



Sustainable Urban Mobility Planning (SUMP) in an Interdisciplinary Learning Environment: A Pilot Test in Darmstadt, Germany.

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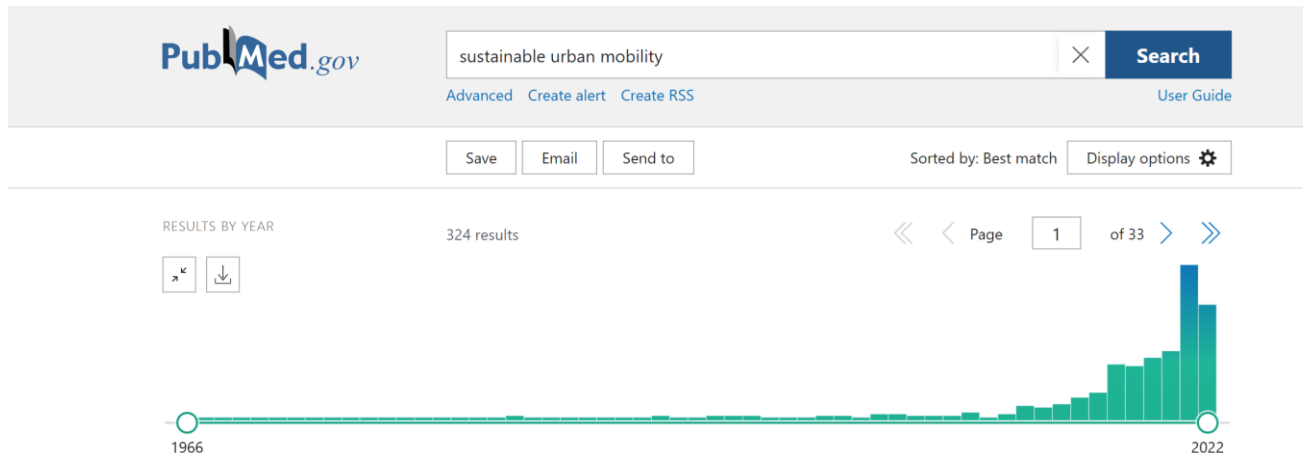
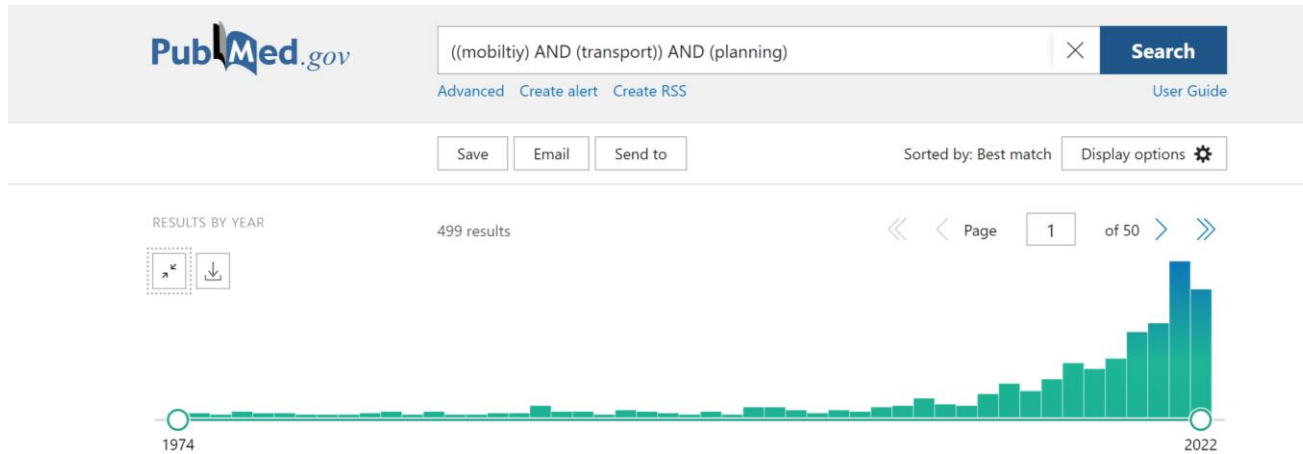
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Why a learning course on SUMP for university students?



Mobility / Transport / Planning / SUMP

Are fields of research which recently started to grow exponentially in the past ten years.

This research panorama is interdisciplinary, meaning that many disciplines tackle the field from different perspectives.

Some of the disciplines that are very active on the field are:

- Health and medical disciplines
- Sociology
- Transport Engineering
- Political Sciences
- Economics
- Architecture and urban studies

Why a learning course on SUMP for university students?

On the past ten or fifteen years, architecture schools developed an increased research orientation (Ammon/Froschauer 2013). Nevertheless, design architects rarely publish in scientific journals, as the manner in which they are accustomed to presenting their findings is hardly text-based (Silberberg, J. 2021)

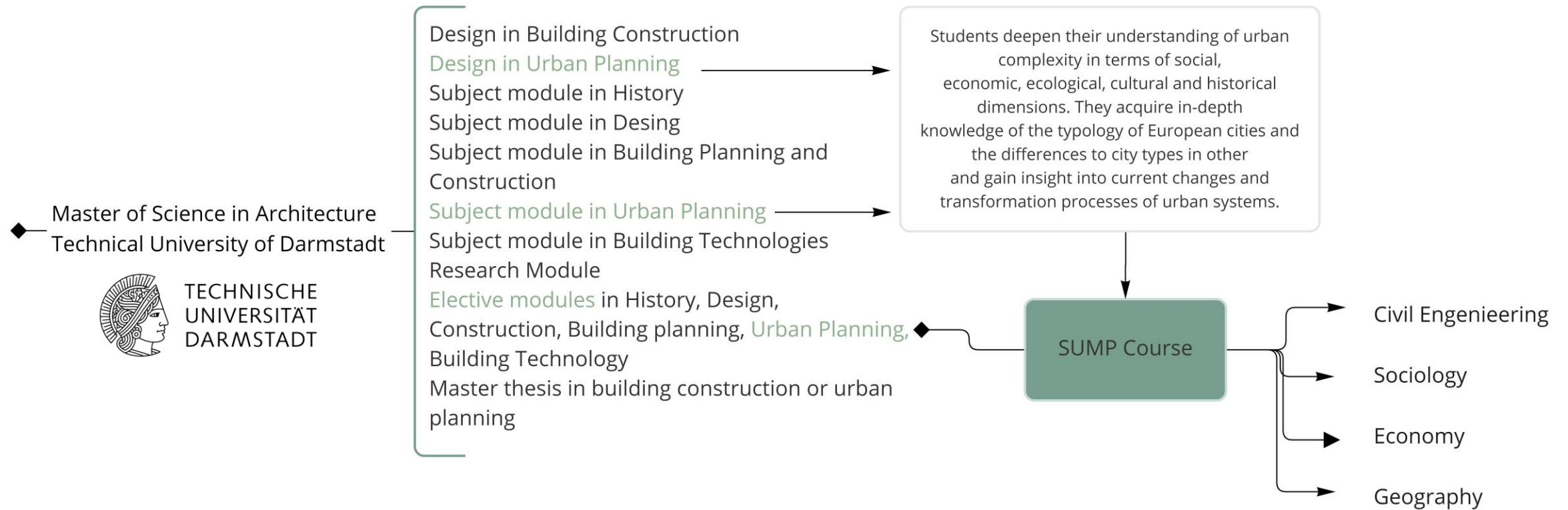
Most of architecture schools struggle establishing a connection between the research and the design within their curricula. In addition, most architecture schools struggle with adopting or creating methods to do such research, facing the conflict of having to produce knowledge through standard, universal, general methodologies and procedures, since the tradition of such schools is teaching the production of architecture through individualism, self-creation and non-reproducibility.

In this sense, it is important to reinforce research on the curricula of ongoing architecture students to continue to understand what does research means for architects and planners, how to apply it and which benefits could bring to this profession.

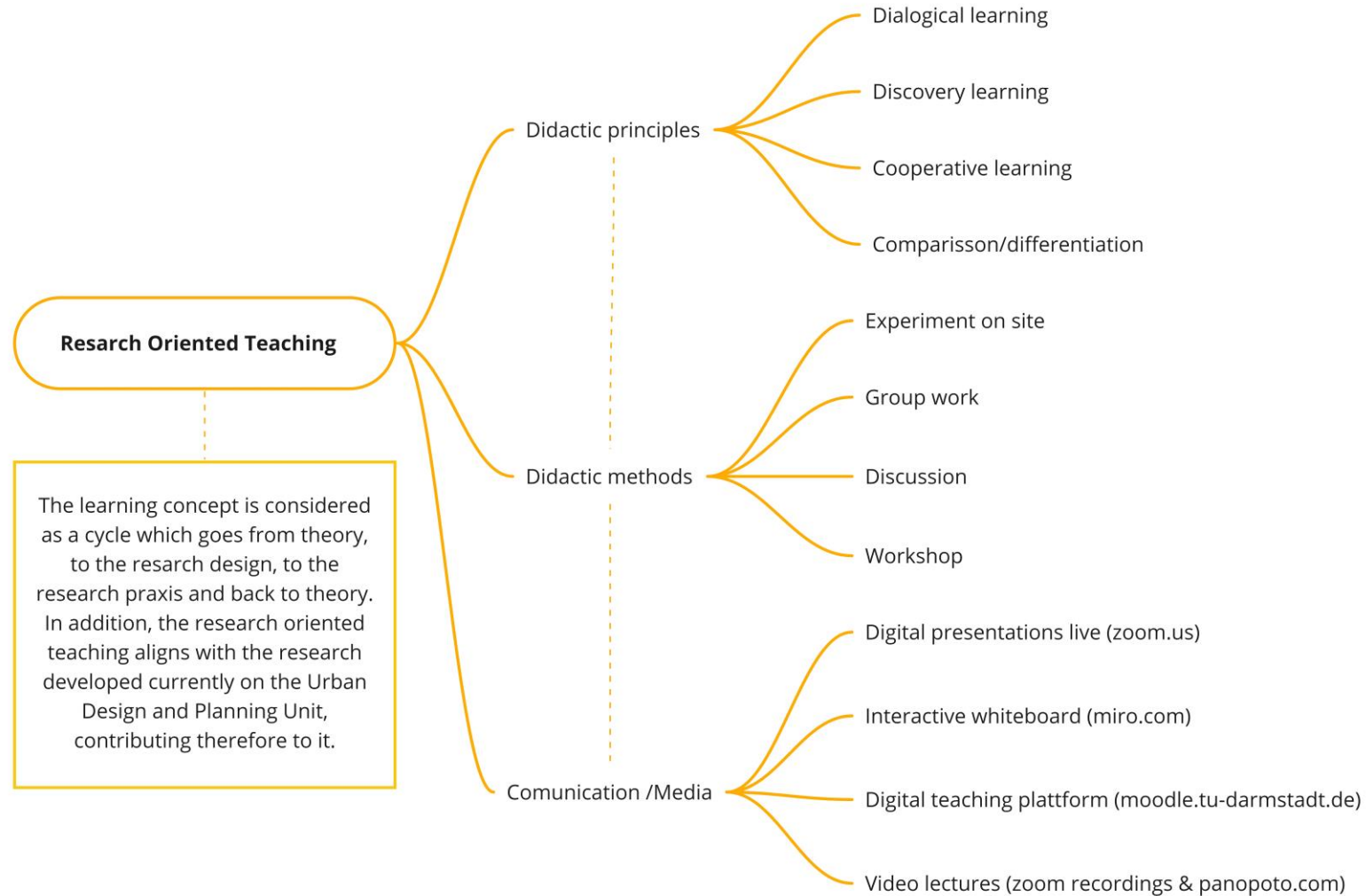
Architecture students are the
future urban planners of our cities.

SUMP = Theory and Praxis

Why a learning course on SUMP for university students?



Creating a SUMP Course



Creating a SUMP Course



Learning Objectives

- To understand and apply the concepts and processes of urban sustainable mobility planning through developing a self-initiated research project on a real case-study.
- To apply different research methodologies used in urban planning by collecting empirical data, targeting a certain hypothesis related to mobility problems in cities.
- To learn about and apply digital tools for analyzing mobility issues in cities (augmented reality tools, mapping tools, etc.).
- To identify and understand the different elements that can affect (negatively and positively) the sustainable urban mobility using the "15min city" as a successful model.

Creating a SUMP Course

methods
sustainable mobility
15min city
wiesbaden
urban planning
mapping
research

- Theoretical input – Lectures / Readings / Discussions
- Practical input – Workshops and critics together with the city planning office of Wiesbaden
- Self-developed project GROUP work – related to a research on the topic of urban sustainable mobility

FB15 – FG Entwerfen und Stadtplanung / FB13 –
Institut für Geodäsie, FG Landmanagement

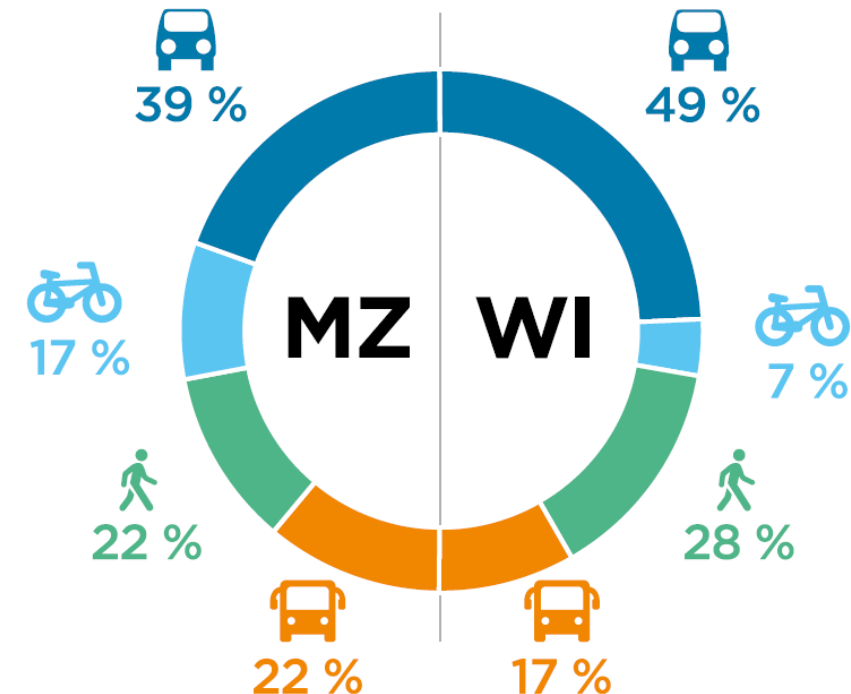
Format	Seminar + Project work
Credit points	3 ECTS / 3 credit points
Language	English / Deutsch
Plattformen	Moodle, Miro Board, Zoom



The City of Wiesbaden

- City in the 3rd place for congestion index in Germany, and with an increasing high rate
- Monofunctional city: spatially separated areas for living, working, shopping and culture.
- Car-oriented development: less priority given to public transportation, pedestrian and bicycle infrastructure.
- Car-oriented mobility culture
- Yet, new developments are arising, where research could help to understand the current challenges and potentials.

Anteil der Verkehrsmittel an allen Wegen



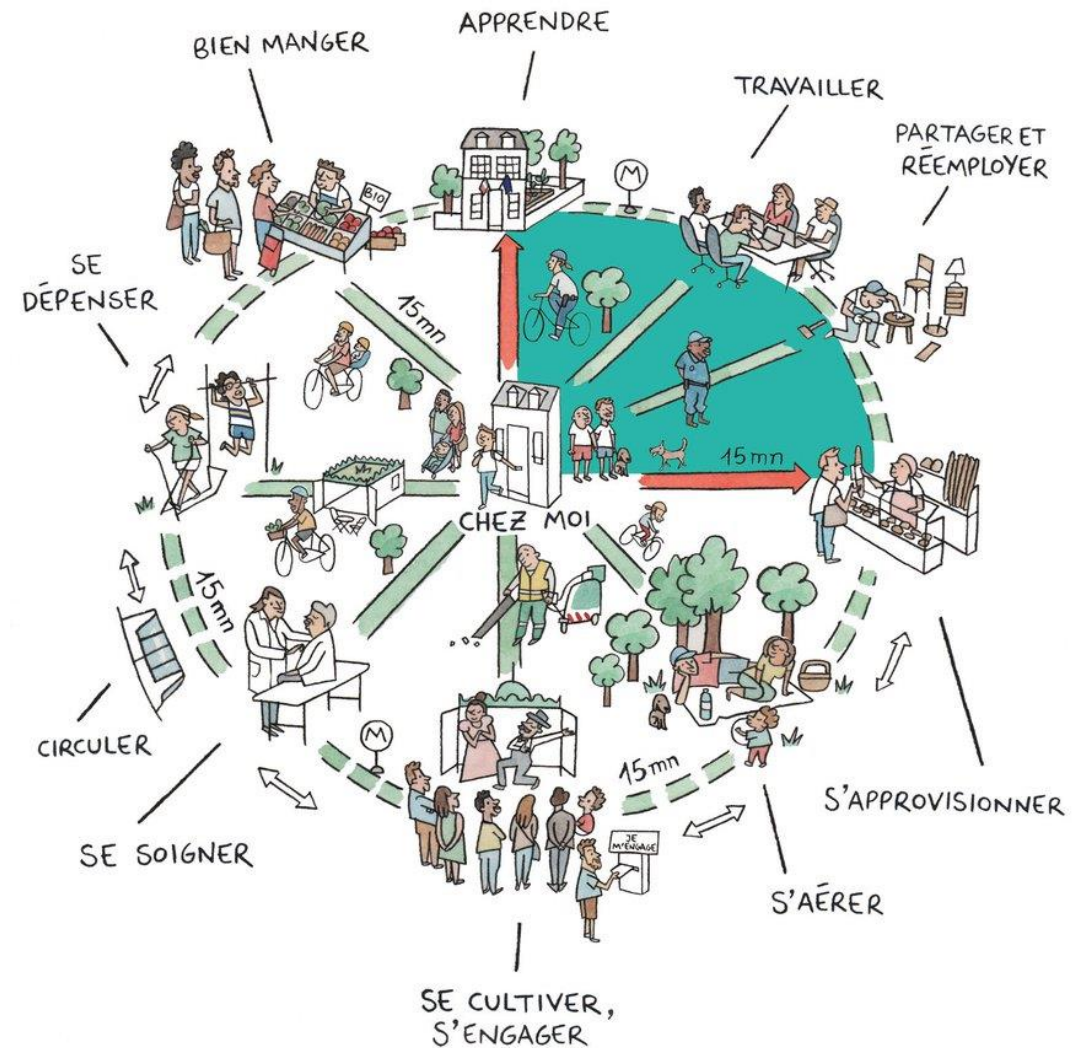


The tasks

Pick 2 areas (1.5km radius/ 15min walk) in order to compare the following:

- Land use mixture – through mapping and analyzing existing uses on the area.
- Walkability and cycle infrastructure – through analysis of walkability and an evaluation of the existing cycle infrastructure
- Design diversity – through an analysis of the quality of the architecture, landscape and urban design
- In addition, students will formulate a specific research question related to a specific topic/focus of interest of the group

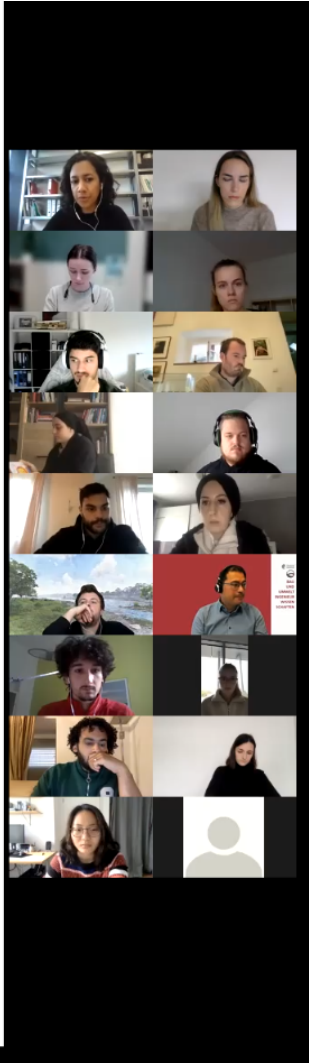
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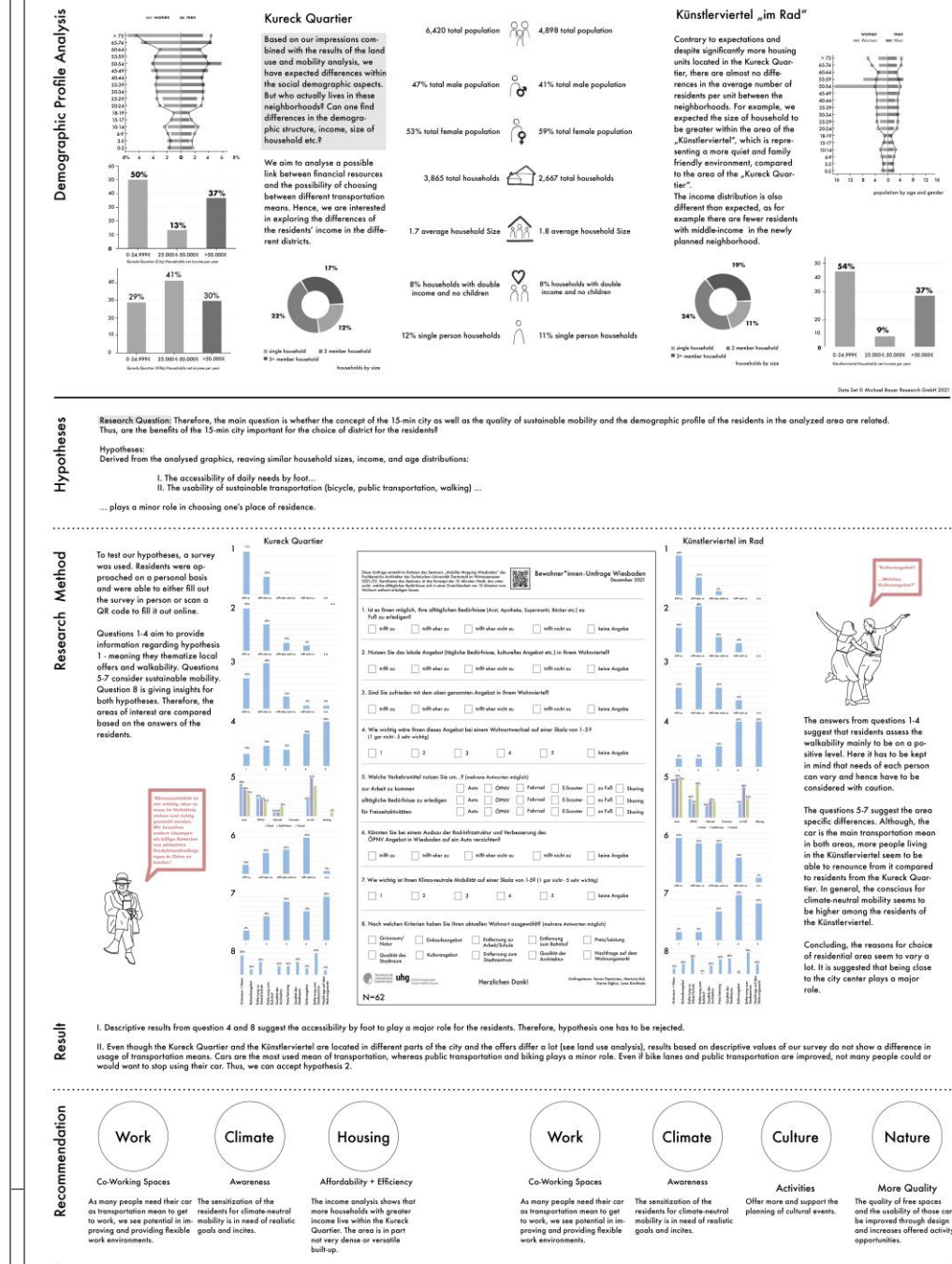
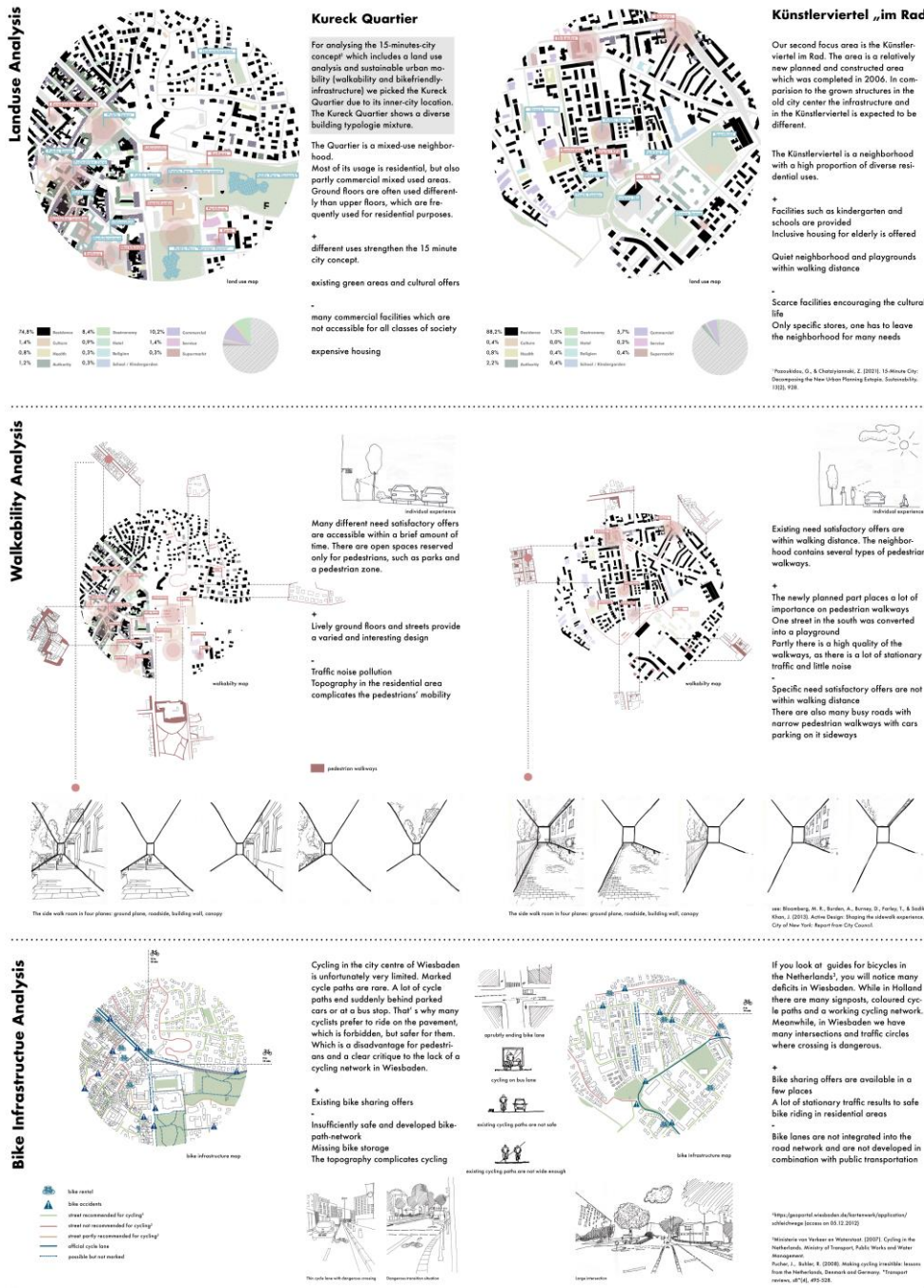
Pilot testing the course

Time plan

Date	Time	Topic
19.10.2021	10:30	Lecture 1: Sustainable Urban Mobility Planning – the 15 min city concept - GVF
26.10.2021	10:30	Lecture 2: Analyzing the mobility situation – Methods in Urban planning - FG
27.10.21	10:00	Excursion to Wiesbaden – Together with the design students - FG + GVF (Optional) More information will be provided
02.11.2021	To be decided	Lecture 3 / Workshop: Mapping Techniques – GIS – Land use management – GVF / Prof. Linke
09.11.2021	10:30	Lecture 4: Accessibility and Inclusion – an important pillar in SUM - GVF
16.11.2021	10:30	Lecture 5 + Critic 1: City of Wiesbaden – current planning practices by Stadtplanungsamt Wiesbaden
23.11.2021	10:30	Project Work: open time for questions and answers Time for the students to continue working on the field gathering empirical data
30.11.2021	10:30	Project Work: making sense of the data + future recommendations Time for the students to continue working on the field gathering empirical data
07.12.2021	10:30	Project Work: Open time for questions and answers Time for the students to continue working on the field gathering empirical data
14.12.2021	10:30	Final presentation and submission of the posters



The Results



Evaluation and Outlook

How was this course different from others?

**interdisciplinary
scientific methods**
urban mobility
research
analytic approach

How was the cooperation in the interdisciplinary teams?

communications
data **arcgis**
land use
different approach
collaboration
difficulty

What problems arose within the course? And how did you solve them?

organization
site data
communications
constant meeting
group size
digital kuhle

Evaluation and Outlook

Strengths	<div>research oriented teaching as a didactic model is efficient</div> <div>cooperation with the department of Geodesy, specialized in land use planning (supporting the topic of mobility)</div> <div>cooperation with the city of Wiesbaden and using a real case study</div>
Weaknesses	<div>short time during a semester to develop a complete research project</div> <div>short time to cover all the content/stages of SUMP</div>
Opportunities	<div>Include more partners on the course (other disciplines)</div> <div>Availability of digital Teaching platforms to collaborate even internationally</div> <div>Include other digital tools to analyse and propose sustainable mobility strategies</div>
Threats	<div>Lack of knowledge from the students regarding the topic of SUMP and/or the use of certain digital tools</div> <div>Lack of interest from the students on this topic - the course would not be given if there are less students</div>

Transferability

The pilot course tested at the Technical University of Darmstadt, Department of Architecture, Urban Design and Planning Chair, was further developed in another format, namely a design studio. In this further development, the students worked with the same city (Wiesbaden), to design a new complex of mixed uses, being mobility one of the important aspects of the design. In this sense, the results of the seminar (Mapping mobility of Wiesbaden) were transferred to the design studio students and were useful as a first analysis of the area. Some of the students were taking part of both classes (the seminar and the design studio) and profited even more from the content of both courses.

This example can serve as a pilot test for transferability, in which two or more classes take advantages of the synergies and cooperate to work with the same partner (in this case the city of Wiesbaden), the same area, but with a different focus, complementing each other.

Closing Remarks



As part of the sustainability, it is recommended to embed this seminar related to SUMP into the learning program for architecture students since it is a very important and currently a main topic for city planners. Ideally the seminar should be offered minimum once a year, in winter semester when the number of students is greater. The Chair of Urban Design and Planning could apply yearly for funding (local or international, as the Erasmus + Program) to cover the expenses for the instructor of this course and material needed.



Thank you!

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