	6 months ago
Chapter08	Fixed Lesson 3 typos	7 months ago
Chapter09	Update chapter09&11 readme and solutions	7 months ago
Chapter10	Merge branch 'master' into chapter10update	7 months ago
Chapter11	Updated Chapter 11	7 months ago
Introduction	updated chapter names	7 months ago
.DS_Store	remove fork from chapter 7	6 months ago

About

Workbook about making maps and visualizations for the web.

Readme

Releases 3

 **Version 1.0** Latest
yesterday

+ 2 releases

Packages

No packages published
[Publish your first package](#)

Contributors 4

<https://github.com/uwcartlab/webmapping>

 **reoth** Robert E. Roth

Terms of Reference: 2023–2027

- 1. Website:** Maintain & expand the commission website on UX design & user issues: <https://use.icaci.org/>.
- 2. Bibliography:** Maintain & expand the bibliographic reference for UX design & user studies in cartography & related field.
- 3. Educational Workshops:** Organize training workshops on UX design & user studies for students & non-specialists.
- 4. Student Services:** Provide institutional and logistical support to the Next Generation Cartographers initiative.
- 5. Open Educational Resources:** Develop and maintain open educational resources to support user studies in cartography.
- 6. Scholarly Workshops:** Organize research workshops on UX design & user studies with other commissions & sibling intellectual commissions.
- 7. ICA Sessions:** Organize sessions on user studies and UX design at the 2021 & 2023 International Cartography Conferences.
- 8. UX Research Agenda:** Jointly develop a research agenda on map UX.

ICA Joint Commission

Workshop Usability 4All

- Commission on User Experience
- Commission on Cartography and Children
- Commission on Maps and Graphics for Blind and Partially Sighted People
- Commission on Open Source Geospatial Technologies

Programming:

Morning - ICA Chairs presentations

Afternoon - Presentation of selected papers.

Send your contribution (max 2 pages, pdf format) until October 10th to luciene@ufpr.br.



Inclusive Design

Recognize exclusion; solve for one, extend to many; learn from diversity

Recognize exclusion	Solve for one, extend to many	Learn from diversity
<p>Designing for inclusivity not only opens up our products and services to more people, it also reflects how people really are. All humans grow and adapt to the world around them and we want our designs to reflect that.</p>	<p>Everyone has abilities, and limits to those abilities. Designing for people with permanent disabilities actually results in designs that benefit people universally. Constraints are a beautiful thing.</p>	<p>Human beings are the real experts in adapting to diversity. Inclusive design puts people in the center from the very start of the process, and those fresh, diverse perspectives are the key to true insight.</p>

	Permanent	Temporary	Situational
Touch	 One arm	 Arm injury	 New parent
See	 Blind	 Cataract	 Distracted driver
Hear	 Deaf	 Ear infection	 Bartender
Speak			

6. Scholarly Workshops
Online | 13 November 2020



Pre-Conference Workshop Immersive Cartography / Cartography for Immersive Environments

Monday, December 13 - Firenze, Via Laura, 48 Room A2.09

Webex link:

<https://unifirenze.webex.com/unifirenze/j.php?MTID=mcc5491e2b25e30d8e585633b5a33a831>

14:00 - 14:10 Introduction

- Commission on User eXperience (UX) - Zdeněk Stachoň
- Commission on Cognitive Issues in Geographic Information Visualization - Petr Kubíček

Part 1 - Keynotes (Petr Kubíček, Chair)

14:10 - 14:30

Alex Klippel - Thinking within - explorations toward a science of

14:30 - 14:50

Arzu Coltekin - Extended (virtual, augmented, mixed) reality in

14:50 - 15:10

Ioannis Giannopoulos - Geographic Aware Augmented Reality

15:10 - 15:30

Čeněk Šašík - Collaborative Immersive Virtual Environments



6. Scholarly Workshops

Florence, Italy | 13 December 2021

15:45 - 16:10

Ravel Ulgwitz, Daniela Šponková - Evacuation in iVE: How to measure activities and interaction



AGILE 2022 PRE-CONFERENCE WORKSHOP 3:

CYBERCARTOGRAPHY 2022

A Beyond State-of-the-Art Role of Geovisualization in the Understanding of

Tuesday, June 14, 2022, 9:30 – 13:00, CET+1 (half-day workshop)

25th Conference of the Association of Geographic Information Laboratories in
Gediminas Technical University – VILNIUS TECH, Saulėtekio av. 11, Vilnius, Lithuania.
Room SRK-I 313 & **online**.

Please fill in this **form** if you intend to participate in the workshop (either physically or re
plan the event.

6. Scholarly Workshops
Vilnius, Lithuania | 14 June 2022 participation

Speakers

Arzu Çöltekin

Professor of Human-Computer Interaction & Extended Reality, and Director of Institute of Interactive Technologies, University of Applied Sciences and Arts Northwestern Switzerland (FHNW), Research Affiliate, Seamless Astronomy Group, Harvard-Smithsonian Center for Astrophysics, Harvard University, Cambridge, USA, Chair, ISPRS WG IV/9: Geovisualization, Augmented & Virtual Reality, Co-Chair, ICA Commission on Visual Analytics, Council Member, International Society of Digital Earth.



Humans in their Spatial Context: From Eye Tracking to Spatial Computing

Abstract: This talk provides a brief overview of the most current approaches in capturing data about humans in their spatial context. Most recent developments have implications for inferring context as well as a user's cognitive state, and thus deliver personalized information directly integrated in the environment through spatial computing (term used here as it is used in the extended reality terminology). We show selected examples from our own projects for eye tracking and real time collaboration.

Anthony C. Robinson

Associate Professor of Geography & Director of Online Geospatial Education Programs, Penn State University, USA, Co-Chair, ICA Commission on Visual Analytics.



Machine Learning to Understand Viral Cartography in Social Media

Abstract: Social media provide a dynamic environment for the development and dissemination of maps. In some cases, socially-shared maps go viral, and in the process they may rapidly reach enormous audiences around the world. Cartographers need to understand how these maps are designed, how they are being shared, and to characterize what it is about certain products that makes them "go viral". In addition, the sourcing of original material for socially-shared maps is difficult to determine in many cases. Anecdotally, we have found instances in which users are manually modifying existing maps and sharing those modifications which may then become viral artifacts in their own right. In this talk I present a prototype visualization tool called MapReverse which allows users to use the results from machine learning analysis to characterize the design and topics associated with large collections of map images that may be similar to a particular viral map example. A combination of reverse image search and machine learning image analysis services allows us to identify antecedent examples as well as large numbers of descendant variations of viral maps that are modified from an original image. This combination of visualization and machine learning methods may help us better understand the rapid evolution of cartographic design in the age of social media.

Robert E. Roth

Professor of Geography at the University of Wisconsin-Madison, leading the cartography and visualization curriculum, Director of the **UW Cartography Laboratory** and Director of the **UW-Madison GIS Professional Programs**, Chair of the International Cartographic Association **Commission on the User Experience (UX)**, Editor of the **Cartography & Visualization Section** of the University Consortium for GIScience Body of Knowledge.



User Experience Design for Mobile-First Cartography: Framework and Agenda

Abstract: Mobile-first describes an approach to user experience (UX) design optimized for the technological constraints of mobile devices, such as smartphones, tablets, and heads-up displays. A joint workshop with the ICA's Location-based Services (LBS), Cognitive Visualization (CogVis), and UX Commissions was held in Beijing, China, ahead of the 2019 International Cartography Conference to identify open questions facing cartographic design, with a trio of research agendas materializing from the event (one approach from each of the three participating commissions needs and perspectives). In my talk, I present a framework for approaching mobile-first cartographic design and summarize the mobile-first cartography research agenda led by the UX Commission. I acknowledge my coorganizers of the 2019 workshop Amy Griffin and Haosheng Huang and my coauthors on the UX commission-led research agenda Arzu Çöltekin, Luciene Dalazari, Bradley Denney, André Mendonça, Jie Shen, Zdeněk Staňoň, and Mingguang Wu.

Kostas Cheliotis

Post-Doctoral Researcher, Laboratory of Cartography, School of Rural, Surveying and Geoinformatics Engineering, National Technical University of Athens



The Role of Augmented Reality in Geospatial Visualization

Abstract: Cartography is undergoing a paradigm shift, fueled by the ever-increasing availability of spatially-referenced data on the one hand, and technological advances resulting in a plethora of location-based applications on the other. During the ongoing evaluatory process of novel technologies in the field, one approach that has been of increased interest is Augmented Reality (AR), the method by which digital information is overlaid seamlessly over real-world environments. In this talk we present our investigation on the role of AR as a visualization tool for geospatial information, as part of the CYBERCARTO research project. We present our findings on the inherent spatial characteristics of AR visualizations, trends on recent geospatial AR research, and relevant applications.



International Cartographic Association
Association Cartographique Internationale

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PROGRAM 2023

<https://icaspring2023.upol.cz/>

Symposium ICA Spring Olomouc 2023

*April 3–5, 2023
Olomouc, Czechia*

ATLASES: THEIR DESIGN AND USE

Joint Symposium of

Commission on Atlases (René Sieber)

Commission on Map Design (Ian Muelenhaus)

Commission on User Experience (Rob Roth)

PHOTOGALLERY

6. Scholarly Workshops

Olomouc, Czechia | 3-5 April 2023

ABSTRACT PROCEEDINGS



- ▶ Training Workshop
- ▶ Research Workshop
- ▶ International Cartographic Conference

Activities & Events

2015–2019

Workshop on Designing & Conducting User Studies

Curitiba, Brazil | 20 August 2015
ICA Commission on Cognitive Visualization
ICA Commission on Use, User, and Usability Issues

Workshop on Envisioning the Future of Cartographic Research

Curitiba, Brazil | 21 August 2015
ICA Commission on Cognitive Visualization
ICA Commission on Geovisualization
ICA Commission on Map Design
ICA Commission on Use, User, and Usability Issues

International Cartographic Conference

Rio de Janeiro, Brazil | 23–28 August 2015

2016

Workshop on Designing & Conducting User Studies

Albena, Bulgaria | 15 June 2016
ICA Commission on Use, User, and Usability Issues

Follow-up Workshop on Envisioning the Future of Cartographic Research

San Francisco, USA | 29 March 2016
ICA Commission on Cognitive Visualization
ICA Commission on Map Design
ICA Commission on Use, User, and Usability Issues
ICA Commission on Visual Analytics

Joint Symposium on the History of Cartography

Dubrovnik, Croatia | 13–14 October 2016
ICA Commission on the History of Cartography
ICA Commission on Geoinformation Management
ICA Commission on Map Production
ICA Commission on Use, User, and Usability Issues

2017

International Cartographic Conference

Washington, D.C., USA | 2–7 July 2017

Workshop on Lessons Learned from Volunteers' Interactions with Geographic Citizen Science Applications

London, UK | 12 December 2017
ICA Commission on Use, User, and Usability Issues
European Union COST Action Program
ISPRS Working Group V/3: Regional Collaboration in Citizen Science

2018

Workshop on Reproducibility in Cartography

Olomouc, Czechia | 27 April 2018
ICA Commission on Cognitive Visualization
ICA Commission on Use, User, and Usability Issues
ISPRS Working Group IV/9: Geovisualization, Augmented & Virtual Reality

Joint Workshop on Atlases, Cognition, & Usability

Olomouc, Czechia | 27–30 April 2018
ICA Commission on Atlases
ICA Commission on Cognitive Visualization
ICA Commission on Use, User, and Usability Issues

Workshop on Designing & Conducting User Studies

Nanjing, China | 3 July 2019
ICA Commission on Use, User, and Usability Issues

2019

Workshop on Mobile User Experience (UX) Design

Beijing, China | 11 July 2019
ICA Commission on Cognitive Visualization
ICA Commission on Location-based Services
ICA Commission on Use, User, and Usability Issues

Workshop on User Experience Design for Mobile Cartography: Setting the Agenda

Beijing, China | 12 July 2019
ICA Commission on Cognitive Visualization
ICA Commission on Location-based Services
ICA Commission on Use, User, and Usability Issues

International Cartographic Conference

Tokyo, Japan | 15–20 July 2019

2020

- ▶ Training Workshop
- ▶ Research Workshop
- ▶ International Cartographic Conference








Activities & Events

2019–2023

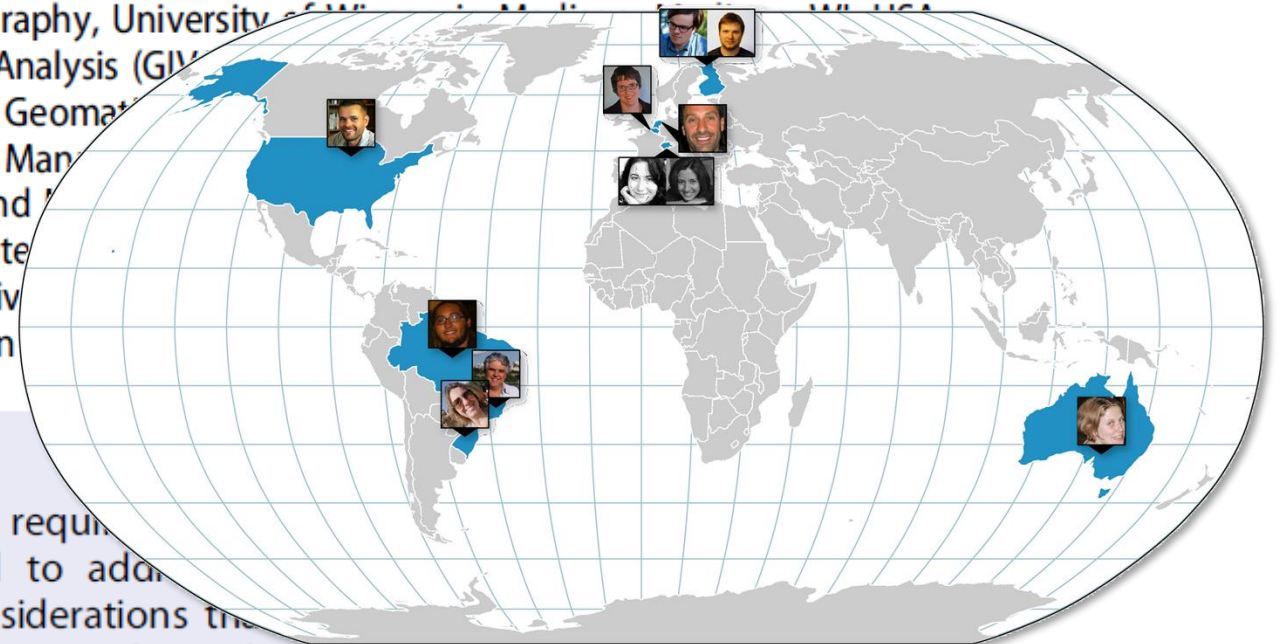




User studies in cartography: opportunities for empirical research on interactive maps and visualizations

Robert E. Roth ^a, Arzu Çöltekin ^b, Luciene Delazari^c, Homero Fonseca Filho ^d, Amy Griffin ^e, Andreas Hall ^f, Jari Korpi^f, Ismini Lokka^b, André Mendonça ^g, Kristien Ooms ^h and Corné P.J.M. van Elzakkerⁱ

^aUW Cartography Lab, Department of Geography, University of Wisconsin - Madison, WI, USA; ^bGeographic Information Visualization and Analysis (GIV), University of Zurich, Zurich, Switzerland; ^cDepartment of Geomatics Engineering, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil; ^dGeospatial Computing Lab, Environmental Management Institute, São Carlos, Brazil; ^eSchool of Physical, Environmental and Earth Sciences, Australian National University, Canberra, Australia; ^fDepartment of Real Estate and Urban Planning, Curtin University, Perth, Australia; ^gSchool of Technology, Amazonas State University, Manaus, Brazil; ^hDepartment of Geography, Ghent University, Ghent, Belgium; ⁱGeo-information Science and Technology, Ghent University, Ghent, Belgium



8. Research Agendas Interactive Cartography (2017)

user's experience with interactive maps and visualizations. In this

KEYWORDS
Empirical cartography;



COMMISSION ON VISUAL ANALYTICS

Home About Us Join Us Activities & Events Resources

Call for Papers: Special Focus Issue of the International Journal of Cartography on the State of the Art & Science in Cartography

Posted on July 6, 2021 by Arzu 3uļtekin

Call for Papers: Special Focus Issue of the International Journal of Cartography on the State of the Art & Science in Cartography

Guest Editors: Arzu 3uļtekin, Anthony C. Robinson, Luciene Delazari, Pyry Kettunen



The ICA Commissions on Visual Analytics, Cognitive Issues in Geographic Visualization, and User Experience (UX) invite paper submissions for a special focus issue of the International Journal of Cartography

(<https://www.tandfonline.com/toc/tica20/current>). The theme for this special issue



Tweets by @icaviz

ICA Commission on Visual Analytics Retweeted

Robert E. Roth @RobertERoth

The @UWMadisonGeog dept is excited to announce *TWO* (!!) tenure-track positions in GIScience: (1) Assistant Professor in Geospatial Tech & Director of @UWMadisonGIS jobs.hr.wisc.edu/en-us/job/5111... (2) Assistant Professor in Cartographic

8. Research Agendas Literature Reviews (2023)

ICA Commission on



**8. Research Agendas
Mobile Cartography (2024)**

Making Maps and Visualizations for Mobile Devices: A Collaborative Research Agenda



Robert Roth | USA
University of Wisconsin
Chair, User Experience



Bradley Denney | Austria
RMIT University



Jie Shen | China
Nanjing Normal University
Vice Chair, Crisis Management



Arzu Çöltekin | Switzerland
FHNW Switzerland
Chair, Visual Analytics



Zdeněk Stachoň | Moravia
Vice-Chair, User Experience



Luciene Delazari | Brazil
Federal University of Paraná
Vice-Chair, User Experience



André Mendonça | Brazil
Federal University of Amazonas



Mingguang Wu | China
Nanjing Normal University



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[PHOTOGALLERY](#)

[PROGRAM 2023](#)

[ABSTRACT PROCEEDINGS](#)



Future Workshops!
Olomouc, Czechia | May 2024

UX: Designing the User Experience

A Commission of the International Cartographic Association

[AIMS & ORGANISATION](#) ▾[ACTIVITIES](#) ▾[RESOURCES](#) ▾[BIBLIOGRAPHY](#)[LEADERSHIP & CONTACT](#)

First Call For Papers: 2020 ICA Workshop on Analytical Reasoning

Robert Roth | 17/02/2020

Uncategorized

ICA Joint Commission Workshop on Analytical Reasoning for Cartography, Visualization, and Design

~~Date: Monday 14 September 2020 (ahead of GIScience 2020) Postponed to Fall 2021 due to COVID-19~~

Location: University of Warsaw | Warsaw, Poland

Workshop website: <http://carto-vis-workshop.uw.edu.pl/>

Purpose

It has been 15 years since visual analytics was first established as the science of analytical reasoning for interactive maps and visualizations. Since then, new models have been proposed to understand cognitive processes, new technologies have been released to support interactive, mobile, and immersive mapping methods have been developed to examine and evaluate user experiences with analytical support systems, research papers in cartography, visualization, and allied design fields to capture the state-of-science on **analytical reasoning**.



News

- [Training Workshop on Mapping for a Sustainable World](#)
- [Workshop Spatial information for Virtual Environments – materials](#)
- [Join us for the 2022 CyberCartography Workshop June 14th, 9:30-13:00 CET+1](#)
- [8th International Conference on Cartography & GIS – workshop](#)
- [Next Generation Cartographers: A Cartographic Colloquium](#)

Recent Comments

- Eric Swett on [Workshop on lessons learned from volunteers' interactions with geographic citizen](#)

Future Workshops!
Warsaw, Poland | September 2024

- [July 2022](#)

- [June 2022](#)



Get to know the ICA Executive Committee

ICC 2025

The 32nd International Cartographic Conference will take place in **Vancouver, Canada, 28 July-1 August 2025.**



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🕒 28 December 2022 (last modified) 👤 Manuela Schmidt 🗨️ No comments

Search

Warning about fake emails!

Again, we have issues with fake emails sent in the name of ICA President Tim Trainor. Please do not react on them! More details...

Future Workshops! Vancouver, Canada? | July/August 2025

promote the disciplines and professions of cartography and

ICA Commission on the User Experience

2023 Business Meeting

18 August | Cape Town, South Africa

**How can we better support
your user needs!?**

<https://use.icaci.org/>

