

Interviews with Master's level students following water resource management related study programs

Interview guide

Duration ca. 60 min | Version from September 2024

Stella Kanatouri, Sina Truckenbrodt, Friederike Klan

German Aerospace Center (DLR), Institute of Data Science, Jena (Germany)

0. Introduction

5 min/Total: 5 min

- **Moderator Introduction**
- **Goal of the WaterLab project:**
 - *Aim: Design and develop a virtual reality (VR)-learning application about water resource management for environmental engineering/hydrology university students.*
 - *We are doing this in an iterative and user-centered way – with students like you being the end -user.*
- **Interview goal:**
 - *Aim: Understand your perspective, your experiences with your study – in terms of how contents are taught and learned, and what is missing. In other words, I am looking to understand your needs as a student, so that I can focus on tailoring the learning on your needs.*
- **Framing:**
 - *As a qualitative researcher it is important for me to collect rich insights, so I am interested in the details of what you have got to share - There are no right or wrong answers, it is about your experience.*
 - *I may share aggregated findings about interviewees' needs (among which, your needs), but even so, I will not be referencing you as a person at any point and your anonymity is preserved in compliance with the European data protection regulation (GDPR)*

1. Intro participant (aspirations, subjects learned, skills needed)

ca. 5 min/Total: 10 min

- *Participant presentation – age, university etc.*
- *Study field & level of study*
- *What was your motivation behind selecting this study?*
 - *What are your professional goals/ where should this study program take you?*
- *Which modules in your study relate specifically to water resources management?*
 - *Is desalination among the topics you study?*
 - *If yes, what exactly is the focus on desalination?*
- *Skills needed to achieve professional goals:*
 - *What skills are important to gain for a future environmental engineer?*
 - *Which skills are likely to help you achieve your professional goal?*

2. Perceptions about learning

10 min/Total: 20 min

- *When you think about learning in general, what do you associate with learning?*
(e.g., reading a lot and practicing to internalize knowledge etc.)
- *Complete the sentence. "Ideally learning should be...." OR:*
 - *What does [positive] learning mean to you?* (keywords as to what learning needs to be like or lead to)
- *What makes learning (positive)? [e.g., effective, pleasurable, engaging]?* (depending on association named previously)
 - *Which factors contribute towards that?*
 - *Tell me an incident, a specific experience where you felt that your learning was like that...*
- *Explore views about learning outcomes:*
 - *What does a positive learning outcome look like?* (do not mention: e.g., good marks Retain knowledge Ability to apply it)
 - *How can you tell that you have learned something well?* (subjective aspect)
 - *What kind of learning contributes towards a positive learning outcome?*
 - *How do you learn best?* (explore in depth)
- *Views about learning experience:*
 - *What is a positive learning experience?*
 - *Why?*
 - *Describe a positive learning experience you had.*
 - *What made you feel like that?*

3. Status Quo and Needs – Media and Methods in current study program

40 min/Total: 60 min

- *Examples of specific topics covered in study program (e.g., how to plan a desalination plant)?*
- ***How are contents conveyed/ being taught? (methods and media)***
Mode: Start with open question, prompt if needed.
 - ***Methods:*** e.g., lectures, field trips, self-study, group exercises, etc.?
 - ***Media:*** videos, online teaching, face-to-face etc.?
- *How much presence is required?*
 - *How do you find that?*
 - *How important/necessary is physical presence?*
- *Attitudes to technology: How do you feel about the use of digital media as media for learning in your studies? Which ones? Why?*
 - *To what extent do you believe that digital media is important for some courses/subjects and physical presence for other courses or topics?*
 - *For which? Why?*
- ***How satisfied are you with the way contents are being taught*** (meaning media and methods)? *Why? (if it differs for each course, then answer for each course separately)*
Let's look in a bit more detail:
 - *What works well in terms of how the contents are taught? Media, methods*

- **What works less well? Why?**
 - Any contents that are not well supported by the teaching methods? Which, why?
- *Studies during pandemic: what was different? What worked better / what worse than now?*
- *How satisfied are you with your **learning experience** as a student participating in this study program?*
- **What challenges do you face as a learner related to the media and methods used in your study?**
- **What could be improved? How? / What are your needs?**
- Miracle question (**Unmet needs**):
*Imagine that everything was possible in terms of how contents are taught / conveyed / learned. **What would your study look like**, if you think in particular the water resource management modules you are taking? Do not think what is feasible and what is not – it is a hypothetical question and you need to imagine that everything is possible.*

Interviews with professors, teaching water resource management related modules

Interview guide

Duration ca. 30 min

Stella Kanatouri, , Sina Truckenbrodt, Friederike Klan

German Aerospace Center (DLR), Institute of Data Science, Jena (Germany)

0. Introduction

5 min/Total: 5 min

- **Moderator Introduction**
- **Goal of the WaterLab project:**
 - To design and develop a VR-learning application about water resource management for environmental engineering/hydrology university students.
 - Planning a co-creation of a VR teaching / learning scenario
- **Interview goal**
 - Understand current challenges and needs in terms of teaching media / methods

1. Intro participant

ca. 5 min/Total: 10 min

- Affiliation, program and study level (BSc/MSc level students)
- Water resource management focus – Modules and topics covered

2. Teaching Media and Methods, Pain points and Needs

20 min/Total: 30 min

- ***Which teaching methods and media do you use (esp. water related modules)***
 - Ask open – then explore one by one, if multiple.
 - How much is each one used?
- ***What role do they play in conveying knowledge effectively / engaging or motivating students?***
- ***Are some methods/media more suitable for specific topics? (e.g., more visual, rich media for some topics?) Which ones and why?***
 - Explore aspects:
 - media richness
 - interactive nature
 - pros and cons of different methods/media
- ***How do these work from your point of view in effectively conveying knowledge as intended? (each one)***

- ***What works well from your perspective?***
 - Observation of students? (active, passive, motivated, perform well, show knowledge gaps?) Do you anticipate a difference in the students **if other method/medium used?** Explore.
- ***What are your pain points*** (related to teaching methods/ media)?
 - Explore in detail.
 - Why?
- ***Needs*** (related to methods-media)?
 - *What should change and how?*
 - *What would you observe, if this was the case?*
 - What are barriers?
 - Other media/methods?
- ***Perceptions of/experiences with VR for teaching?***
- ***Interest in co-creating a VR teaching / learning scenario?***