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Erasmus+ TECH2MATCH

Content for Virtual Reality module

Prepared by the TECH2MATCH consortium.

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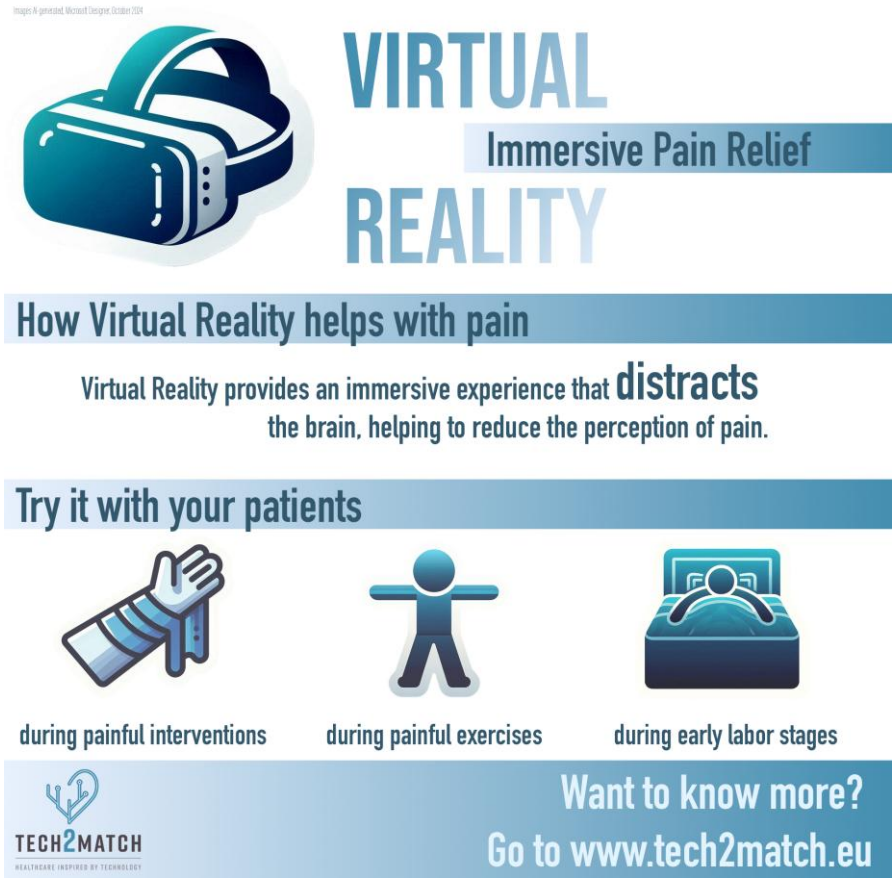
INTRODUCTION

This document presents the Teaching Guide for the Virtual Reality (VR) Unit of the TECH2MATCH Erasmus+ project.The guide provides clear learning outcomes, structured activities, and rationales grounded in Reflective Practice-based Learning (RPL), ensuring a coherent and evidence-informed teaching approach.

The content is organised into sequential units covering an introduction to VR, how to use VR, how to match the technology to patients with pain and using VR with patients with pain. Each unit includes both basic and advanced learning tasks, designed to promote progressive, self-directed, and interdisciplinary learning among students in nursing, midwifery, physiotherapy, occupational therapy, and related health sciences.

This guide aims to support educators in aligning teaching methods with the course's reflective and experiential learning philosophy. By integrating theory with clinical and technological perspectives, it provides the structure and tools necessary to foster analytical thinking, empathy, and professional competence in the understanding and management of pain.



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CONTENT:

This section covers most relevant terms as well as related terms of technologies and approaches that might not be covered by the unit (e.g., exergaming)
Learning outcomes:
Knowledge of terms and abbreviations related to Virtual Reality and related technologies
Ability to differentiate between technologies based on their properties.
Tasks

VR History
Level: Basic
Activity description: Guess in which year Virtual Reality was first established…
Activity rationale: This is a simple question to start with, mostly a guessing question to make participants aware how old the technology actually is and to get an easy start into the topic with an image that already shows a current approach of experiencing VR.
Resource: MOOC

1.1.1 Virtual Reality and related technologies.
Level: Basic
Activity description: Using an interactive game map you learn about the different terms, devices and applications regarding Virtual Reality and related technologies. Click on the link and enjoy this activity!
Activity rationale: In the beginning having an overview of different terms and technologies seems to be important. A good balance of informal, easy to read text and scientific

references should keep motivation high.

Resource: MOOC

1.1.2 Abbreviations

Level: Basic

Activity description: First, check the terms below. Then type the full term below each abbreviation

Activity rationale: The interactive part following task 2 only comes a little bit later, first we cover the most relevant abbreviations. Some of them were already mentioned so they are repetition making clear the importance of them. The simple accordion makes this some sort of exploration task.

Resource: MOOC

Answers to quiz

VR- Virtual Reality; AR- Augmented Reality; MR- Mixed Reality; HMD- Head Mounted Display; DoF- Degrees of Freedom; IPD- Interpupillary Distance and FoV- Field of View.

Prove what you have learned by typing in the full term below each abbreviation.

Technological Terms

Level: Advanced

Activity description: Drag the words in the middle to the correct side

Activity rationale: This interactive task aims to make the difference between AR/MR and VR more clear. The information necessary to succeed is covered in task 1.1.2.

Resource: H5P Drag and Drop

Describing VR

Level: Advanced

Activity description: Briefly describe VR in your own words (max. 100 words). Based on the feedback you get from a teacher or colleague, update/redo the VR description (max. 100 words). After that, reflect and discuss why a common understanding of the terms is relevant for healthcare

Activity rationale: An advanced task to think about the terminology even more. Based on what participants have learned they should be able to explain what VR is - and define together why this might be important in a health care setting.

Resource: free text, discussion forum or classroom

Unit 1.2: State-of-the-Art Technology

This sub-section deals with the most relevant examples of hard- and software directly related to VR. Advantages and disadvantages of each given example are mentioned regarding costs, usability, barriers, etc.

Learning outcomes:

Knowledge about and distinguishing between devices (standalone, PC-based, phone-based)

Understanding which hardware is suitable for which situation

Tasks

1.2.1: Shaping the future with XR

Level: Basic

Activity description: Watch a video and complete text based on information from the video.

Activity rationale: The video talks about XR in health care to build a bridge to the profession of the participants. The examples are easy to grasp and some current devices are shown as well as possible future approaches. It should motivate people to dive deeper. The quiz will show students gaps in their understanding.

Resource: MOOC

Answers to the quiz

Virtual Reality replaces your existing world with digital content. Wearing VR headsets you can travel to space or through time. Additionally, it provides completely new and otherwise impossible perspectives, like being a human cell travelling through the body. VR also elevates virtual meetings to a new level so real travelling might not be necessary often times. By fully immersing in a virtual world and blocking disturbances from the real world, VR is also a great tool for pain/exposure therapy.

Augmented Reality enhances the real world with digital content. It is a great tool for pre-planning, for example by visualizing furniture in your own room before buying through holograms. AR provides relevant visual information where needed during several tasks where hands need to be free, such as surgery, assembly, etc.

Both AR and VR can improve learning by providing interactive training scenarios or three-dimensional representations of human anatomy, machines, industrial environments, etc.

1.2.2: Standalone VR Devices

Level: Basic

Activity description: This examines the most important way to experience VR and is accompanied by a video and a quiz.

Activity rationale: For health care settings, standalone untethered head mounted displays are most likely the way to go. This task explains what they are and how they work. In a summary quiz participants reflect on the content they were provided.

Resource: MOOC

Answers to the quiz

HMD stands fir High Media Definition

HMD stands for Head Mounted Display

HMD stands for Health Medical Device

HMD stands for Helping Meta Device

More Ways to experience VR

Level: Advanced

Activity description: Please check the info wall illustrating the four main ways to experience VR using the different devices available on the market.

Activity rationale: This task is now diving deeper into practical aspects of the technology enabling participants to choose from different options so they can decide which device to buy under which circumstances. The text is based on own experience and does not refer to any publications or web sites so it should be easy to read. The quiz covers all the relevant aspects that are relevant to make a decision on the approach being feasible at the health institution.

Resource: H5P file (information wall); H5P File quiz

Advantages and disadvantages of VR devices

Level: Advanced

Activity description: Go through the table of devices and check the advantages and disadvantages

Activity rationale: The table focuses on aspects relevant for health care scenarios and not on technical details. It gives the participants an overview of the relevant devices on the market and might help in the decision process of which device to choose.

Resource:

In this overview you can find devices that are state-of-the-art in 2024. We focus on standalone headsets only as they are the easiest to integrate in health care environemnt workflows. Most of them could even be connected to a PC via cable or WiFi what extends the software selection quite a bit (e.g. also Steam VR https://store.steampowered.com/vr/ applications can be accessed). All mentioned companies provide special business options, that are quite costly. However, they might surpass some mentioned limitations and extend the application library. Alternatively, third-party XR management platforms (arborXR, Vrdirect?) might also simplify implementation of multiple devices and features like Kiosk mode.

Device	Pros	Cons
HTC Vive Focus 3	Simple IPD adjustment Hand Tracking Simple strap Easy disinfection Simple device management Kiosk mode (avoid accidental interactions, etc.) (https://www.youtube.com/watch?v=tpm-mYw-MGtc&t=43s&ab_channel=VIVETutorials) Business Device	limited software in store (https://business.vive.com/appstore/) rather expensive
HTC Vive Flow 3	Compact design Use smartphone as controller Wearable like standard glasses Simple software management Adjustable diopter lenses Kiosk mode (avoid accidental interactions, etc.)	Limited software in store (https://www.viveport.com/filter-page/flow) Slightly limited immersion

	(https://www.youtube.com/watch?v=tpm-mYw-MGtc&t=43s&ab_channel=VIVETutorials)	
HTC Vive XR Elite	Mixed and Virtual Reality Simple IPD adjustment Adjustable diopter lenses Hand tracking Simple strap Kiosk mode (avoid accidental interactions, etc.) (https://www.youtube.com/watch?v=tpm-mYw-MGtc&t=43s&ab_channel=VIVETutorials)	Limited software in store (https://www.viveport.com/plan/xr-elite) Rather expensive
Meta Quest 2	Wide range of applications and games (https://www.meta.com/en-gb/experiences/) Very widespread device Very good hand tracking Access to software “outside the strict store guidelines” Flexible management of self-created apps	Mostly aiming for gamers One Meta account per device needed Questionable data protection No Kiosk mode Limited IPD adjustment
Meta Quest 3	Mixed and Virtual Reality Wide range of applications and games (https://www.meta.com/en-gb/experiences/) Very good hand tracking Access to software “outside the strict store guidelines” Easy IPD adjustment Easy adjustment for prescreption glasses Flexible management of self-created apps	Mostly aiming for gamers One Meta account per device needed Questionable data protection No Kiosk mode
Pico Neo 4	Kiosk mode Versatile store (https://store-global.picoxr.com/) Hand tracking Access to software “outside the strict store guidelines”	Future of company unclear Niche product Software-driven IPD adjustment
Apple Vision Pro	Integration into Apples ecosystem Very usability focused Most recent approach to VR/MR Automatic IPD adjustment Hand Tracking Kiosk mode/limited guest user	Very expensive Very new, limited availability Limited software in store (https://apps.apple.com/us/vision)

State-of-the-art VR devices

Level: Advanced

Activity description: For each of the three categories cardboard, standalone, tethered find at least one recently released device (not older than one year) with a link to the manufacturers website and if possible one review (youtube, blog, etc.)

Activity rationale:

This task fosters reflection on search results, making participants aware of what is available at the time. This counteracts the problem that the table in the previous task might be outdated at the time the course is taken (in some years).

Resource: PDF upload

Pros and Cons of different VR devices

Level: Advanced

Activity description: For each of the three categories cardboard, standalone, tethered find at least one recently released device (not older than one year) with a link to the manufacturers website and if possible one review (youtube, blog, etc.)

Activity rationale: This task deepens the reflection on the recent devices from the previous and fosters critical thinking and analysis. It might be an important base for finally choosing a device being used at the health care institution.

Resource:

Cardboard			
Device	Links (review, specs,..)	Pros	Cons
Standalone			
Device	Links (review, specs,..)	Pros	Cons
Tethered			
Device	Links (review, specs,..)	Pros	Cons

Discussion on any open questions

Level: Advanced

Activity description: Discuss open questions, ideally with your teacher. Questions can relate to the different approaches of VR applications, specific devices, most relevant aspects when choosing a device, anything important to add you found during your research.

Activity rationale:

This task fosters knowledge exchange amongst the participants, ideally supported by a lecturer with some own experience. Discussions can happen in class or on a discussion board online.

Resource: discussion board or setup

Unit 1.3: Supplementing technology

This sub-section deals with supplementary material and accessories you might want to have to improve the general experience and handling of VR devices. Some even are absolutely necessary - learn which!

Learning outcomes:

Knowledge of what is required to setup VR

Knowledge of other resources which could be used to improve the VR experience

Tasks

1.3.1: Technical Requirements

Level: Basic

Activity description: Read the supplied text, then complete the quiz.

Activity rationale: Participants are made aware of prerequisites so there are no surprises when trying to implement VR in the health care institution. The text is kept simple and focuses on HCP. It does not explain how to setup the prerequisites as there are hopefully experts in the institution. An interactive summary helps students to reflect on the content.

Resource: MOOC

Answers to the quiz.
VR devices always need access to the internet via WiFi.
VR devices always need access to the internet using your smart phone or hot spot
VR devices should be connected to the internet via cable.
VR devices most likely need to have internet access for initial setup

There is no VR device on the market that needs a smart phone for anything
You might need a smart phone to setup a VR device
A smart phone is always mandatory for using a VR device.

1.3.2: Supplementary Material
Level: Basic
Activity description: Read the supplied text and answer the quiz.
Activity rationale: As adjustments for patients, knowing how to clean devices, etc. are relevant competencies that will be covered later on again, some helpful accessories are introduced.
Resource: MOOC

Answers to the quiz.
All HMDs come with their own carry bags.
As there are no bags on the market, you need to produce a carry bag yourself.
A carry bag specifically designed for your HMD might be a convenient accessory to buy
Putting the HMD back to the original box is the most convenient way to store and transport the device.

Choose the correct statement:
HMD lenses often can be replaced by diopter lenses for specific eye sight
If a device does not provide a focus wheel there is no way that people needing glasses can use it.
Optical glasses always have to be taken off when using HMD devices.

Choose the correct statement:
VR headsets need to be charged via cable and USB power adaptors.

VR devices usually come with tons of accessories improving the experience.
Battery packs, charging docks or rechargeable batteries might be bought for improved usability and handling of VR devices
Battery packs for VR devices are cumbersome, heavy and almost useless.

Choose the correct statement:
Hygienic wipes can be used for cleaning on any surface.
All VR headsets are by default prepared for optimal cleaning
Disposable face covers are a cheap and simple way to provide a safe and hygienic VR experience
Special UVC LED boxes are absolutely the only way to sanitize VR devices.

Supplementary material: deep dive
Level: Advanced
Activity description: Watch the following videos. Feel free to fast forward and skip parts, this might get too geeky sometimes ;)
Activity rationale: This optional task provides some concrete examples of accessories and might even help in decision making before buying anything. As most videos focus on usability, they support building an understanding what needs to be considered when using VR devices.
Resource:
Facial interface: https://www.youtube.com/watch?v=iXyI_LWkcf0
Battery straps: https://www.youtube.com/watch?v=c44K09Biyfg
Charging dock: https://www.youtube.com/watch?v=dcuntaKIpDA
Carrying cases: https://www.youtube.com/watch?v=zLMIH8XRtcM
Audio improvements: https://www.youtube.com/watch?v=sdfT29q0fF8

Supplementary material: relevance/usefulness
Level: Advanced
Activity description: Sort the different accessories based on relevance/usefulness
Activity rationale:
This task makes participants reflect on the possibilities to improve usability and handling so they know what they really need to think about when introducing VR in their institution.
Resource: H5P file drag images

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Unit 2: How to use Virtual Reality

Unit 2.1: Setting up Virtual Reality

This section focuses on the practical aspects of using VR, such as how to prepare and adjust VR devices and what to keep in mind when introducing patients to VR.
Learning outcomes:
Knowledge of the setup procedures of most popular VR headsets
Ability to adjust devices to patients

Tasks

2.1.1: Setup steps
Level: Basic
Activity description: Two videos show how to setup the two currently most common VR devices:
Activity rationale: Participants gain an overview of the steps relevant for setting up a device as most likely they might actually be responsible for that after all. A short quiz checks if participants got the most important steps from the two videos they have watched. They need to analyze the videos and abstract the shown content.
Resource: MOOC

Answers to the quiz.
What steps are always, no matter which VR headset you use, necessary to initially setup the headset?
All answers are correct

Some additional steps might be necessary depending on the device. Which are they?
These are the correct answers- download drivers and/or additional software; download mobile app; pair headset with smartphone.

Put the relevant steps into the correct order for the “first launch”

The correct order is:
Make sure, HMD and controller are charged
Power on the HMD, (optionally) activate controllers
Pair device with/Log in to an account
Confirm agreements and permissions
Enjoy VR!

Now that the devices are ready, sort the following actions to create an instruction of how to put a VR headset onto a patient, starting after entering the room and ending, once the goggles are on the patient and everything is ready to go.

The correct order is:
1.Greet the patient verbally
2.Disinfect hands
3.Disinfect headset (in case you are not 100% sure that they have already been disinfected)
4.Power on headset
5.Check headset yourself, if the correct app is running/to know about the state of the glasses to then be able to correctly tell the patient what to do
6.Disinfect headset again
7.Ensure that the patient's hair is out of the way
8.Place the headset in a comfortable position against the face of the patient
9.Pull the straps over the back of the head of the patient
10.Tighten back strap and adjust top strap
11.Adjust headset tilt to find the best fit
12.Adjust the lens spacing until the patient sees a sharp image

2.1.2: Setup steps: different needs
Level: Basic
Activity description: Branching scenarios provide challenges related to a 6 year old child, a 37 year old woman or an 87 year old man.
Activity rationale: A real-life-scenario that makes participants reflect on necessary adjustments based on patient's needs (e.g., age, pain type, etc.).
Resource: MOOC

Sharing experiences

Level: Advanced

Activity description: Share your experience with setting up VR devices and applications with your colleagues. If possible, share in which situation and country you gained the experience and what challenges you had and see for health care scenarios (even if the experience does not relate to your profession)

Activity rationale: This link to practical experiences fosters experience exchange and widens each student's horizon.

Resource: discussion forum or classroom activity

Trying out VR

Level: Advanced

Activity description: In pairs, try out this roleplay.

Activity rationale: This task puts multiple of the previous tasks to practice. Students repeat what they have read before with colleagues and reflect on their doing from HCP and patient perspectives. After that they share and discuss their experience to gain more insights on the process.

Resource: rental VR devices, co-students, printed PDF handout (two separate pages)

Challenges to introducing VR

Level: Advanced

Activity description: Summarize the challenges when introducing VR to patients (max. 300 words)

Activity rationale: Students reflect on their learnings from the previous task and try to summarize the findings. Through presenting and discussing the results they share the experience with others and get different perspectives on the process. These insights help them remove obstacles in practice when introducing VR to patients.

Resource: upload PDF file or free text quiz (LMS) or presentation setup (campus)

Unit 2.2: Side effects and risks when using VR

This section introduces some potential issues patients or staff might encounter when using VR. It is important to keep those in mind when introducing, choosing and using VR applications!

Learning outcomes:

Knowledge about potential issues when using VR

Knowledge about motion sickness

Ability to prevent issues such as motion sickness

Tasks

2.2.1: Typical VR issues

Level: Basic

Activity description: Watch videos then rank risks.

Activity rationale: This task playfully introduces some terminology often used when talking about side effects of VR. By ranking the risks students will be reflect on their answers with respect to using VR with patients.

Resource: MOOC

Answers to questions.

Correct ranking:

Feeling motion sickness

Running into things

Damaging furniture

Injuring others or self

Getting infections

2.2.2: Managing VR issues

Level: Basic

Activity description: Watch a video, read the provided text and answer the quiz questions.

Activity rationale: Reading the text and watching the video should initiate reflective thinking. Students need to consider how to approach this issue with patients, how to prepare and monitor them and how to offer effective solutions. A short quiz deepens the knowledge.

Resource: MOOC

Answers to questions.
Which parts of your body register the movements being simulated around you when you are playing a VR game?
Correct answer:
Inner ears

Which of the following are symptoms of motion sickness?
Correct answers:
Dizziness; nausea; fatigue

Which of the following are symptoms of motion sickness?
Correct answers:
Pregnant women; novice gamers.

VR motion sickness may last for hours, which remedies exist?
Correct answers:
Fresh air, aromatherapy/diffusers; chewing on ginger

How to prevent VR motion sickness in the first place?
Correct answers:
Starting slowly and adjusting the amount of time in a VR experience

How to prevent people from running into real objects/wrecking their surroundings?
Correct answers:
Removing any obstacles and propose a seated experience on a still chair; using the “guardian” feature of the VR headset

2.2.3: What we’ve learned so far
Level: Basic
Activity description: A crossword puzzles which requires students to review their knowledge of what has been included so far.
Activity rationale: This task is a playful and hopefully enjoyable way to summarize everything covered so far in section 1 and 2. It helps giving the participants keeping the big picture

in mind and make them not only focus on the current task but trying to remember and analyzing learned material from previous sections, too.
Resource: MOOC

Answers to crossword puzzle.
Correct answers:
Across 1. Back; 5. Hair; 6. Wipes; 7. Computer 8. ; 10. Augmented; 11. Straps; 13. Mixed; 14 exergames; 16: account; 18. Disinfect; 20. Charge; 21. Cardboard 22. Top; 23. Verbally; 26. Vomiting; 28. Internet; 29. Smart; 30. Nausea; 32.Pair
Down 2. Cave; 3. Freedom; 4. Videos; 7. Controller; 9. Field; 12. Spacing; 15. Pupillary; 17. Face; 19. Tilt; 24. Extended; 25. Mounted; 27.virtual; 28.Aroma

Examples of apps
Level: Advanced
Activity description: Try out VR headsets and note any of the previously mentioned side-effects described.
Activity rationale: This task is a playful and hopefully enjoyable way to summarize everything covered so far in section 1 and 2. It helps giving the participants keeping the big picture in mind and make them not only focus on the current task but trying to remember and analyzing learned material from previous sections, too.
Resource: rental VR devices with pre-installed apps
Base for resource:
Epic Rollercoasters Demo (Meta, Pico)
Brink Traveler (15 Euro, Meta) or TriptoVR (free, Meta, Pico)
YoutubeVR videos such as Northern Lights 360 or Starry night experience
LiminalVR (free demo, Meta)
Forest Oniri (free, Meta)

Relevant aspects of introducing VR to patients
Level: Advanced
Activity description: In groups, create a mind map, clustering and prioritizing relevant aspects of introducing VR to patients. Reflect on the feedback and summarize the learnings (max. 30 words).

Activity rationale: Students will explore their understanding of VR in patient settings from different perspectives.

Resource: Pin board in class room, discussion

Unit 3: Matching technologies with patients with pain

Unit 3.1: How does VR help patients with pain?

In this section you will deal with concrete examples of VR for pain patients, based on scientific evidence.

Learning outcomes:

Knowledge of the effectiveness of VR for patients with different types of pain

Knowledge of how VR can help children

Knowledge of how VR can help adults

Tasks

Level: Basic

Activity description: One question.

Activity rationale: This multiple-choice question will challenge students to reflect over their learning based on existing knowledge and activate their thinking and curiosity about other way of thinking about their views of using VR with patients with pain.

Resource: MOOC

Answer to quiz.

Question: What do YOU think – how can VR help patients with pain?

It can completely remove the need for pharmaceutical interventions
It reduces the time that healthcare professionals need to assess and support PwP
It can be used as a way of distracting attention away from painful sensations in PwP

3.1.1: Evidence for the positive effects of VR

Level: Basic

Activity description: Read text and answer quiz questions..

Activity rationale: Using this good example of the up-to-date evidence collected as part of the Tech2match course, the students will gain more knowledge about how VR can help people with pain.
Resource: MOOC

Answers to quiz.
Question 1: If you were describing how VR works for PwP, which answer would you choose?

It distracts patients
It blocks out sounds
It makes the patient sleep

Question 2: Which patient group has been found to have limited tolerance for VR technology?
Patients with delirium
Elderly patients
Children

Question 3: Which different types of content was effective for PwP
Scenes with lots of action and scenes with slow passive videos
Videos of health professionals explain procedures
Music videos

Question 4: Which of the following were effectively carried out using VR?

Wound dressings
Surgery
Critical care
Cataract removal

Question 5: Using VR can reduce which of the following

Pain
Stress

Delirium

Hay fever

3.1.2: VR for children

Level: Basic

Activity description: Read summary of systematic review and complete quiz.

Activity rationale: This task utilises good quality and up-to-date results which will encourage both reflection over the example and activate the need for critical thinking.

Resource: MOOC

3.1.3: VR for adults

Level: Basic

Activity description: Watch these videos and answer questions.

Activity rationale: This task encourages students to use reflective thinking to interpret this small study which is a good example of the possibilities of using VR with patients.

Answers to the quiz.

QUESTION 1: How can VR influence the human body positively?

Reduce pain

Reduce anxiety

Reduce blood sugar level

Reduce blood pressure

Increase blood oxygen

QUESTION 2: VR can help women reduce pain during labour

TRUE

FALSE

QUESTION 3: How much time did the nurses spend with patients when they first introduced them to the idea of using VR?

At least 1 hour. It took a long time to setup the VR equipment and patients needed a lot of support.
15 minutes. This allowed the nurses enough time to explain about the glasses and how they would be used and make sure the patients felt supported and ready to try out VR.
It was very quick. The nurses just fitted the VR glasses and left the patients alone.

3.1.4: VR for seniors
Activity description: Video and quiz.
Activity rationale: This encourages students to reflect on any potential bias they may feel towards using VR with older people.
Resource: MOOC

Answers to quiz.
A source of bias against using VR with some patients is their age or ability .

It is often assumed that older people are afraid or fearful or suspicious of new technology.

Not everyone is familiar with VR and people learn at different speeds and in different ways. That means we have to have time or patience to introduce the new technology.

As we saw in the video, allowing older people the opportunity or time or support to experience VR gave them ideas or suggestions or thoughts about how we could use it in patient care.

Using VR in different professions
Level: Advanced
Activity description: Define your target group based on your profession. Search for evidence published in the last 5 years where VR has been applied in this setting. Retrieve at least 3 studies which add to your knowledge of how VR could be used with your patients and summarise the findings.
Activity rationale: This task involves the students in searching for evidence and reflecting on whether it can add more evidence to develop a greater body of knowledge.
Resource: web search

Managing complex chronic pain

Level: Advanced

Activity description: In this video, VR is being used with patients who experience chronic pain as a way of reducing the amount of opioids the patients might require. As you watch, make notes about how these patients with pain are using VR. Discuss your thoughts about the seen video

Activity rationale: This task encourages students to use reflective thinking to interpret this good example of the possibilities of using VR with patients experiencing chronic pain.

Resource: https://youtu.be/Z3uMruGro9c?si=0tnrGZ12Z7nDCNLM

Discussion board/setup

VR for different groups of patients with pain

Level: Advanced

Activity description: Please create a presentation which summarises how VR helps Patients with pain. After getting feedback from your teacher, present your thoughts to the class.

Activity rationale: This task requires students to summarise and explain new knowledge and create a good example of the effectiveness of using VR across different groups of patients.

Resource: Class room

Unit 3.2: Choosing technology based on patients' needs

This section provides information on how to choose the right VR app for different scenarios and target groups.

Learning outcomes:

Knowledge of barriers when introducing VR to patients

Knowledge of facilitators when using VR for patients

Ability to identify potential biases against patients groups

Tasks

3.2.1: Usability and acceptability of VR

Level: Basic

Activity description: Read, talk to AI Chatbot and answer question.
Activity rationale: This task encourages students to reflect on the accessibility and usability of VR. It provides examples which encourage students to create new understandings based on good examples. Talking to an AI chatbot fosters critical thinking and reflection.
Resource: MOOC

Watching 360 degrees videos in a VR headset can make people somehow feel they are in a different environment.
Answer to question.
True
False

3.2.2: Dealing with challenges
Level: Basic
Activity description: Video with embedded questions
Activity rationale: This task encourages students to use existing knowledge and competences to respond to challenges
Resource: MOOC

Answer to questions.
VR is not a promising application in intensive care setting
TRUE
FALSE

Elderly patients do not like the idea of using VR
TRUE
FALSE

Some patients' perception of pain severity might negatively impact on their willingness to use VR.

TRUE
FALSE

VR as a pain management method

Level: Advanced

Activity description: Search for videos which show VR as a method of pain management across a wide range of patient groups, race and ethnicity. List the patient groups, race and ethnicities you found in your search and summarize any differences across the group, race and ethnicities AND whether you feel there are any underrepresented groups.

Activity rationale: This task encourages students to collect data to explore new questions related to using VR across diverse groups. In the second step, reflective thinking to create good arguments for their interpretations of evidence is needed.

Resource: Web search, PDF

Preparing patients to use VR

Level: Advanced

Activity description: Work in pairs- one a healthcare professional and one a patient being introduced to VR for the first time. Practice asking and answering questions which will help prepare the patient to use VR for pain management. Test these questions with real patients if possible or a person not participating in this course. Adapt your questions based on this feedback. Upload the questions and review teacher feedback.

Activity rationale: A real-life-scenario that makes participants reflect on necessary adjustments based on patient's needs and encourages them to display their knowledge of the possible concerns around using VR for elderly patients.

Resource: PDF Handout

Unit 4: Using Virtual Reality with patients

Unit 4.1: Preparation and mindset

While we've already covered a lot of practical aspects of using VR with patients, this sub-section goes one step further and hopefully supports you in creating the right mindset for using VR with your patients!

Learning outcomes:

Understanding of how VR can be integrated in health care

Deepening knowledge of the correct use of VR with different target groups

Understanding real-life situations in the context of using virtual reality with patients with pain

Tasks

4.1.1: Teachable moments

Level: Basic

Activity description: Watch a video, take notes and answer questions.

Activity rationale: This task requires students to reflect over good examples of how patients experience pain. These examples offer different foci and desired outcomes. Feedback on the answer chosen is given to the students to improve their understanding of the teachable moments.

Resources: MOOC

Answers to questions.

Michael is a 52 year old man who has had back pain for more than 30 years. He explains that: "…because I don't have anything else to do, it just sits there no way to escape it in my mind." (see 2:39-2:46 in video)

QUESTION 1: Would this be an opportunity to introduce VR as a possible therapy?

	Answer
YES	This would be an opportunity to introduce VR as a way of distracting him from these ongoing thoughts.
NO	I don't know enough about Michael's situation.

Feedback Yes- VR has been shown as an effective method of distracting patients from their pain. Michael is looking for other solutions, so this would be an ideal opportunity to consider VR and to ask Michael more about his history with pain.

Feedback: If you answered No- consider the possibility that this would be an ideal opportunity to ask Michael more about his history with pain and to consider using VR.

Question 2: In the video Crystal a 42-year-old woman with back pain, said "Some of the biggest challenges I've had …is just trying to find something that works for me. I don't like taking a lotta medication." (see 3:04- 3:10 in video) Would you suggest to Crystal that she might consider VR?

	Answer
YES	It is an alternative to using medication alone, so Crystal might be receptive to trying VR.
NO	It wouldn't help Crystal as she has back pain

Feedback: Yes- VR has been shown as an effective method of managing chronic pain, such as back pain. Crystal is looking for something which might work for her and this could be VR.
Feedback: If you answered No- VR has been shown as an effective method of managing chronic pain, such as back pain.

Question 3: Lisa feels has found it challenging when it comes to being taken seriously about how much pain she is experiencing. She describes pain scores of 9 and 10 (see 4:21- 5:08 in video). Would you discuss using VR with Lisa?

	Answer
YES	Accept her description of pain and explain that VR might be useful as an approach to help her to relax and be distracted from the pain. (You have completed this task).
NO	Her pain is too great and is uncontrolled – VR would not be effective- she should be advised to take pain medication instead.

Feedback: Yes- VR has been shown as an effective method of managing chronic pain, by relaxation in both acute and chronic pain situations.
Feedback: If you answered No- VR has been shown as an effective method of managing chronic pain, as an adjunct to pain medication.

4.1.2: Ethics

Level: Basic

Activity description: Text, case studies and multiple choice quiz.

Activity rationale: This task will encourage students to explore and consider ethical choices when using VR with patients with pain.

Resource: MOOC

Answers to quiz.

Question 1: What is a major concern when obtaining consent for VR therapy in hospitals?

Patient's understanding of VR
Cost of the VR equipment
Length of the VR session

Question 2: Why might VR therapy be considered inequitable in some hospitals?
Not all patients may have access
It is only available in urban areas
It requires a large room

Question 3: What could happen if hospitals use VR without proper evidence?
It could lead to additional problems for some patients.
Nothing- if some patients found it helpful
You don't need evidence to use VR

Balancing the pros and cons
Level: Advanced
Activity description: Role play in small groups where you are HCP considering using VR with your patients. One HCP is supportive, the other has negative views and a third has no knowledge of VR. Come to a consensus about the pros and cons of using VR and explain to the whole class.
Activity rationale: This task requires students to put their learning into practice. They must interpret the situations, actively question find ways of cooperating to come to an agreement following exploration of professional views and opinions.
Resource: Handout PDF

Motivation to use VR
Level: Advanced
Activity description: Write 2 pages A4 where you reflect on your views about VR use across patient groups and your personal motivation to use VR. After receiving feedback, summarize your learning (max. 30 words)

Activity rationale: This task requires students to provide arguments to support their interpretation and demonstrate their progress in learning about pain and the application of VR in practice.
Resource: PDF upload, open text

Unit 4.2: Support and guidance

Almost no technology is fully self-explanatory or made for individual use without having health care professionals involved. VR needs specific attention, so be prepared to support your patients while using VR at home or your institution.
Learning outcomes:
Knowledge of how to guide patients in overcoming problems
Understanding of the circumstances where VR might be helpful
Ability to reflect over the use of VR: where is it good, where not

Tasks

4.2.1: Best Practice Tips
Level: Basic
Activity description: Blog posts, scoping review, quiz
Activity rationale: This task encourages students to add to their existing knowledge using examples and exchange of ideas.
Resource: MOOC

Answers to questions.
Checking physical and mental state of the patient before apply VR is of utmost importance-correct answer
Checking the state of the patient before applying VR is not necessary, as VR will help any situation
VR can be used for all patients, no matter how they currently feel

When implementing VR in your health care environment, the following aspects are relevant
Buy and try
Engage key stakeholders

Understand clinical reasoning processes

Create a three-year plan for introducing VR in your department

4.2.2: Thoughts from our pain expert

Level: Basic

Activity description: Video with embedded questions

Activity rationale: This task offers students the opportunity to reflect on good examples of using VR in appropriate situations.

Resource: MOOC

Potential benefits and risks of VR

Level: Advanced

Activity description: How would you describe the potential benefits and risks of using VR? (300 - 500 words)

Activity rationale: This task requires students to provide arguments to support their interpretation and demonstrate their progress in learning about potential benefits and risks of using VR in practice.

Resource: free text.

Didactic rationale: This tasks encourages students to reflect over the impact of pain in peoples' lives

Resource: https://youtu.be/FPpu7dXJFRI?si=hn4ck1pBLVEU8egG

Exemplar patient

Level: Advanced

Activity description: Create a case study where you describe a PATIENTS WITH PAIN that would potentially benefit from using VR and explain why you think they would be a good candidate. (1 page A4)

Activity rationale: This task requires the students to reflect over demonstrate their competence to assess patients suitability for using VR based on their clinical representation.

Resource: upload pdf

Exemplar situation

Level: Advanced

Activity description: In pairs, role-play (person with pain, health professional) how you would offer VR as a way of managing the pain experience. There is no script given for the role-play, you must agree on the location and type of pain the patient exhibits, develop appropriate questions and use VR glasses to demonstrate how they would be used.
Activity rationale: This task requires students to exhibit their knowledge from both patient and HCP perspective.
Resource: On campus- small group work

Future perspectives
Level: Advanced
Activity description: Consider the future direction of using VR for patients with pain in your professional areas. Conduct a quick and dirty search on the topic. Discuss this with other students how VR might be integrated into your profession. You might want to focus on how the technology could be used in your professional life, or how VR needs to be intergrated into care pathways.
Activity rationale: This task encourages students to add to their existing knowledge using examples and exchange of ideas.
Resource: Classroom setup for whole class discussion.

De-Briefing
Level: Basic
Activity description: Video
Activity rationale: This reinforces the learning of the student, requiring them to reflect on their own knowledge.
Resource: Summary video