# Lecture 1
# Introduction and Presentation Guidelines

Research Methods for Evaluating Human Aspects in Information Systems (HAIS)
WS2021/2022

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# 1. Introduction to the Course and Syllabus

# 1.1. Presentation of Myself
# Some History and Present Activities

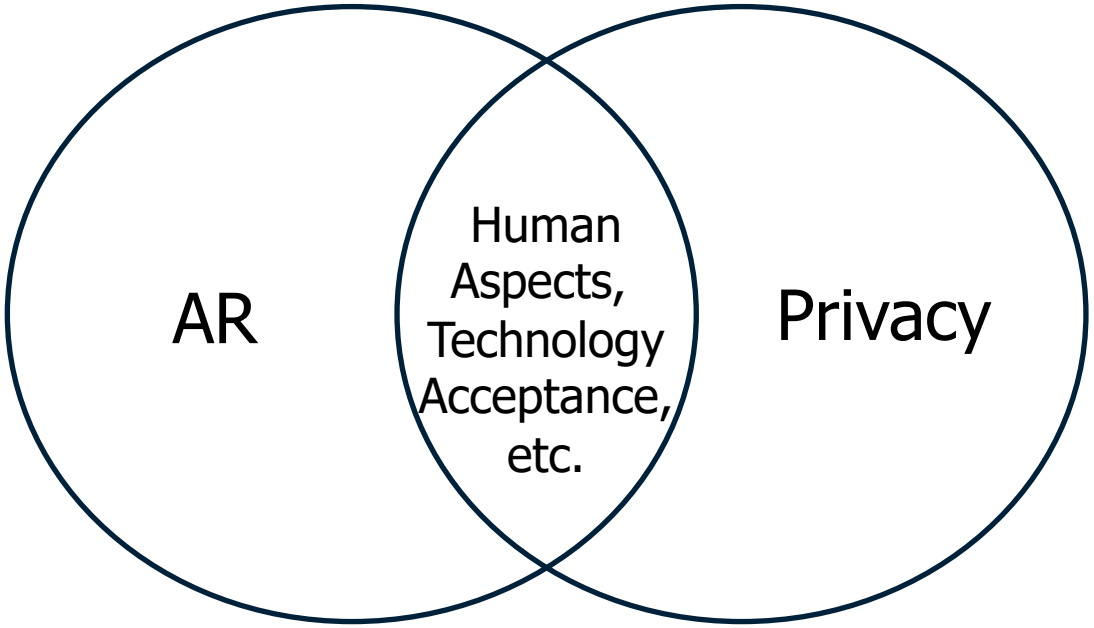
| Worki Experience and Education | |
|---|---|
| 2010-2013 | B.Sc. in Economics and B. Adm. at Goethe University Frankfurt (GUF) |
| 2013-2015 | M.Sc. in Management, Finance and Inf. Mgt. at GUF |
| 2013-2015 | Senior Associate at KPMG (Advisory FS) |
| 2015-2021 | PhD candidate, research and teaching assistant at the Chair of Mobile Business & Multilateral Security |
| 2020 | Research visit International Computer Science Institute, University of California Berkeley |
| Since 07/2021 | PhD in Economics (summa cum laude) |

| Further Background |
|---|
| Hobbies: all sports involving a ball, travelling, binge watching of TV series (preferably with my wife), video games and the newest tech gadgets |

# 1.1. Presentation of Myself Research Interests

Three main research interests evolved during my PhD:

1. Immersive system, esp. augmented reality (AR)
2. Privacy
3. Attitude formation and technology acceptance by end users



# 1.1. Presentation of Myself
# Publication Record

Publication of

- 12 competitively peer-reviewed conference and journal articles related to user perceptions and concerns about augmented reality (AR) (topic of my PhD)
- six competitively peer-reviewed conference and journal articles on human aspects related to privacy-enhancing technologies, sub-project lead of the BMBF project "AN.ON-Next"
- three competitively peer-reviewed conference and journal articles related to privacy of individuals in the digital sphere, including analyses of privacy concerns and their ramifications with regard to technology use (e.g., on DLT such as cryptocurrencies)
- one competitively peer-reviewed journal article on artificial intelligence (AI), intelligence augmentation (IA) and possible effects on the work life

# 1.1. The Chair of Mobile Business and Multilateral Security (I)

Chair of Business Administration, especially Business Informatics, Mobile Business and Multilateral Security

Chair of Mobile Business & Multilateral Security

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# 1.1. The Chair of Mobile Business and Multilateral Security (II)

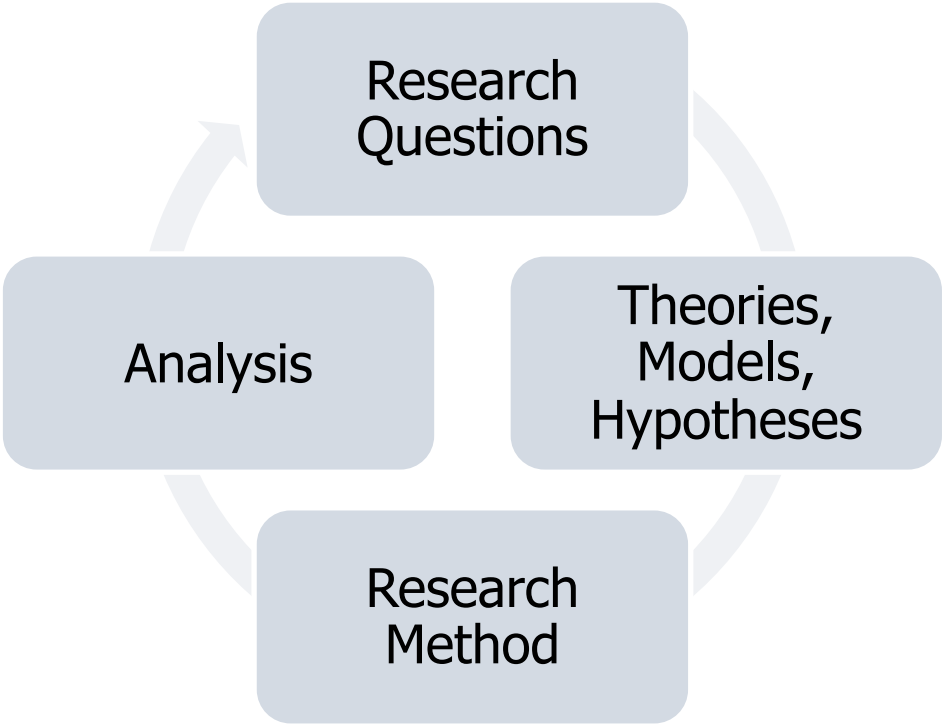
| | WS 2021/2022 | SS 2022 |
|---|---|---|
| Bachelor | - | - |
| Master | **Course**<br>Research Methods for Evaluating Human Aspects in Information Systems (HAIS) | **Seminar**<br>TBA<br><br>**Course**<br>Information & Communication Security: Infrastructures, Technologies and Business Models<br><br>**Course**<br>Mobile Business II: Application Design, Applications, Infrastructures and Security<br><br>**Course**<br>Privacy vs. Data: Business Models in the digital, mobile Economy |

# 1.2. What You Can Expect (I)

- Get an overview of the widely used research methods involving humans, their perceptions, behaviors, etc., related to information systems / technologies
- Learn to analyze and present academic research papers which apply these methods
- Shape your presentation skills
- Get ideas and nuggets of knowledge to deepen your own method skill set (e.g., for a future (academic) career or your own future research projects such as the Master's thesis)
- Not a data science course, you will get an overview of multiple different methods which does not allow for in-depth discussions of single topics

# 1.2. What You Can Expect (II)

- Learn about research methods as one crucial part in the research cycle and how they relate to and depend on research questions, hypotheses and analysis methods



# 1.3. What is Expected from You (I)

Prerequisites for attending the course:

- You should have visited a statistics course before and know about the basic concepts (again, this is not an in-depth data science course, but still ☺)

- You should be motivated and able to work throughout the whole term
  → This is not (by design) AND cannot be a course where you only learn for the last three days before the exam

# 1.3. What is Expected from You (II)

During the course:

- Visit lectures and do your presentation (part of the grade)
- Read the respective book chapters (Lazar et al. 2017) and research articles BEFORE the lecture to prep yourself and discuss the presentations of your colleagues
- Recommendation: form the presentation groups now and learn in this group during the term

  → discussing content (e.g., from the book or the research articles) is incredibly helpful for understanding and learning

  → expectation: each group/presenter must ask at least one question in each presentation (so prep yourself!)

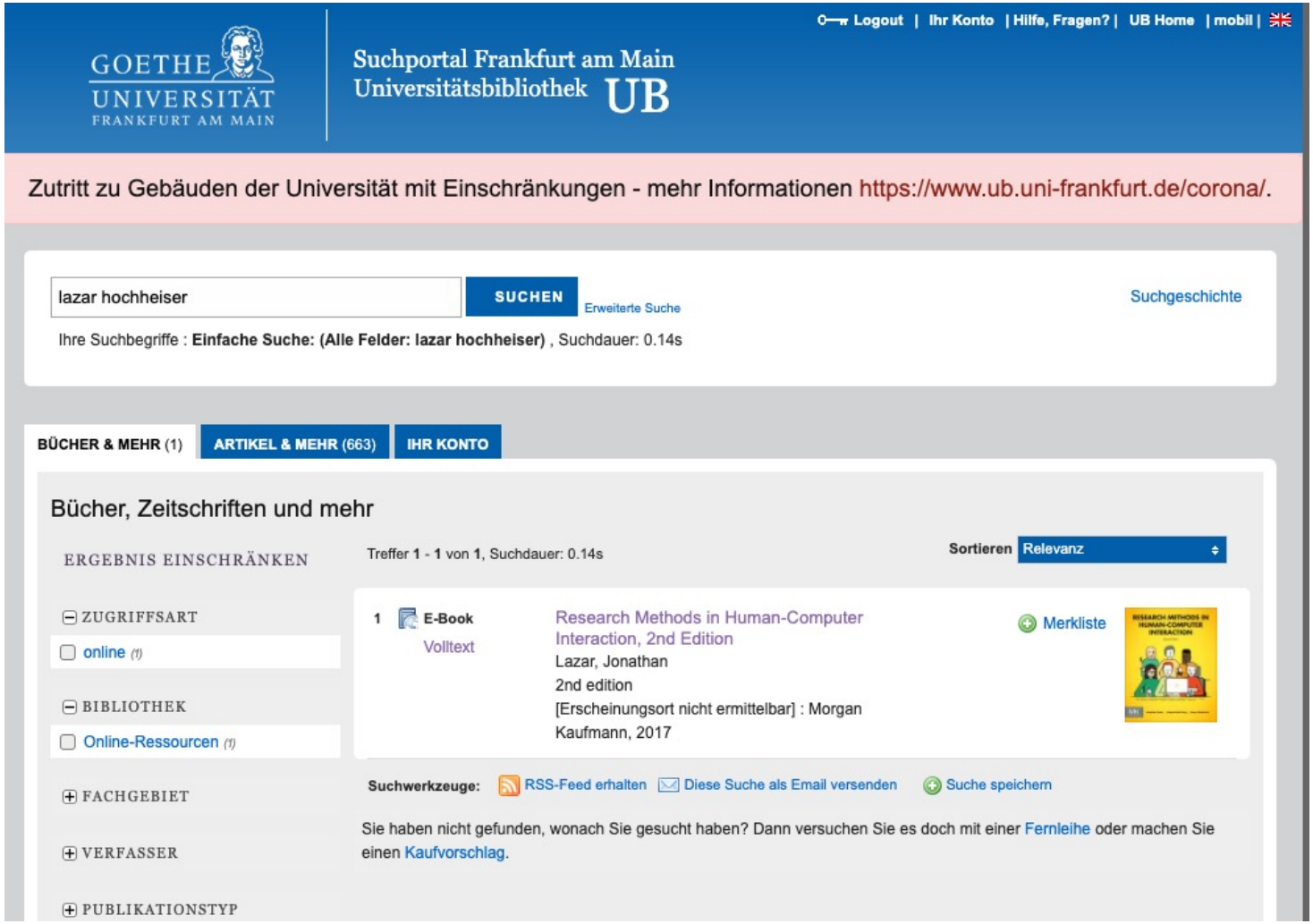
# 1.4. Materials Used in this Course

- Lazar, J., Feng, J. H., & Hochheiser, H. (2017). *Research methods in human-computer interaction*. Morgan Kaufmann

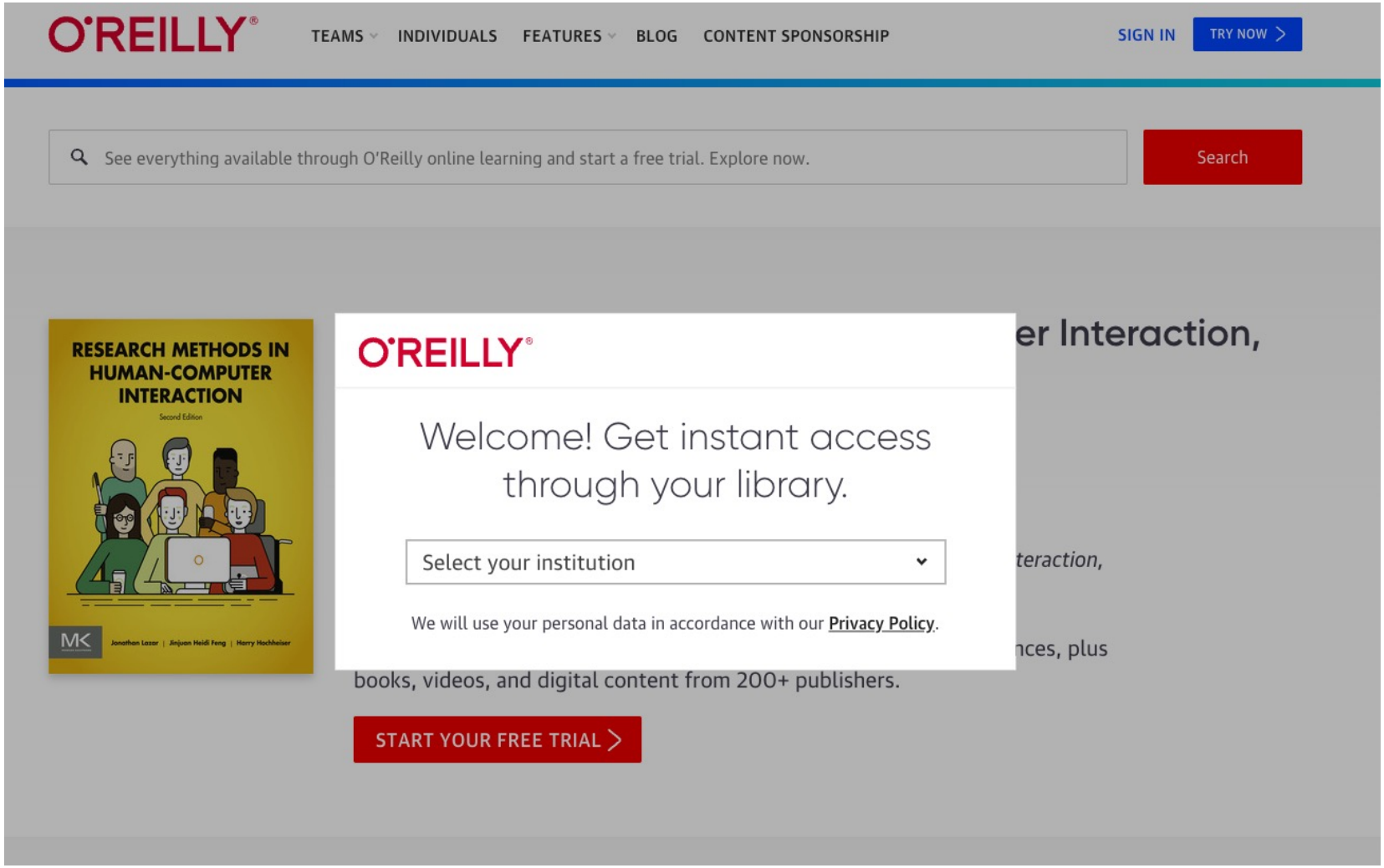
  → The book by Lazar et al. (2017) serves as a reader for this course (accessible online via the library of Goethe University)

- Augmented by selected research articles applying the different methods

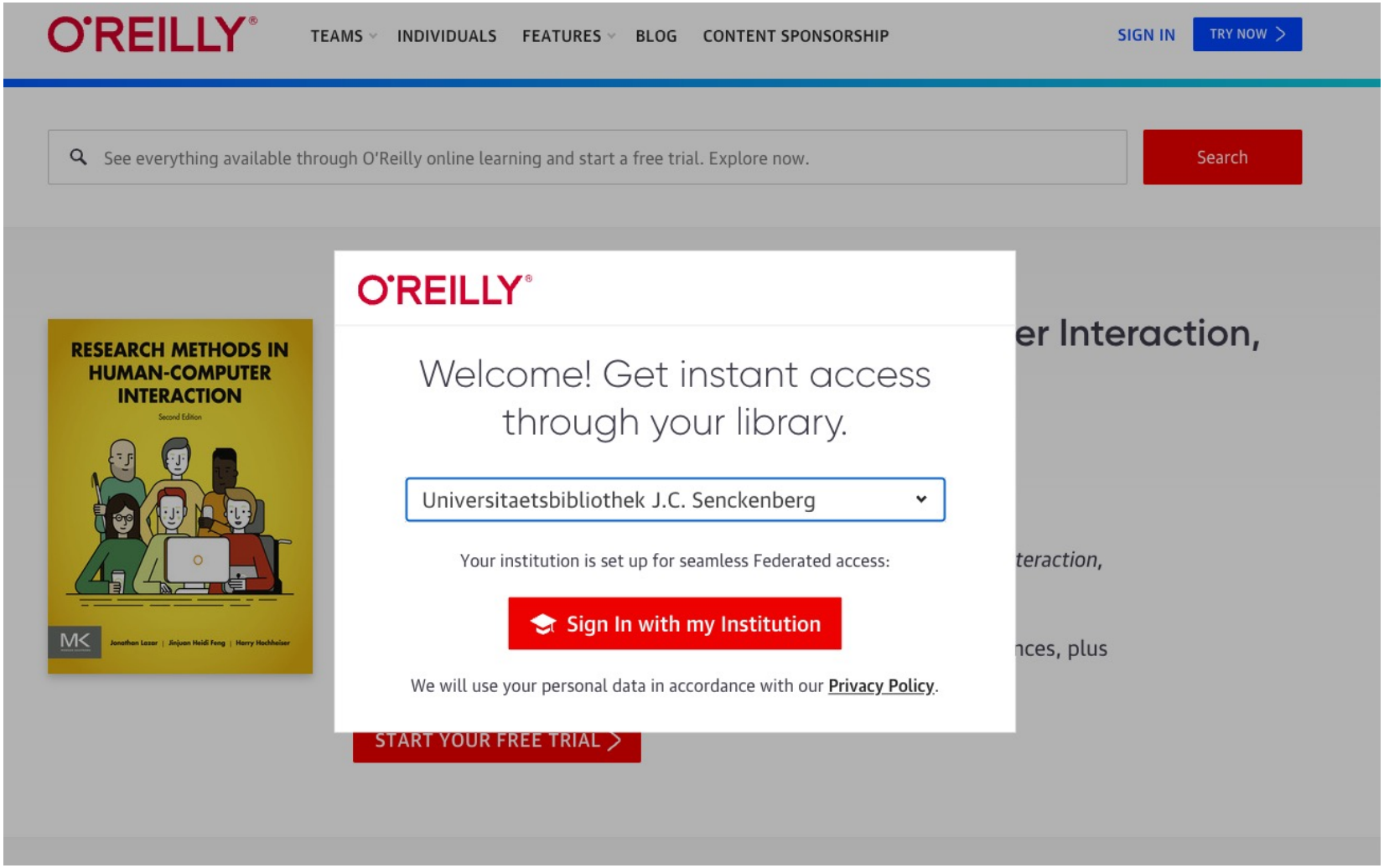
# 1.4. Materials Used in this Course
# How to Access the Book (I)



# 1.4. Materials Used in this Course
# How to Access the Book (II)



# 1.4. Materials Used in this Course
# How to Access the Book (III)



# 1.5. Other Information

- Questions should preferably be open to the whole group (forum will be discussed later)
- Schedule consultation meetings via mail if you have detailed questions where it is absolutely not possible to write a mail
- No individual help for installing statistical software packages etc.
  → check out tutorials or ask your colleagues
- Research articles for the presentation will be allocated during our session on November 1, 2021.

# 1.6. Syllabus

| Lecture | Book chapter |
|---|---|
| L01 Introduction and Presentation Guidelines | |
| L02 Experimental Research and Design I | Ch. 2 & 3 |
| L03 Experimental Research and Design II | Ch. 2 & 3 |
| L04 Quantitative Analysis Techniques | Ch. 4 |
| L05 Designing, Planning and Conducting Surveys | Ch. 5 |
| L06 Diaries and Case Studies | Ch. 6 & 7 |
| L07 Interviews and Focus Groups | Ch. 8 |
| L08 Ethnography | Ch. 9 |
| L09 Usability Testing | Ch. 10 |
| L10 Analyzing Qualitative Data | Ch. 11 |
| L11 Automated Data Collection Techniques | Ch. 12 |
| L12 Measuring the Human | Ch. 13 |
| L13 Online and Ubiquitous HCI Research | Ch. 14 |
| L14 Working with Human Subjects – Ethics Board Approval | Ch. 15 |

# 1.6. Syllabus

- Besides the lecture slots, we will have exercise slots for the presentations of the research articles
- One article usually presented by 1-3 students in a 30 minutes presentation (depending on how many students end up in the course)
- No clear differentiation between lectures and exercises as we might have some presentation during or after lecture discussions

# 1.7. Experimental Research and Design (L02 and L03)

- Types of behavioral (descriptive / relational / experimental)
- Research hypotheses and theory
- Basics and important things to consider when designing experiments (e.g., between-subjects vs. within-subjects design, single IV vs. multiple IVs under investigation by factorial designs)
- Significance tests
- Reliability of experiments
- Limitations

# 1.7. Quantitative Analysis Techniques (L04)

- Considerations for matching research design and data collection and analyzing techniques
- Cleaning up data
- Importance of descriptive data analysis
- Mean comparisons, t tests, and the analysis of variance (ANOVA)
- Assumptions for mean comparisons
- Correlation analyses and regressions
- Nonparametric statistical tests

# 1.7. Designing, Planning and Conducting Surveys (L05)

- Introduction to surveys with pros and cons
- Sampling strategies, target user definition, population representativeness, and sample size
- Developing survey questions and existing survey repositories
- Survey structure
- Pretesting surveys
- Exemplary survey data and analysis techniques

# 1.7. Diaries and Case Studies (L06)

- Purpose of diaries
- Types of diaries and different data collection in diaries (recording on paper, electronically,…?)
- Analysis of diaries
- Purpose of case studies and components of the design (research questions, hypotheses, units of analysis, and data analysis plan)
- Goals of case studies in prior work
- Different types of case studies
- Data collection (e.g., web logs, e-mail messages, direct observations, etc.)
- Analysis and interpretation of data

# 1.7. Interviews and Focus Groups (L07)

- Introduction to interviews and focus groups with pros and cons
- Sampling
- Interview structure and design (one on one vs. focus groups)
- Question types
- Conducting an interview
- Analysis and validity issues

# 1.7. Ethnography (L08)

- Origins and purpose of ethnography
- Applications to ICT-related domains
- Process of doing ethnographic research

# 1.7. Usability Testing (L09)

- Goal of usability testing
- Differentiation towards “classic research methods”
- Types of usability tests
- Process of testing usability (stages, sample size, location, measurements, interpretation)

# 1.7. Analyzing Qualitative Data (L10)

- Introduction to qualitative data
- Content analysis and exemplary methods (e.g., grounded theory method)
- Validity and reliability issues
- Analyzing “unusual” content
- Exemplary interview transcript and ways to code it

# 1.7. Automated Data Collection Techniques (L11)

- Goals
- Existing tools (e.g., web logs, stored application data such as file systems of users, activity-logging software, etc.)
- Custom software and different examples
- Hybrid approaches (e.g., combining loggers with interviewing participants)

# 1.7. Measuring the Human (L12)

- Introduction and Background
- Eye-tracking and possible inferences
- Motion and position tracking
- Physiological tools (e.g., EEG to measure brain activitiy)
- Data collection, analysis, and interpretation
- Example: Augmented reality devices and possible ramifications for measuring humans

# 1.7. Online and Ubiquitous HCI Research (L13)

- Introducing multiple sensors and ubiquitous devices as means for measurement
- Online research (using the internet as a source of data and analyze online activity)
- Examples of sensors and ubiquitous computing

# 1.7. Working with Human Subjects - The Ethics Board Approval (L14)

- Ethical considerations for doing research with humans
- Participants, care and handling research participants
- Exemplary internal review board (IRB) submission for an American university compared to a German university

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# 2. Grading

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Grade:

- 45 minute exam (50%) and 30 minute presentation of selected research articles (50%)

Exam:

- Largely based on open-text questions, no multiple-choice questions
- Based on the contents of the lectures and the book by Lazar et al. (2017)
- Exam date: 07.03.2022, 3.30pm (https://www.wiwi.uni-frankfurt.de/fileadmin/user_upload/dateien_pruefungsamt/Pruefungsorganisation/Klausurtermine_20212_de_en.pdf)

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# 3. Presentation Guidelines

# 3. What Determines a Good Presentation?

- ¼ = Topic, used media (technology) and content
- ¼ = Presenter, her/his posture (“body language”) and style
- ¼ = Audience and their posture
- ¼ = Relationship between the two

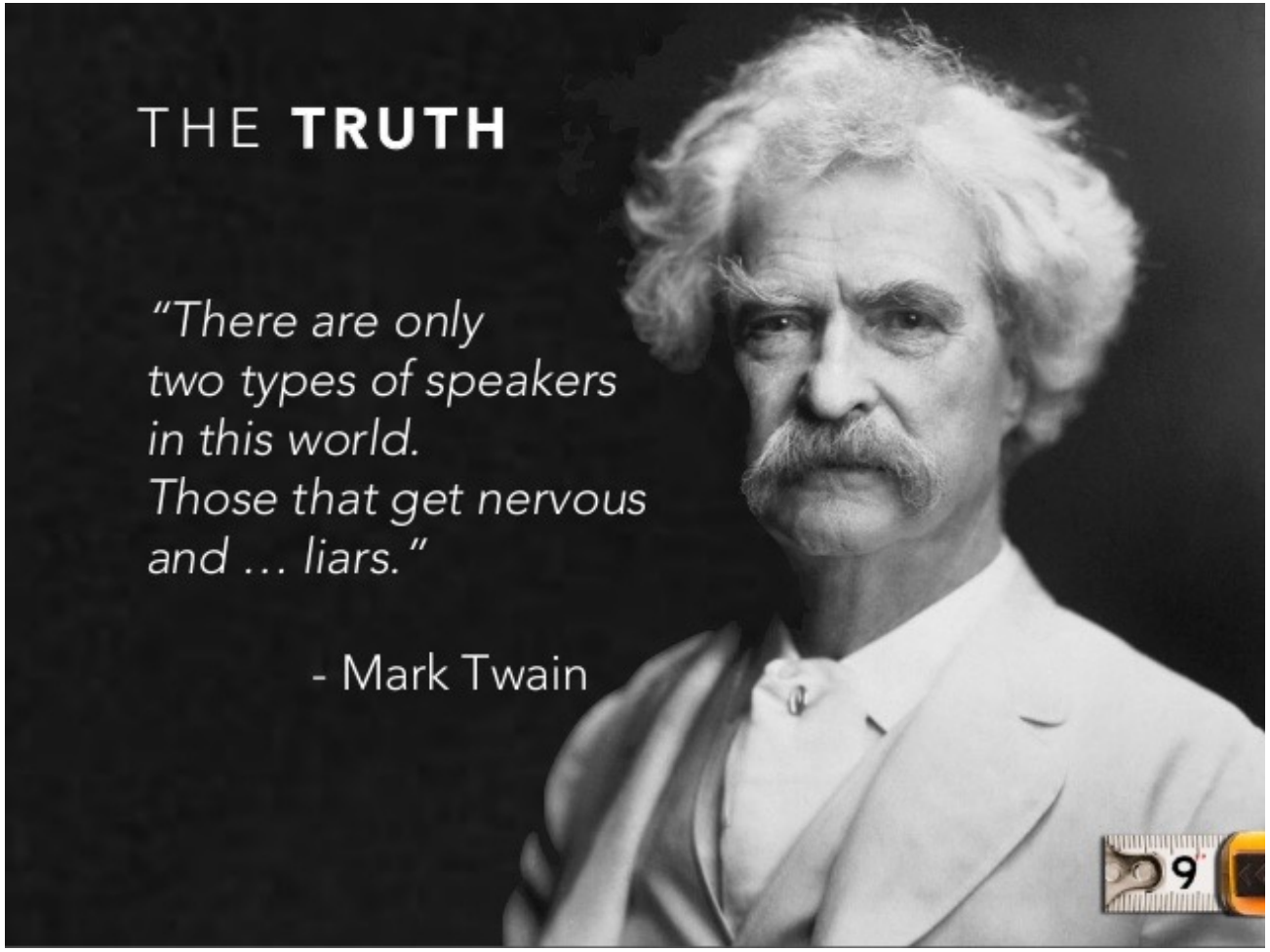
# 3. What to Consider When Preparing Your Presentation?

- Who attends? How many? Why?
- What is my goal?
- What's my message?
- How much time do I have?
- What's my exact topic? (Title well chosen?)
- Content (difference between Need to know and nice to know information)
- Introduction → Main Part → Conclusion
- Prep your used media technology

# 3. Where Do I Present?

- Technology and other media tested and ready?
- What's your "area for presenting", is there a "no-go area" (e.g., blocked view for the audience at certain spots)
- Water ready?
- Pens tested?
- Backup slides ready?
- Seating plan assessed?

# 3. Start Your Presentation (I)



# 3. Start Your Presentation (II)

There are many ”rules” for dealing with nervousness and stage fright, but a few simple tips might help you:

- Breathe
- Look at the audience quietly (so relax basically)
- “Coming”: Take a step towards the audience
- Use gestures and make your body relaxed
- Say first sentences (although not recommended in general, it makes sense to learn your first sentences by heart)

# 3. Introduction of the Presentation

- Welcoming, introduce yourself, course of presentation
- Goal / Topic
- Time / rules for the presentation (e.g. asking questions at the end or during presentation?)
- Funny element
- Transition to main part

# 3. Main Part of the Presentation

- Argumentation (WHY?)
- Visualize
- Evidence, examples and references (WHY?)
- Be aware of your time
- Arc of suspense (tell us a story)

# 3. Conclusion of the Presentation

- Summary
- Outlook
- Final words, punch line
- Transitional question towards a possible Q&A or group work, etc.
- Thank the audience

# 3. Visual Media Technologies

"Survival RULES":

- Be in control of your technology without mistakes
- As few text, content and animations as possible
- Take your time
- Structure and eye-catcher

# 3. Which Media Should I Use?

In universities, oftentimes PP is the no.1 choice, but there are also other nice possibilities depending on:

- Goals
- Yourself
- Audience
- Room
- Time
- Flow

# 3. Flipchart / Corkboard

- Be quiet when changing a page
- Practice handwriting
- Stand sideways
- Don’t talk to the media (holds for every media)
- Control whether the chart stands safely
- Use lead pencils as a trick
- Max. audience = 20

# 3. Beamer / PowerPoint

- Turn off screen saver and idle mode
- Only few effects and standardized changes between slides
- No time control
- Page numbering!
- Same fonts (sizes) on each slide, same visual appearance

# 3. Handouts

- Common style
- Readability and outline
- Short summary
- Contact details

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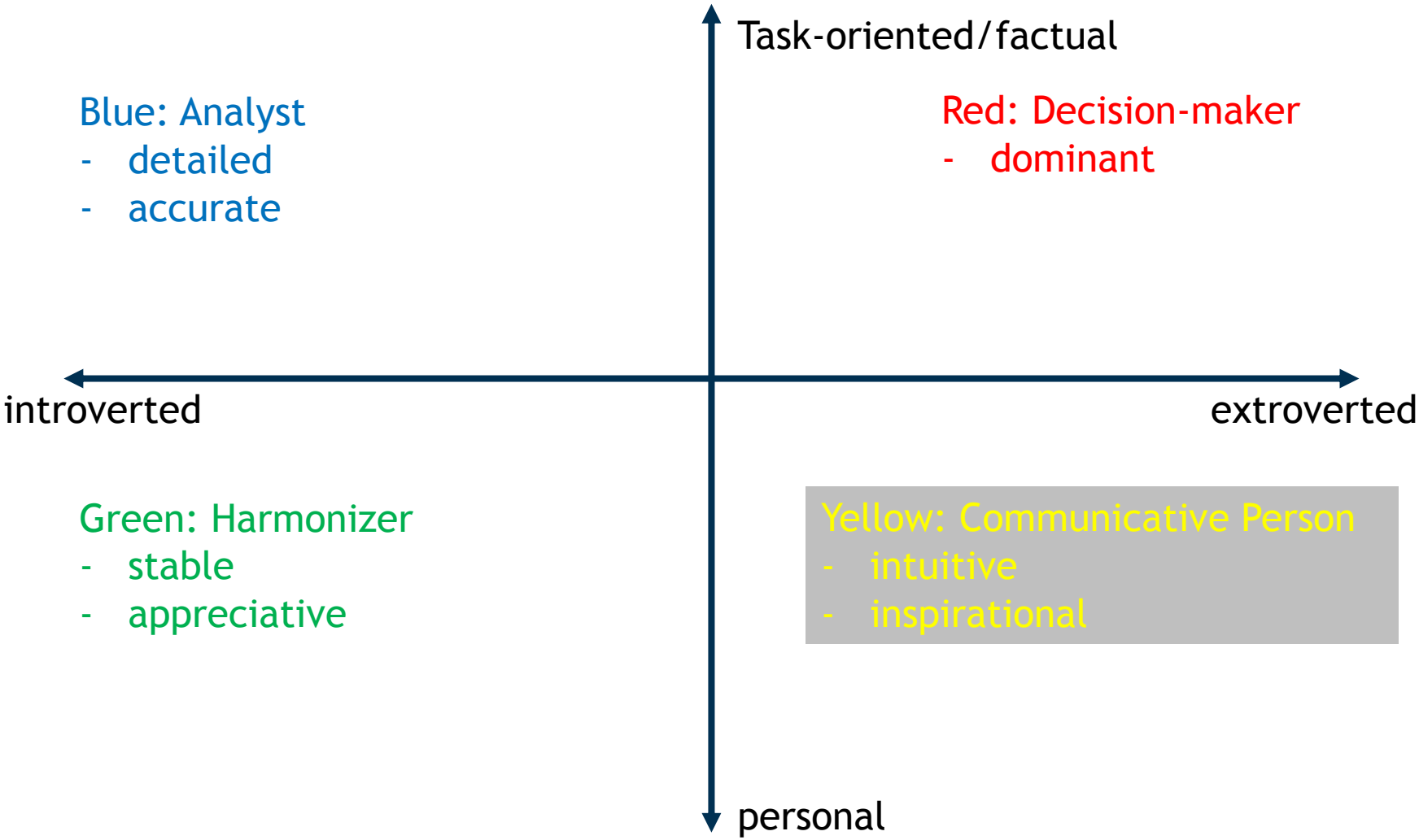
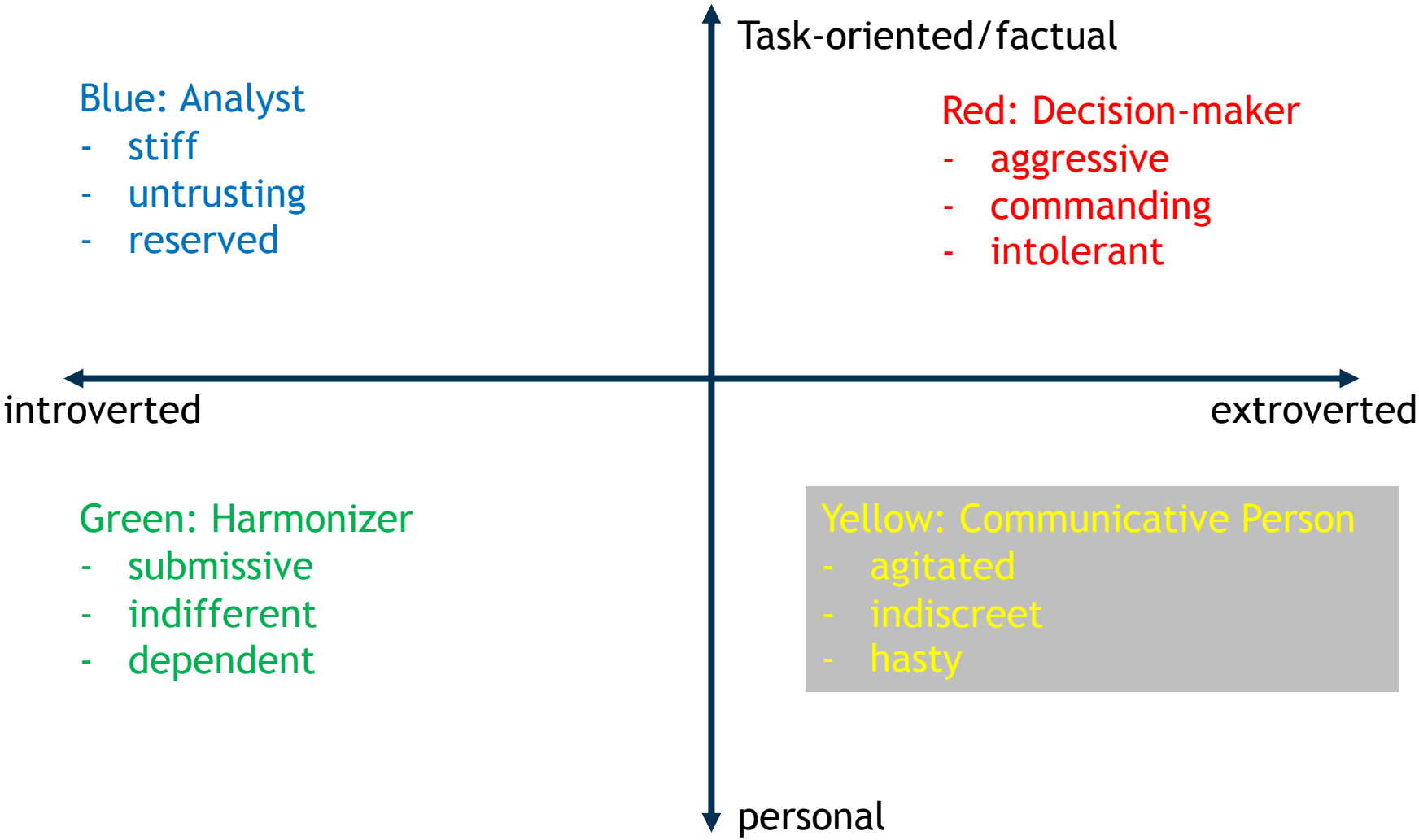
# 3. Your Audience

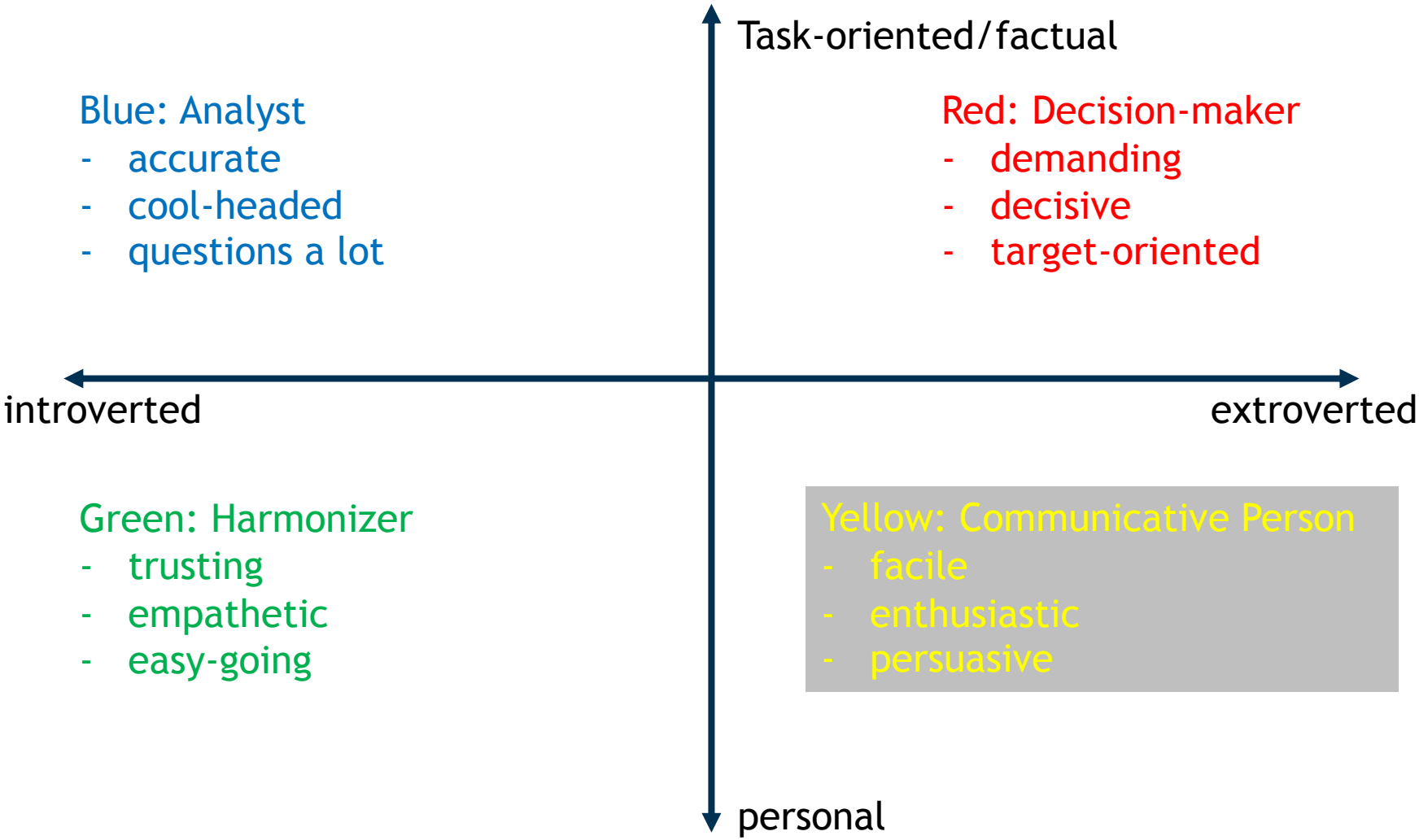
# 3. Different Types of Listeners...



# 3. How You Perceive Them and...



# 3. How They Perceive Themselves



# References


- Lazar, J., Feng, J. H., & Hochheiser, H. (2017). Research methods in human-computer interaction. Morgan Kaufmann.

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