

Pre-test / Post-test Questionnaire

Assessment of Prior Knowledge

E-mail:

Full name:

What decade was the first immersive multisensory technology produced?

- 1960s
- 1970s
- 1980s

What decade was the first Augmented Reality system created on a military base?

- 1970s
- 1980s
- 1990s

What is the appropriate device to use Augmented Reality?

- HoloLens
- Meta Quest
- Data Glove

“A description of a property or characteristic that a system must exhibit or a constraint that it must respect.” This definition fits which type of information requirement in a software process?

- Functional requirement
- Non-functional requirement
- Quality attribute
- Requisito do usuário
- User requirement

Considering the requirements analysis and functional requirements of a software, select the alternative below that contains only examples of functional requirements.

- The System must register doctors; The database must be protected so that only authorized users can access it; The system must be implemented in PHP with an SQL database.
- The system response time must not exceed 30 seconds; The system must generate registration and appointment scheduling; The system must have two-factor authentication.
- The system must register medical records; The system must generate reports of patients attended; The system must cancel appointments.
- Network infrastructure and computers must be open source standard; System response time must not exceed 30 seconds. The database must be protected so that access is only permitted to authorized users.

- None of the above.

Interviews during requirements elicitation can be _____ or _____. The first type is recommended when the profile of the interviewees is not well known. The second type, in turn, is generally based on questionnaires with predefined questions, which can be applied with greater uniformity to a large number of people. Select the correct option that fills in the two gaps above.

- Não estruturada / estruturada
- Unstructured / Focus group
- Structured / Focus group
- Ethnographic / unstructured
- Etnográfica / brainstorm

What is the best definition that can be given to gamification:

- Any game where the primary purpose is not purely fun
- Define o emprego de técnicas comuns aos games em situações de não lúdicas. Ou seja, uma característica que, normalmente, aparece em jogos é adaptada para um contexto distinto, geralmente para motivar ou tornar uma tarefa mais prazerosa
- A playful activity that seeks to do more than just entertain its participants. After all, the objective of the educational game is also to teach or improve new skills and competencies in a captivating and interesting way.
- Refers to the use of traditional game elements in teaching-learning processes - whether in-person, online or hybrid

What does MDA mean?

- Movement, dynamics and Animation
- Mechanics, dynamics and aesthetics
- Mechanics, dynamics and range
- Movement, dynamism and style

Choose the option that best suits the mechanics of a game?

- Describes the specific components of the game, at the level of data representation and algorithms
- Describes the behavior of an action when it is performed by a player and each of the results over time.
- Describes the desirable emotional responses evoked in the player when he interacts with the game system
- Describes the behavior of the game over time, discarding its rules

Feedback Questionnaire

E-mail:

Considering your experience in the requirements elicitation environment

The environment is useful for teaching software requirements engineering.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

The environment is unnecessarily complex.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

The environment is easy to use.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

The environment needs technical support to be able to use it effectively.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

The various functions of the environment were well integrated.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

The environment has a lot of inconsistency.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

Most people would learn to use the environment very quickly.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

The environment is very complicated to use.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

I felt very confident using the environment.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

I needed to learn a lot of things before I could get started with this environment.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

During the Covid-19 pandemic, did you take any courses that directly or indirectly involved software requirements elicitation?

- Yes
- No

In your view, could this environment have improved your understanding of software requirements when you were doing your undergraduate studies?

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

In your view, what are the benefits of this environment for teaching requirements elicitation?

In your opinion, what items should be included to improve the experience in this environment?

In a few years, do you think it will be common to use immersive devices (e.g. VR headsets) to perform software engineering tasks? In other words, will software engineers build software with VR headsets instead of a monitor, keyboard, and mouse? Justify your answer and, if possible, give some examples.

Evaluation of VR space for Software Engineering Education

This evaluation is composed of researchers Filipe Fernandes, PhD student, Diego Castro, PhD student, Claudia Susie, PhD, and Professor Cláudia Werner, who is the supervisor of this research. The objective of this evaluation is to obtain evidence of the contribution of a virtual environment to improving learning outcomes in Software Engineering.

E-mail:

Do you agree to participate in the evaluation?

- Yes
- No

Participant Profile Survey

How old are you?

What is your current academic level?

- Undergraduate student
- Bachelor's degree
- Master's student
- Master's degree
- Doctoral student
- Doctor

What is your area of training in accordance with the academic level indicated above?

Do you have the habit of playing games?

- Yes
- No

How much time do you play on average during the week?

- I don't play
- Up to 1 hour per week
- Up to 5 hours per week
- Up to 10 hours per week
- Up to 20 hours per week
- More than 20 hours per week

If you play games, what are your favorite game genres?

What type of device do you usually use to play games?

- I don't play
- Desktop

- Laptop
- Smartphone
- Tablet

Have you ever had contact with any Virtual or Augmented Reality device? (e.g., Oculus Rift, Meta Quest, Samsung Gear VR, Google Cardboard, etc.)

- Yes
- No

If you have used any VR or AR device (Oculus Quest, Meta Quest, HTC Vive, Google Cardboard, etc.), briefly describe the type of Virtual and Augmented Reality application (e.g., name of the game), location (e.g., at home, shopping mall) and what your experience was like.

Learning Software Engineering during graduation

In his undergraduate degree, the number of hours for Software Engineering (SE) was sufficient for good learning.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

In the ES subjects, did you participate in any development projects throughout the course?

- Yes
- No

If you participated in any development project during your undergraduate studies, this project served to:

- Making a product that went to market viable
- Turning software into something that has practical use in educational institutions
- Personal use or for the company I work for
- Nothing. The project was just to get a grade in subjects.
- There was no project implementation/implementation

Em relação às atividades realizadas nas disciplinas, elas contribuíram positivamente para o seu processo de aprendizagem.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

Indicate which areas of ES knowledge you acquired the most knowledge about throughout the course:

- Software requirements
- Software design
- Software construction
- Software testing
- Software maintenance
- Software configuration management
- Software engineering management
- Software engineering process
- Software engineering methods and models
- Software quality
- Professional practice in software engineering
- Software engineering economics
- Computational foundations
- Mathematical foundations
- Engineering foundations

Throughout the course, which areas did you have the most difficulty learning?

- Software requirements
- Software design
- Software construction
- Software testing
- Software maintenance
- Software configuration management
- Software engineering management
- Software engineering process
- Software engineering methods and models
- Software quality
- Professional practice in software engineering
- Software engineering economics
- Computational foundations
- Mathematical foundations
- Engineering foundations

In your opinion, what reasons prevented improving learning in HE?

- Distance between what is taught and the reality of the job market
- Little interest from the teacher and purely theoretical classes
- Little encouragement for interdisciplinarity
- Too little time for too much content
- Little or no interaction with the teacher outside the classroom

Is there any particular topic that you consider highly relevant now that you have graduated, but that was not covered during the course? If not, write "not applicable".

Taking into account what you learned in SE during your undergraduate degree, you are qualified to work as a software engineer.

1. Totally disagree
2. Disagree
3. Neutral
4. Agree
5. Totally agree

Task Questionnaire

E-mail:

Full name:

Free exploration of the environment

You should access the environment through the link <https://framevr.io/cos824> and explore it for up to 15 minutes, with the researcher's assistance if needed.

Check the audio settings, as well as microphone and webcam permissions in your browser.

Task 1/3

- In Zone 2, access the "Practical Exercise" link.
- Organize yourselves into teams of two people. Each team will be identified as Team A and Team B.
- Each team has a specific room in the environment for communication and for the collaborative creation of software artifacts.
- The objective of each team is to interview the customers who are in the environment and create a software requirements document. This document should contain the functional and non-functional requirements, according to the information captured in the interviews.
- In case of doubts, Zones 2 and 3 have materials on Software Requirements Engineering.

Task 2/3

- In Zone 1, watch the video and access the link to the videos of the lab3D students' work, via COPPE TV.
- In Zone 1, access the virtual world that presents Application Areas, including Entertainment.
- In Zone 1, access the video about the Sensorama machine.

Task Completion 3/3

- In Zone 4, watch the educational trail videos.
- In Zone 4, access the examples of games for teaching Software Engineering.

In Zone 4, read the slides next to the whiteboard