Handbook for Practitioners

Education in Using Virtual Reality in Supported Employment and Career Counselling

Co-funded by the European Union

Declaration

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Content

1. Background of the handbook

This handbook was developed within the project called "EVR" - Education in Using Virtual Reality in Supported Employment and Career Counselling, project number: 2021-1-CZ01-KA220-VET-000028070. The project was realized from 1st January 2022 til 31st December 2024 by thanks to the grant provided by Czech national agency within Erasmus by these partners:

Aspekt z.s. – Czech Republic, project coordinator

https://www.aspektzs.cz/

Status Employment Ltd. – United Kingdom

Web: https://www.statusemployment.org.uk/

Imago Fundation – Poland

Web: https://fundacjaimago.pl/en/

Health Action Overseas Foundation – Romania

Web: https://www.hao.org.ro/

Viar d.o.o. – Slovenia

Web: https://www.viar.si/

2. Purpose of the handbook

This handbook (Educational Methodological Framework for Implementation of Virtual Reality in Supported Employment and Career Counselling) will enable professionals to get insight of using VR in the practise of supported employment and in career counselling for people from vulnerable groups.

The professionals also get their useful information if they decide to create their own scenarios and recommendations for their practice.

3. What it comes from

3.1 Before we started with this project

First, we would like to say that all of our partners (except the Slovenian partner) are organizations with helping professionals. We all are focused on supporting people with various kinds of disabilities to be included into society and mostly into the activities on the labour market. We are focused on developing the skills of our clients. We all are very open to finding new ways to do it. We also enjoy learning new things and to develop skills of our staff who are supporting our clients.

And this brought us together and was a great basis for our cooperation.

3.2 Shortly view back to previous projects

One of the project partners, British STATUS EMPLOYMENT, had already got experience with using PVR in their practices from the project Virtual DS. This project brought a very innovative approach to the field of Supported Employment for people with disabilities. Within this project, the partners created guides concerning Supported Employment and created an online platform that enables people with down syndrome to learn about five different jobs via virtual reality scenarios. The scenarios were developed by an external supplier. And this was later seen as a bit of a disadvantage. It was visible that VR had a big potential to bring innovations in the development of clients, but it was not possible to update scenarios or create new ones, which would be welcome.

A Czech partner had discovered this project and found it very inspiring to use VR in the practice of social services. So we started with another project which brought us VR headset and started to use it using the scenarios which are available as public ones, e.g. in the YouTube or which are sold.

In the Polish team, all participants had experience with VR at the project start stage, so they had the opportunity to go through the path of most counsellors who plan to include VR tools in counselling.

The experience of the counsellors was both passive (e.g. watching short VR sessions at the counselling fair, a study visit to Norway in the social phobia therapy studio using VR), and, as well as active (taking part in the classes of the disability simulation studio in one of the universities).

This experience of the Polish team can also be understood as an action research process, in which the acquired knowledge is immediately tested in natural conditions.

The Romanian team hadn't any experience with VR in the practise, but only some of the staff had experience with VR in other areas. And beside that we found a partner who developed various technological solutions, including software for VR and trained people to use it.

3.2 Our project partnership aim and process

In our project there was established a strong consortium of partners who support each other in implementing virtual reality. We decided to train our staff in using virtual reality and will have the technical aspect of using virtual reality in their practice solved. We focused on exchange and gaining experience with using virtual reality among Supported Employment agencies and providers of Career Counselling for disadvantaged people.

What was our intention?

We agreed to train 16 Supported Employment Counsellors and Career Counsellors from the Czech Republic, the UK, Romania and Poland in using virtual reality in their Supported Employment and counselling practice. We wanted them to be able to create and adjust virtual reality scenarios. As a result of the project "recommendations package about using virtual reality" for the community of Supported Employment Counsellors and Career Counsellors for disadvantaged people were prepared. This package could serve future counsellors as a source of specialized information and will make them more ready to implement virtual reality into their practice.

We also aimed to enhance the use of new technologies in the social area where the staff is not as used to the new technologies as in, for example, the commercial area. Our intention was that our staff and our clients would be better equipped for dealing with a nowadays ever-changing society.

What can we say at the end of the project?

International group of counsellors and job coaches from the Czech Republic, United Kingdom, Romania and Poland passed 4 training sessions. Most of them were beginners with VR. So in the first training session, virtual reality was introduced to them. They also found out which equipment is necessary and how to use it. They learned how to work with the headset, 360 camera and about applications which are helpful. Later they were taught how to gain content – videos to be used it the application for creating scenarios.

During the project period, there was a testing phase, when the learners created their own scenarios and used them in their own career counselling and supported employment practice. They reported about the process in the reports which are available as another project result.

We have analysed also the process how and when to use VR and reflected the testing of VR. We had to face technical challenges due to updating the applications which we used. It brought us wider knowledge.

4. Various experience with VR

Before we started with our own project, we found out what is already available about using VR in our sector. As the sector of VR is rapidly increasing since we had started, we consider it useful to share some of the sources.

One of the first useful sources of information and contacts was a web of the project VirtualDS: https://virtualds.eu/.

Later, we started to find more about the experience of using VR in various sectors, moreover in the sectors of education, development, rehabilitation etc.

We are sharing interesting sources:

https://pmc.ncbi.nlm.nih.gov/articles/PMC5964310/

https://pmc.ncbi.nlm.nih.gov/articles/PMC5964310/

https://pmc.ncbi.nlm.nih.gov/articles/PMC4616145/

In the Czech Republic we have contacted Národní ústav duševního zdraví which has got great experience.
https://www.nudz.cz/vyzkum/centrum-virtualni-reality-v-dusevnim-zdravi-a-neurovedach

We have found several interesting videos where various researchers are described, e.g.:

https://www.youtube.com/watch?v=QlyI_qCMO5M

https://www.youtube.com/watch?v=ViqdckWYT6c

4.1 Using of created scenarios

Use of publicly available applications and scenarios:
When one decides to use VR in the practice, the easiest way is to have a headset and the videos or applications that have already been created. Some of them we found on the YouTube channel. We have discovered that some institutions offer their own videos, e.g. there are videos from various working environments and introducing the various jobs, which were prepared as a special project of Technologický institut Zlín, CZ.

Both YouTube videos and the previously mentioned videos of work environments, however, are designed as mere 360° tours in which clients are only passive observers of the workplace. Thus, there is a lack of interactivity in the form of client involvement, such as quizzes or the possibility to choose one's own pace.

If you want more interactivity for your clients, you can also try various free apps.

You can find them directly in the e-stores of your headsets manufacturer, e.g. Oculus Quest in the Meta store, or you can use SideQuest or App Lab, which is (to put it simply) a pre-Oculus Store. You'll find games that are either unfinished or are in the process of getting confirmed into the Oculus Store there.

For example, Virtual Speech - an application focused on communication in front of an audience, First Grasps - manipulation with a robotic arm, Enhance - a program created by neuroscientists, focused on testing and training your cognitive skills such as memory, attention, problem solving etc.

We also recommend the use of basic tutorials such as First Steps, First Hands, etc., which will provide clients with the basic use of the headset. This will teach them how to use the controllers to move objects, interact with the environment. Alternatively, use their own hands to control, move in space, etc.

To familiarize yourself with virtual reality, it is advisable to use 360° videos. These videos are not interactive; the observer only finds himself in immersive reality and learns various knowledge. Such videos are available via the YouTube channel when the user clicks on the 360° video option or on the Horizon channel or Meta Quest TV in the headset.

4.2 Cooperation with other VR experience providers and VR users

Before we started to create anything, we contacted some national organizations and companies who have already started some activities with VR. In the Czech Republic we had contacted Národní ústav duševního zdraví or a few private companies who were active in the field, e.g. Holodeck. We also contacted the Technical University in Prague for advice on suitable equipment and where we could obtain the first freely available programs.

We met with various providers of custom video editing software to discuss the possibilities for our target audience and our ideas' practicability. For instance, we had a fruitful discussion with the WARP VR and Cenario VR companies. These were experts from Europe and North America.

4.3 Creation of VR scenarios within the project

In our project, we intended to create videos which could be used in our practice. Some of them were tailored made, prepared just for a client or a special job position, the others were focused on developing the skills of more clients.

We have prepared two groups of videos which we divided into soft skills and hard skills.

You may read more about how the process looked in chapter 7.

5. What are our recommendations for using of VR

5.1 Technical recommendations

Having had many experiences when we took our headset to various places, we offer you some recommendations to be aware of once you decide to use it.

- **Internet connection**: We have realized that you have to have the best Internet connection possible. Otherwise, it doesn't work properly. For instance, if you want to use the so-called casting function (also called mirroring), i.e. broadcasting what is happening in the headset either to the Meta Horizon application on the phone or to the website www.oculus.com/casting, you need a very good internet connection. It is also necessary for the use of applications that are not downloaded to the headset, but only work when connected to the Internet. These are mainly applications that are launched via a browser or when using videos from YouTube.
- **Inside usage recommended**: We tried to use the headset on some kind of open-air activities, but there were troubles with light and temperature. It is not possible to use a headset when the sun shines. Of course, also the process of mirroring is challenging there.
- **Being aware of interferences**: Once we decided to use a headset in a conference room, we had to check if there were no interferences e.g. with a microphone.
- **Mirroring**: We recommend the mirroring (casting) function, which means having a laptop or other equipment, such as a smartphone, and watching what is happening in the headset. It makes the process much more effective and we could be helpful to our clients/users of the headset much more. We can guide the client, we can discuss what is happening right at the moment. This is also very helpful when the used application is only in English and our user doesn´t understand the written text. We can see the text on our device and translate it for the user.
- **Technical support**: The recommendation concerns the need to provide the team of counsellors with ongoing technical support, both in the field of operation and servicing of equipment, as well as preparation of materials for VR films (including video recording, audio, and material processing). This means the need to provide the project budgets with the right amount for the purchase of equipment, its servicing, and the employment of a specialist. IT.
- **Technical equipment**: You also need 2 sets of equipment for one organization and detailed information on hardware compatibility, adequate resolution, etc. Scripts, for example, regarding gamification in VR or the possibility of using VR elements in counseling processes for people with various types of disabilities will also be helpful.
- **Volume setting**: You need to pay attention to the headset volume setting. Most apps have a soundtrack. Some apps have loud music playing in the background. We must be careful to ensure that the client does not experience shock when such loud music suddenly starts playing on the headset when the application is launched. Some clients don't like background music at all. It disturbs their concentration or they don't like it. In this case, we reduce the volume to zero. With our videos, we again had to be careful to ensure that the actors were sufficiently heard in our videos. We often

had to set the volume to maximum. For applications where the headset user needs to translate what is being said, the volume needs to be adjusted so that it is comfortable for the user but also audible to the counsellor so she can translate to the client. The volume is controlled directly on the headset. First, we warn the client that we will reach for the glasses and adjust the volume. We ask the client when the sound level is comfortable for him. For more experienced headset users, it is possible to adjust the sound using the button on the headset themselves directly while using the headset.

- Some clients are bothered by the "green safety net" that appears when the client exceeds the protected area in virtual reality - you need to inform them about it before entering VR, or look for a picture of how it looks and display it to the customer beforehand.

  We recommend the counsellor keep explaining technical aspects to the client during the process.

5.2 Surroundings

For safety reasons, as well as for better comfort we may recommend finding a calm and larger free space, where there are no steps if you decide to use VR. Although one must start with setting borders, it is better if there are no sharp corners around.

Another note is regarding the place where you want to record the videos. Counselling sessions using VR tools should be conducted in dedicated places, not related to the recording places. It is necessary to check the legal context of recordings (whether and where you can record the material, consent to the processing of the image of third parties, and access to various places).

It is necessary to think about how much space I will need to use each application.

Some applications are designed in such a way that the client has to move in space. A space of at least 2x2m must be secured for them. The bigger the space, the better. Apps allow zooming in on more distant places in virtual reality with controllers, but it's always more comfortable when the client can actually walk to get from place to place in virtual reality.

Of course, for applications where the client is sitting, it is not necessary to have so much space around them.

Clients who have difficulty walking or coordinating their movements, or feel sick when physically moving while using virtual reality (but are not negatively affected when sitting), can move around the space on a wheeled swivel chair. This has worked for us e.g. with clients with multiple sclerosis.

Providing a swivel chair with a lock function and armrests is important to increase the comfort of mobility in a virtual space. The counsellor should take into account that there is an immersive surrounding and the client has to have the option to move the glance in a 360° radius.

5.3 Health and safety issues

We have discussed the issues about the health of the clients. As far as we found out, we are cautious about using VR with people with epilepsy. It is the case when we recommend to ask the doctor if it is safe for the client.

We have also discussed visual and hearing impairment. Finally, we realized that for people with soft visual impairment, it is possible they can use their glasses which could be used with VR headset, or we can only adjust the headset according to the head of the user. So using glasses is not a contradiction. In our experience, clients with visual impairment must try it to see if they can see everything in virtual reality so that they can use it comfortably. We recommend encouraging such clients to try it even though they claim they cannot due to the impairment.

For the first-time users using a swivel chair is recommended. It brings more safety just in case that one would start feeling dizzy when wearing a headset.

It could be useful to develop a so-called health checklist with questions about the health of clients custom-made for your target group. At the same time, it is important to analyze the previous experiences of clients with VR.

You should also take care of the hygiene of the session: the use of antibacterial wipes, each time cleaning of the goggles after the end of the session with users.

5.4 Preparation of clients

It is necessary to prepare a clear instruction to enter the world of VR for clients, both for people with disabilities and for their legal/factual guardians. We start with how the client understands the world.

It worked for us to explain the difference between 2D video and virtual reality for all groups of clients. For example: "Watching a video of a workplace on a computer is different than putting on a headset and being right there. You can look around you, behind you, and you will see it as if you are in this room right now; you cannot look at your phone when you are in virtual reality, you can look at your phone while watching a video on your computer".

Counsellors should receive practical instructions with tips on which VR materials can be used for people with different types of disabilities. See in chapter 11.

The equipment and user interface should be as accessible as possible to clients. In particular, we draw attention to the challenge of using controllers by people with disabilities, both at the motor level and with sensorimotor integration in immersion. Therefore, training videos on entering the world of VR and understanding the process by clients and people from their social environment who mediated communication (carers, assistants, sign language interpreters). The above videos can be made in the convention "Make fun with VR", in the form of fun or take a group of clients to a movie in a 5D cinema.

It is worth considering showing a print screen with hotspots with some groups of clients, but also informing about special elements of the film, for example, that there is a dog in it or the sounds of a fire siren will appear. This will allow you to build a safe space for clients to enter VR and also to identify possible stressful factors.

Another option is to view our 360° video on the computer and let our client get acquainted with what is comming. We can navigate the video in all directions with the computer cursor. This is true also for 360° videos available on YouTube. Such a possibility is often not an option with professional apps. They can be viewed on the computer as a video but you cannot move the picture in all directions using your cursor. However, these promo videos of professional applications are shot in such a way that they show movement in 360° space.

5.5 For whom

After proper preparation of the VR process, it is suitable for almost all groups of clients with disabilities – also for people with intellectual disability and psychological disorders. We experienced that VR was appreciated with younger as well as older clients. And very often shy people enjoyed it very much.

We can be very creative with the videos and apps we use with our clients. We can use the same video for a client with an intellectual disability and a client with a university education. We just concentrate on different aspects of the video. One client can train their attention, another one can solve complex tasks with the same video.

We could consider a few exceptions: visual disability to a significant extent, exacerbation of symptoms of mental illness, problems with labyrinth and balance. In Poland, due to the legal

process of incapacitation in some situations, the formal consent of the legal guardian for the participation of the client in the above mentioned training will be needed.

Some clients, for example, one-eyed or one-handed people, will be able to use VR after adjusting the ergonomics of the equipment. It is also necessary to ensure the availability of the session space to the individual needs of clients, including, for example, the provision of a swivel chair with a lock function and with armrests, which will increase the level of customer safety and comfort.

For the clients with hearing impairment, it will be important to add text descriptions to all audio files, as important is the exact instruction on how to navigate in goggles and arrange an alternative communication (specific gestures), which will allow the trainer to capture at what point of the scene is the client (with one of the testers we agreed on a gentle touch of the arm = signal output from VR).

VR is also a proposal for caregivers and specialists supporting the process of therapy or rehabilitation of – clients at the stage of introducing the client to the VR world or as an element supporting classes for family members of clients.

5.6 Where - areas

Clients and their caregivers positively assessed the usefulness of VR films for learning about specific workplaces, taking the client step by step through professional activities, such as waitress work, work on production. There was also a voice about the fact that a VR film would allow you to choose the direction of education.

We had a great experience using it with students in schools – with individuals or as a part of group activities.

In addition, VR can also be used in therapy or in social skills training. Using VR for training of cognitive skills, e.g. for decision making, right-left orientation, concentration and memory.

Having the process of supported employment in our mind, we may say that VR could be used in job profiling as well as in job tasting.

5.7 When not to use VR

We have agreed that on the general level there are a few medical contraindications.

We recommend not to use the headset when one is tired, dizzy, light-headed, nauseous, sick, under the influence of alcohol or drugs, or has an impaired sense of motion or balance. We would avoid using headset for people with epilepsy or other types of seizures.

We have also discussed using VR with children. According to the instructions in the VR headset, it is recommended to use the headset from the age of 13 years.

6. Implementation of using VR

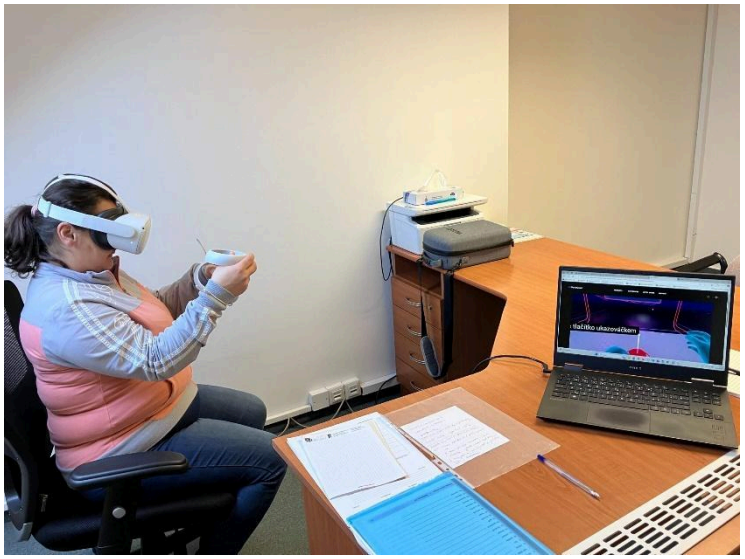
6.1 Implementation on the client level

When starting with the real use of VR with any client, we focused on the introduction and how it could help us. We asked if a person has some experience with VR, or with activities as playing video games, or using controllers.

We set the room, mostly we let the person sit on the swivel chair which enables them to move around and be in in safe position, as mentioned before.

Often, we started with testing programmes which are as built in the Oculus Quest Headset. It was a great way how to start with using controllers. Usually, we followed with another activity later, during the next session.
For the very beginning, we recommend not to get over 20 minutes using the headset.

We appreciated the mirroring (casting) function which enables us to provide an effective support for our client.



After the first trials, or if people were experienced we used headsets in the groups. According to the topic, we used a headset for one person and we shared the headset content via mirroring with the rest of the group, or we gave headsets to more people and provided them support by our staff.

6.2 Implementation on the organizational level

We are sharing our experience which may be useful when thinking about how to implement VR into your practice.

We started with discussions and tried VR by ourselves. Then each of us might have said say how they considered it. We contacted providers of VR services where we could try headsets and various applications. There we had a chance to discuss technical matters, e.g. about the headset and other technicalities which we needed.
Later we had a chance to cooperate together within EVR project where we had a trainer with whom we could discuss technical issues.

We also decided who of our team would provide the technical support for the rest of our team.
We had discussed the areas where we could use VR and when. And, we had discovered many possibilities: to open new topics with clients, to take them where they couldn't get, to teach them new skills, to train specific skill set for their real job, to teach them about various environments, and many others.
We also discussed the variety of using VR with other organizations. And, we also saw possibilities to develop cooperation with employers.

Our main focus was definitely the clients.
First, we started to make a list of videos, materials, and applications, which were already developed and which we could use. We shared the list with our team.

We agreed on which videos we would find useful to prepare for our clients. We cooperated to do it, mainly within the team of learners in the project, later we joined other colleagues in the process.

We find it important to lead a discussion on how we want to use VR in our organizations. For which purpose it should be useful etc.
We find it important when staff may discuss their ideas and can together formulate their attitude. It may happen that some people won't be happy to use it, although others consider it a very useful tool. And it is fine not to be pressured to use it by everybody.

Some organizations also developed their own methodology. You may find an example from our British partner in the annex.

Profile of the professionals: For the purpose of independent creation of VR materials by counsellors, it is necessary to determine the basic competence profile of VR-counsellor, on the one hand, it will show interested practitioners areas for competence development and help in deciding on the degree of possible involvement of VR tools in the conducted processes (self-creating materials vs. using ready-made applications). On the other hand, the above profile will help in the preparation of the training program of counsellors, conducted as an element of lifelong learning.

7. Creation of our scenarios

In the initial process of implementing VR into the support processes by counsellors and supported employment trainers, it is worth creating a strict catalog of topics so as to gain practical experience in working with VR in repetitive conditions, which is easy to compare and evaluate. After preparing the scenarios, it is worth conducting a double audit:

- on the one hand, invite consultants to analyze the material in terms of their readability, transparency of the proposed graphics, etc.; these consultants should be people with selected disabilities,
- on the other hand, it can be necessary to consult an IT specialist if the implementation of the planned scenes is technically feasible.

In any case, you should take care of the security of future clients without introducing threads that could potentially be a threat to them.

7.1 Considering of application for creation

First, it is fine to think of the aim - for which purpose do you plan to use VR, do you need to use interactive hotspots, do you need to use your own videos in a real environment, or would you mind the surrounding look more like a videogame, artificial one. According to these, you should choose the suitable applications.
It is also a good idea to assess the technical complexity of each application and the technical capabilities of your team. To assess the technical sophistication and user-friendliness of single-page programs, we recommend using trial versions.
Another thing that very much determines the choice of the program to create is your financial possibilities.

Here you can find some applications for your consideration:

- CenarioVR - an intuitive and very friendly application with the possibility of creating interactions such as hotspots, quizzes, working with 3D objects, adding game elements, etc. You can download and run your videos on your PC, you can put them on your website or use them in different e-learning systems. More costly.
- Uptale - compared to the previous one, it has the ability to use pre-configured interaction elements or templates that can be customized. Integrated use of AI. It has a sophisticated system for tracking training data, e.g. heat maps used to recognize student focus, voice analysis, etc.
- Viar360 - very similar to CenarioVR, ability to insert custom coding. Development of the application has been discontinued at the time of writing this guide.
- STRIVER - has a different interface for linking interactive elements compared to previous programs. The linking is more technical, via map previews, which if you are more proficient in e.g. common video creation programs, may be clearer and more convenient for you.
- StellarX - is a program for creating virtual content directly in the headset. The disadvantage is the inability to use your own 360°videos and photos. A selection of professional environment templates. Ability to add 3D objects and interact with them and the environment. According to the demo, it is possible to have multiple people playing the created scenario - collaborating on the solution.
- Unity, which is free for non-profit uses. Or program Simlab soft.

7.2 Process of creation

The key while preparing the scenarios is to do a very detailed preparation.

1. Set a goal

Questions to answer:

- How much time do you have to develop a video?
- What is your video budget?
- Is your audience experienced with VR technology?
- Are there any VR use cases in your field you can already follow?
- Does your video topic align with VR's capabilities?
- Are physical environment and equipment important for your video?
- Are you trying to train the audience on a certain procedure or is it more about abstract general knowledge?

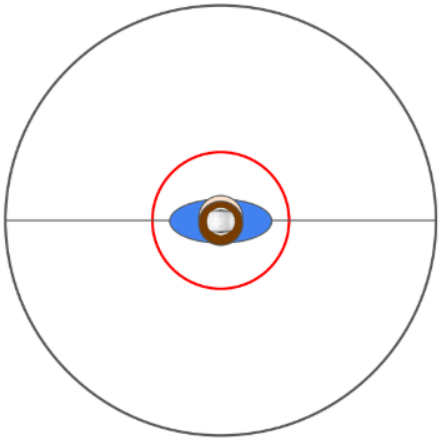
2. Setting goals and learning objectives:

- Understand your topic or find a subject matter expert to work with
- Think about your target audience and create personas who will be in your video
- Establish your goals and learning objectives (what users will be expected to learn)
- Define key messages
- Decide on length

3. Creating a 360 VR script

- Establish a tone
- Think about the hero's journey
- First scene can be an orientation scene
- Create the 1st version
- Review
- Create the 2nd version

Scene title:



Goal of the scene:	Visual elements:
Interactive elements:	Audio elements:

4. Collecting feedback

● Get other people to review your video ideas before going into production
● Collect feedback from colleagues, end users or subject matter experts
● Incorporate improvements back into your video
● Making changes on paper is a lot easier than once you are already putting things together in VR
● Consider building a mockup experience to see how it will feel in VR

What to consider

One of the most important and practical considerations you must plan for is that everything in the scene will be shot
● It becomes very difficult to light the scene if you can't have big lighting rigs lying about. Everything must now be hidden organically within the set or it must be removed. This includes you and your crew.
● Watch what you shoot by connecting your camera to your phone. Each 360° camera has a phone app available.

Field-of-view (FOV)

● The single biggest mistake people make when starting to shoot VR is feeling the need to have action occurring all around the camera at all times.
● With VR you do not need to have action occurring at all times around the camera. In fact, it becomes very fatiguing to the audience constantly having to contort themselves around as if watching a tennis match.
● In real life, we are not constantly thrashing our heads around looking in all directions. It's best to keep the action within 150° - 180° in front of the viewer and save the looking behind us for moments that are organic.
● Where does 150° come from? The FOV in most HMDs is roughly 90-100°. You can comfortably turn your head roughly 30-50°.
Another common mistake is trying to force 2D film language into what is a truly new medium.
● Example ... In VR, even though you can't zoom most cameras due to their nature you can do a closeup by simply having the actor approach the camera.
● They will not only get bigger but will also actually get closer to the viewer when viewed in an HMD.
● This not only focuses the viewer's attention on that subject since they are filling most of the view (if they are looking in that direction!) but also instills a sense of emotional connection to the subject.

Cutting

You are allowed to cut and merge 360° videos together, but remember that your viewer can be looking anywhere when you cut so it may not have the desired effect.
● Most important is the pace of the cuts. Every time you cut it's like you'r teleporting to a different location and that can be very jarring especially if the pace is too quick so you'll want to slow this way down.
● The viewer needs a good amount of time within a new position to fully immerse themselves, look around, and get their bearings.

● Though hard cuts can work and are effective for feeling abrupt changes, in general, it is much gentler and more effective to "blink". This is where the scene dims to black and then back up to the cut scene over the course of about second or more.

POV and eye contact

● Every shot really needs to be thought of as a point-of-view shot. If you want to know what it's going to feel like in the shot simply put your head at the location of the camera and look around!
● Because of the realism, VR affords the viewer will feel very much a part of the scene from a 3rd person perspective watching on as events unfold.
● But have one of the actors break the fourth wall and look into the camera and the viewer will instantly feel as though they are drawn into the story and now participating from a 1st person perspective.
● Eye contact in VR is even more powerful than in 2D when drawing the viewer in.

Pre-production

1. Prepare your 360 camera
2. Clean the lenses
3. Charge the batteries
4. Install any camera software if necessary
5. Format SD cards if necessary
6. Test connection with a remote trigger (usually smartphone)
7. Review your script

Production

1. Setup the gear and the scene
2. Place the camera as high as the eyes are on an average standing human
3. Properly align the camera's stitch lines
4. Prepare set and actors for shooting the scene
5. Press record on your remote to start recording the scene
6. Say the scene number out loud
7. Clap three times for audio sync
8. Hide the crew and walk out of the Field of View of the camera
9. The actors should talk to the camera as it would be the actual viewer! Consider it as a person standing next to you.
10. Say "CUT" + mark if a take is usable or unusable (saves time i post-production)
11. Stop the recording with the remote

COMMON PROBLEMS:
● Be prepared to troubleshoot – things happen, problems arise. Be flexible.
● Bring spares and backups – you never know what will break so it's good to bring extra items.
● Consider overheating (longer clips, more heat) – consider rotating cameras.
● Take several takes for just in case – backups are always good to have.

Post-production

- Import media files
- Check if everything is ok with imported videos
- Delete media from SD cards after import
- Organize files and folders (there will be a lot of data)
- Backup files if necessary
- Determine which takes you want to use

Editing

- Trim the videos
- Fix the bottom of the video that's called a Nadir (otherwise you'll see the camera stand)
- Encode into 4k, 30Mbps, 30-60 FPS

Compressing videos

- Compressing video files can be incredibly useful when sending footage to other people.
- It helps get around the often-frustrating file size limitations of many file transfer and email platforms, and compressed videos also reduce bandwidth usage, upload and download times, and the amount of buffering required when streaming video.
- One of the most popular tools that can significantly shrink the file size without losing quality is HandBrake - https://handbrake.fr/. See tutorial link in the chapter Support for our creators.

It is important to arrange the technical issues:
To have a 360° camera, using the microphone is worth it. It is recommended not to move while filming because movements raise the risk of nausea. This phenomenon is called motion sickness. It occurs when the surroundings in the virtual reality move.

Testing scenarios by the public and people outside of the organization was very useful. E.g. in the Czech Republic, we organized events where we invited the public to come and try our scenarios and we asked them for their feedback. It was very useful. We used their comments and updated our scenarios according to them.

It is helpful to have a demonstration preparation checklist when you go outside of your organization to let other people experience your videos and give you feedback or when you go give them a training with your videos.

Here's a checklist for technical preparation before showing a VR experience at the client's location:

1. Check VR Equipment:

- VR headset
- Controllers
- Spare batteries or chargers

2. Check any VR Software:

- Install the necessary VR software for the specific headset
- Ensure the VR software is up to date
- Test the VR software with the VR headset to ensure the proper functioning

3. Content and Experiences:
● Prepare the VR experiences or applications you want to showcase to the client
● Test the experiences beforehand to ensure they run smoothly and without issues

4. Calibration and Setup:
● Set up the VR play area at the client's location, ensuring sufficient space for movement
● Calibrate the VR equipment and sensors for accurate tracking
● Test the tracking and adjust the setup if necessary
● Ensure proper lighting conditions for optimal tracking (avoid overly bright or dark environments)

5. Accessories and Safety:
● Provide additional accessories if needed (e.g., headphones, cleaning wipes for the VR headset)
● Consider safety measures such as providing anti-fatigue mats, instructing users on proper usage, and setting boundaries to prevent collisions

6. Backup and Support:
● Create backups of the VR content and software in case of technical issues
● Carry spare cables, adapters, and other essential accessories
● Have a technical support plan in place to address any unexpected problems that may arise

7. Pre-Demo Checklist:
● Double-check all hardware and software to ensure they are working correctly
● Test the VR experience again to verify smooth performance
● Arrive early at the client's location to set up and perform any necessary troubleshooting

8. Wi-Fi and Internet Connection:
● Check Wi-Fi Availability:
● Verify if there is a Wi-Fi network available at the client's location.
● Ensure the Wi-Fi signal is strong and stable in the designated VR play area.

9. Test Internet Speed:
● Connect a device (e.g., laptop or smartphone) to the Wi-Fi network.
● Use a reliable internet speed testing website or app to measure the network's speed. (e.g., https://www.speedtest.net/)
● Ensure the download and upload speeds are sufficient for streaming or downloading VR content (25 Mbps or higher to stream 4k without any buffering).

10. Firewall and Network Restrictions:
● If the VR experience requires online access or downloads, check for any firewall or network restrictions that may block the necessary ports or protocols.

● Contact the client's IT department or network administrator to ensure the required ports are open or to make any necessary network configurations.

11. Network Backup Plan:
● In case of unreliable or limited internet connectivity, have a backup plan in place, such as carrying a portable Wi-Fi hotspot or creating a local network with a router.

Remember, a stable and reliable internet connection is crucial for downloading content, streaming updates, or accessing online features of the VR experience. Assessing the Wi-Fi and internet connection beforehand will help avoid any connectivity issues during the demonstration.
Tailor this checklist to your specific VR system and requirements, as different headsets and setups may have unique considerations.

7.3 What is helpful

What we considered helpful:

Cooperation in a team: To cooperate in a team and share the practice. They could support and get over challenges more easily.

It was very useful to cooperate with somebody who had a deeper knowledge of IT technologies. Some of our colleagues also cooperated with people with the experience of filming 2D movies and were grateful for that.

7.4 Challenges We Faced

The most challenging part was that the application for the creation of scenarios which we started to use was updated to a huge extent during the project period.

This brought problems, especially from being able to use our videos offline while using the headset app. Basically, this option has been removed and now our videos can only be played online with the web interface.

However, the biggest problem was that the videos created in the original version of the program started to have various problems, e.g. with interactivity and views, which made them practically unusable.

It brought us to other applications. We tried some of them and decided to use another one. It turned out to be very useful in the end because we broadened and generalized the skills of our staff. Thanks to the previous training they were able to adapt to new applications.

To make the adaptation easier for all the learners we prepared tutorials, for more details see the following part.

As already mentioned high-quality internet connection is inevitable.

When you devote more time to the preparation of a scenario, it is usually worth it, as then you have a better scenario and less work later on. And the better the video you have, the more attractive scenarios are.

We are attaching one of the valuable comments of one of our participants: "I found long-form videos with little to no interactions wasted the use of VR and bored clients meaning they spun around and didn't focus on what we wanted them to."

8. Support for our creators

To better support our creators, we have created several tutorials. First, we just recorded a meeting with our Polish partners and made it available to others.

Later we created more elaborate tutorials, with Czech and English versions.

The first one describes how to export 360°video from Insta 360. The second tutorial builds on the first and shows what and how to compress an oversized video so that it can be uploaded to an app for creating VR experiences.

Export - Insta 360 studio, in EN: https://youtu.be/O-RS6u2hPvE

Příprava 360 stupňového videa, in CZ: https://youtu.be/sY6GkqN9J-4

Tutorial Handbreak, in EN: https://youtu.be/WXoHP-E4kiI

Handbreak - video compression, in CZ: https://youtu.be/j9tzZoO34Oc

We are also sharing with you the records of our project internal workshops, where you might get an idea how to work with applications for creating VR scenarios:

Tutorial - introduction to a new editor for VR content, EN: https://youtu.be/5HViDnyqYmk

Cenario videotutorial, CZ: podmínky hřiště: https://youtu.be/1E7VrbXTJks

Tutorial - tvorba konkrétních prvků ve VR editoru (podmínky gastro), CZ: https://youtu.be/omTYzOmm-64

9. Practical experience of a newcomer to our team

As it is common, we experienced personal changes in our organization during our project. And fortunately, our new colleague was a fan of using VR as an enriching tool for clients. So we thought about how to integrate her, in spite of the fact that she couldn't join the training as a participant in the learning activities in the project.
In the beginning, we offered her a chance to try our scenarios. Then she shadowed our colleagues when she prepared the scenarios. And later on, she decided to create her own scenario, with the support of her more experienced colleague. We asked her to do also a kind of report about her practice, as the other participants had done. And we are happy to share it as proof that it is possible to create and use VR scenarios successfully.

Profiling of a client
Description of your client

Gender - 2 female clients (client AB + client CD)

Age

AB – between 45 – 52
CD – between 18 – 25

Health issues

Client AB – ADHD
Client CD – intellectual disability

Life situation/Life context

Client AB - She has a permanent job, but occasionally makes mistakes due to lack of attention. Because of this, she stays at work a little longer than her colleagues. Intellectually, she is at a very good level and is able to take care of all her personal matters. She does not admit to being inattentive.

Client CD - A student of a special high school. She has no idea what work involves. A student with no work experience other than helping at home. She wants to learn new skills and gain more information about employment opportunities. She has limited social skills and sometimes feels insecure in communication with others.

Reasons for a decision to implement VR and offer it to your client.

Client AB – The reason I decided to offer VR to work with the client was pure curiosity. I thought, based on the assumption that VR would provide a disconnect from "physical reality," allowing the client to perhaps acknowledge her problem with distractibility, which could be an opportunity for her to start working on it. Or perhaps not - it was just a test.

Client CD - I hoped that the VR simulation would spark the client's curiosity about different professions and support the process of thinking about suitable employment. At the same

time, I hoped it would help us assess her needs in relation to her intellectual disability. I assumed that if the client experienced a specific success or failure, we would have a foundation to build upon in career counseling and mutual cooperation.

Process of explanation to my client

Client AB - I simply asked the client to try the VR simulation and requested feedback. I introduced the project to her and explained its goals. The client had never used VR before, so I explained how to use the controllers.

Client CD - I introduced the client to VR and the project we are working on. I presented the simulation to her:

„The idea is that by walking around the sports complex, you can learn information about different professions. Try to remember them, as someone might ask you along the way. You will also complete tasks. Don't worry about making a mistake. Move according to the arrows. If you're unsure, just walk around and explore the area."

She had never used VR before, so I explained how to use the controllers (it took two sessions).

Formalities

Before starting, they signed an informed consent form.

Process of creating a VR scenario

The process of creating the script was quite a challenge for me as a newcomer. I joined the project later, at the stage when my colleagues were creating and testing their videos.
My colleagues introduced me to the scripting software and showed me the basic functions (adding frames, default location, adding hotspots, infographics, etc.). I didn't have the material and background for my own simulation yet.

Collecting the material, i.e. filming and taking the 360° images, was done in collaboration with my colleague about two months after I first saw the program. It was great to work in two. We were able to divide the tasks so that sorting and organizing the materials for the simulation took less time. One of us took the images, the other of us wrote down their correct order and other additional notes.

The filming aids we used were: a 360° camera, tripod, paper, pen.

My colleague uploaded the collected images into the program, I worked out the rest independently.

The idea was that the simulation would be multifunctional - it would be focused on orientation in space, short-term memory, following instructions, and performing tasks.
The scenario starts at the entrance to the compound, the goal is to walk the entire compound, learn new information, and try to complete 2 tasks.

Right at the beginning is the task of finding the basketball court. Along the way, you can play different audio recordings about the different jobs that are applicable here (cook, cleaner,

janitor, lifeguard, etc.). On the basketball court, there is a task to collect the scattered balls in a wooden box.

After completing the task, a voice recording guides us to the kiosk where there is another task - sorting objects. There is a mess on the tables left by the guests - unfinished food and coffee cups. The coffee cups need to be taken to the window of the kiosk (using the controls), the leftover food to the waste bin.

There are two yes/no quizzes on the premises.

Client´s reactions

Client AB - Initially had a problem working with the drivers. She was focused on visual perception and tended to rush into the simulation, which made it take that much longer to properly coordinate with the controls.
She finished everything quickly, she liked the simulation, she knows and visits the sports complex, which made it all the easier to get through the simulation. The simulation helped to open up the topic of her "rashness".

Client CD - The client was apprehensive before the run, but was very excited and curious. She had never been to a sports facility. She found it difficult to concentrate on the text-based task which was accompanied by sound. I had to help with explanations during the simulation. The scenario has the potential for further training and possible development of the client's skills.
While going through the simulation, I noticed increased sweating related to concentration.

What was the impact of using VR in the practice with this client in the process of SE or CC?

Client AB - As a clear positive impact I see a side effect (which was not intended) and that is opening up the topic of her "distractedness". It might seem useful to create a different simulation for this client, focused on training patience and general calming.

Client CD - She rehearsed the scenario repeatedly in subsequent sessions. The VR work was supplemented with additional cognitive training. The client was better able to focus and follow instructions.

Description of possible difficulties the future counsellor may face and my recommendations to other practitioners:

Good internet connection is crucial when creating the scenarios.
I panicked at the very beginning of the creation process and urged my colleague Lenka that the program (Cenario VR) was not working and not showing the captured images. It wasn't even showing me the team folder where our simulations were. This is advice number two:
Be patient! Always.
In the end, it turned out that all we had to do was wait for everything to load. Even though I had a good wifi signal, I had to wait a while.
Take clear notes during the process of gathering material.
Think one step ahead, not two.

Work systematically and take small steps. Respect that we all have different systems of thinking. For me, it was preferable to line up the images first and link them together. Then set up transitions, hotspots, tasks, questionnaires.

Take frequent breaks.

It's hard to maintain concentration when you see the same thing 20 times in a row.

Record audio files - if you are using a text-to-speech converter, be careful to make sure you don't have a typo or error in the text.

Collaborate - don't be afraid to ask for help/advice from a more experienced colleague.

I vote for shooting in pairs!

I tried to be as independent as possible when inserting interactive elements. I made a lot of mistakes from trying too hard, and I fixated on the wrong techniques, which I then inadvertently repeated in subsequent shots.

What I found out when using VR

e.g. how it helped me and my clients, any recommendations to followers

10. Cooperation with other organizations, employers, and others

During our project, we cooperated also with employers and institutions. We had a chance to create scenarios e.g. from hotels, factories, various services, kitchens, or offices. It was an enriching experience for both sides.

Some scenarios are still helpful for organizations to make the orientation in their buildings easier for our clients as well as for their visitors. This was an additional value of videos that we could use to train the skills of our clients.

11. Practical Guide to Conducting Workshops with VR for Career Counselors

Virtual reality (VR) is becoming an increasingly common tool supporting career counselors in working with people with disabilities. Through immersive VR experiences, workshop participants can explore different work environments, acquire new skills, and build confidence in a safe setting. VR allows the simulation of real-life work scenarios in an engaging and tailored way to meet the individual needs of participants. This chapter will discuss how to effectively plan and conduct a workshop using VR, ensuring both safety and comfort for participants

11.1 Preparing the Workshop

11.1.1 Analyzing Participant Needs

Before organizing a workshop, it is essential to thoroughly understand the needs of the target group. The needs analysis should include:

Type of Disability: Consider participants' physical, intellectual, and sensory limitations. For example, individuals with limited mobility may require specialized controllers or a seated VR mode.

Experience with VR Technology: Beginners may need detailed introductions, while more advanced users expect new challenges.

Educational and Professional Goals: Determine whether participants aim to acquire new skills, familiarize themselves with new work environments, or develop interpersonal skills.

Tools for Analysis:

●Pre-Workshop Surveys: Simple questions about participants' expectations and concerns.

●Interviews: Direct conversations with participants or their caregivers to better understand individual needs.

●Observation: Observing participants in other activities can help plan more personalized VR scenarios.

Additionally, trial or test workshops can be conducted to gather feedback and adjust content.

11.1.2 Selecting and Preparing VR Equipment

Minimum Equipment Requirements:

● VR Goggles: Should be lightweight, ergonomic, and compatible with various applications (e.g., Oculus Quest 2, HTC Vive Pro).

● Controllers: Ensure ease of use, such as controllers with large buttons or hand-tracking devices.

● Computer or Console: Sufficient computing power to run VR applications.

● Educational Software: Ready-made professional scenarios or tools for creating custom ones.

Equipment Adaptations:

● Comfort: Add foam pads and adjust straps for a better fit.

● Alternative Controls: Adapt controls for individuals with limited mobility, e.g., through voice commands.

● Hygiene: Regularly clean goggles and controllers, and use disposable covers for goggles.

Instructions and Technical Support:

● Prepare detailed step-by-step instructions for both counselors and participants.

● Organize a brief training session for counselors to familiarize themselves with the equipment.

● Ensure the presence of a technician during workshops to resolve issues promptly.

11.1.3 Logistics and Space Organization

● Space: The room should be spacious, with designated zones for VR movement. Additional anti-slip mats can enhance safety.

● Safety Measures: Mark zones where participants can move and prepare emergency procedures for unforeseen situations (e.g., dizziness).

● Hygiene and Ergonomics: Regularly clean equipment and provide comfortable swivel chairs with locks.

11.2. Conducting the Workshop - workshop stages

11.2. 1. Welcome and Introduction:

● Workshop Goals: Explain what skills participants will gain.

● Introduction to VR Technology: Demonstrate how goggles, controllers, and applications work.

● Safety Guidelines: Provide instructions on movement, using controllers, and avoiding stressful situations.

● Orientation Exercise: A brief introduction to the VR world, e.g., a virtual office tour.

11.2.2 Practical Phase:

● Individual or Group VR Session: Participants explore professional environments, such as restaurants, warehouses, or offices.

● Gamification: Add game elements, e.g., earning points for completing tasks on time.

● Practical Exercises: Perform specific tasks, such as customer service, problem-solving, or team management.

11.2.3. Discussion and Summary:

- Experience Analysis: What was easy or challenging?
- Feedback Collection: What aspects of the workshop can be improved?
- Action Plans: Determine steps participants can take to develop their skills further.

11.3 Workshop Scenario Examples

11.3.1 Scenario 1: "First Day at a New Job"

Objective:

Familiarize participants with responsibilities in a chosen job position.

Plan:

1. **Introduction**: Discuss the job position (e.g., receptionist).
2. **VR Experience**: Participants perform tasks such as:
   - Greeting clients.
   - Handling phone calls and computer tasks.
   - Organizing meetings.
3. **Result Discussion**: Analyze strengths and areas for improvement.

Additional Elements:

- Problem-solving simulations (e.g., client conflict).
- Reward systems for task completion.
- Scenarios with varying difficulty levels.

11.3.2 Scenario 2: "Safe Behavior at Work"

Objective:
Learn workplace safety rules.

Plan:

1. **Introduction**: Discuss key workplace safety principles.
2. **VR Experience**: Simulate workplace accidents (e.g., slipping, improper machine use).
3. **Summary**: Discuss accident prevention strategies.

Additional Elements:

- Interactive VR quizzes on safety rules.
- Repeated exercises to reinforce knowledge.
- Difficulty adjustments based on participant groups.

11.3.3 Scenario 3: "Soft Skills Development"

Objective:
Develop interpersonal skills in a professional context.

Plan:

1. **Introduction**: Discuss effective communication principles.
2. **VR Experience**: Simulate conversations with clients, negotiations, and conflict resolution.
3. **Summary**: Joint analysis of VR session recordings.

Additional Elements:

- Pair or small group exercises to foster collaboration.
- Conflict scenarios requiring creative solutions.
- Analysis from multiple perspectives.

11.4 Challenges and Solutions

11.4.1 Common Difficulties:

- Technological barriers (e.g., equipment issues).
- Participant resistance to VR.
- Lack of access to appropriate VR content.
- Participant fears related to technology (e.g., fear of the unknown).

11.4.2 Solutions:

- Regular training for career counselors.
- Adapting content to participant needs.
- Collaboration with companies creating VR content.
- Organizing test workshops with diverse target groups.
- Introducing educational elements to help participants better understand the technology.

Using VR in workshops conducted by career counselors is an innovative method that can significantly enhance the effectiveness of working with people with disabilities. With proper

preparation, well-thought-out scenarios, and openness to participants' needs, it is possible to create inspiring and valuable educational experiences. It is essential for counselors to be adequately trained and prepared to work with VR technology to maximize its potential.

11.5 Additional Materials

- Sample pre- and post-workshop surveys.
- Guide to adapting VR content for individuals with various disabilities.

11.5.1 Sample Pre- and Post-Workshop Surveys

Pre-Workshop Survey

This survey helps assess the participants' initial expectations, experiences, and comfort levels with VR technology.

1. Demographic Information:
    - Age: _____
    - Gender: _____
    - Previous experience with VR (Yes/No): _____
2. Comfort with Technology:
    - How comfortable are you with using technology in general? (1 - Not Comfortable, 5 - Very Comfortable): _____
    - Have you used any assistive technologies before? If yes, specify: _____
3. Workshop Expectations:
    - What skills or knowledge do you hope to gain from this workshop? _____
    - Are there any concerns or challenges you anticipate? _____
4. Accessibility Needs:
    - Do you require any specific accommodations to participate fully? _____

Post-Workshop Survey

This survey evaluates participants' experiences and the effectiveness of the VR workshop.

1. Overall Satisfaction:
    - How satisfied are you with the workshop? (1 - Not Satisfied, 5 - Very Satisfied): _____
2. Experience with VR:
    - How engaging did you find the VR sessions? (1 - Not Engaging, 5 - Very Engaging): _____
    - Did the VR scenarios help you achieve your learning objectives? (Yes/No): _____
3. Feedback on Content:
    - What aspects of the workshop did you find most beneficial? _____
    - Were there any parts of the workshop you think could be improved? _____
4. Impact:
    - Do you feel more confident about using VR in your career development? _____
    - Would you recommend this workshop to others? (Yes/No): _____

- Video tutorials on using VR.

11.5.2 Guide to Adapting VR Content for Individuals with Various Disabilities

11.5.2.1 Physical Disabilities

- **Mobility Challenges:**
    - Enable seated VR modes to accommodate participants with limited mobility.
    - Use adaptive controllers or hands-free control mechanisms such as voice commands.

- **Dexterity Issues:**
  - Simplify controls by reducing the number of actions required.
  - Integrate large, easy-to-press buttons or gesture-based controls.

11.5.2.2 Sensory Disabilities

- **Visual Impairments:**
  - Include audio descriptions for visual elements within VR scenarios.
  - Use high-contrast visuals and adjustable text sizes.
  - Consider tactile feedback in controllers to provide additional sensory cues.
- **Hearing Impairments:**
  - Add subtitles or text captions to all audio content.
  - Provide visual signals or indicators to substitute for auditory cues.

11.5.2.3 Cognitive Disabilities

- **Simplifying Instructions:**
  - Break down tasks into smaller, easy-to-follow steps.
  - Provide visual guides or prompts within the VR experience.
- **Memory Support:**
  - Allow replay options for key instructional segments.
  - Incorporate repetitive practice scenarios to reinforce learning.

11.5.2.4 Psychological Considerations

- **Anxiety or Stress:**
  - Use calming environments to introduce VR gradually.
  - Provide an option to pause or exit the VR experience at any time.
- **Phobias or Triggers:**
  - Avoid scenarios with potentially distressing elements (e.g., heights, crowded spaces).
  - Allow participants to preview content beforehand.

11.5.2.5 General Accessibility Features

- Use universal design principles to ensure content is accessible to the widest range of participants.
- Include customization options for text, audio, and control settings.
- Test VR scenarios with individuals from different disability groups to gather feedback and improve accessibility.

12. Potential and questions of VR

VR is a very good tool for learning, especially soft skills that are difficult to learn in the real world.

VR scenarios save time in the learning process – because the person can practice a skill several times, at their own pace

Learning to create VR scripts and films results in increasing career counsellors' digital skills in terms of working with the camera, sound, and light.

In the field of personnel recruitment, virtual reality becomes extremely useful in attracting potential candidates by offering virtual tours to the candidate in which he can see the possible job, observe the company's infrastructure, and even interact with the HR representative (who becomes a guide), but also with other candidates who want to apply for that position or others.

We believe that there is a big potential to use VR experience when working with students in schools. We experience that there is a wide variety of when and how to use it.

It was a great way to attract the attention of the students as well as teachers. After trying some profession or visiting some working environment they were much more motivated to think about their career, skills, and development. No doubt that through VR they can discover more about professions.

We found that people with learning disabilities really took to learning the information through VR as it encouraged them to immerse themselves and learn from directly watching people work and seeing it from different angles. On the other hand, people with sensory problems found the videos more helpful in helping them understand the different sounds and sights they can expect to experience in the workplace so they can mentally prepare for those events. The hard skills were very well received with clients commenting on how they felt confident to go into the workplace and work on them as they were more clearly shown how to do the skills in VR over learning them on site.

The soft skills candidates found them more useful if they directly linked to the client and found the ones about mental health useful.

For using VR in supported employment we may recommend that you consider following questions which were helpful in the practice:

How can VR be used as a complementary tool within the SE armory?

How can we ensure that VR does not drift us back towards train and place?

How can it be used to raise expectations, aspirations, and assumptions about what people can do?

What questions must we ask to ensure VR is the right approach for a specific candidate?

Counsellors and trainers preparing training for people with disabilities, based on VR, can prepare recommendations for the IT industry on how to improve the availability of technical solutions for clients with special needs. The Polish team analyzes, among others, the possibilities of organizing an IT-accessibility hackathon.

It is also necessary to exchange experiences between representatives of various disciplines in which VR solutions for people with disabilities appear. This will allow knowledge transfer between different areas and joint development of even more effective solutions.

13. Support for followers from helping professionals

Here you can find contacts on the partners organizations where they can give you support:

Aspekt z.s., Czech Republic, www.aspektzs.cz, contact person: Marta Suchardová, email: marta.suchardova@aspektzs.cz

Status Employment Ltd., United Kingdom, https://www.statusemployment.org.uk/, contact person: Robert Elston, email: r.elston@statusemployment.org.uk

Fundacja Imago, Poland, https://fundacjaimago.pl/, contact person: Barbara Górka, barbara.gorka@fundacjaimago.pl

Health Action Overseas, Romania, https://www.hao.org.ro/, contact person: Nicolae Dobrescu, email: dobrescunicolae@hao.org.ro

14. Annex 1: Example of Methodological Guidelines for using VR in the practise of Status Employment, UK

EVR METHODOLOGY GUIDE

mutually inclusive PARTNERSHIPS

The Data

When we meet with the clients after they tested the scenarios, we asked them the following questions.

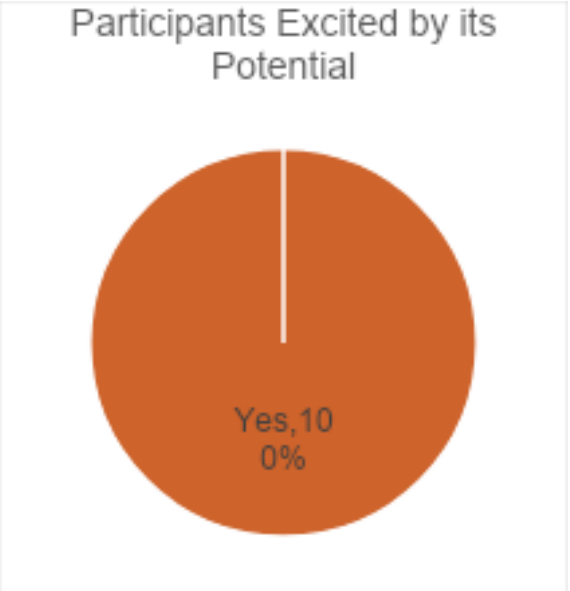
- How immersive did you find the virtual reality experience?
- Did the video scenarios feel realistic to you?
- Was the audio quality clear and realistic?
- Was the video scenario interesting or engaging?
- How easy was it to navigate and interact with the virtual environment?
- How did you feel during the video scenarios?
- What did you learn?
- Was there anything that could have been improved about the virtual reality experience?
- Overall, how would you rate your experience using the virtual reality headset and/or watching the video scenarios?

Client No.	Excited by Potential of Using VR in learning	Believed that the project was ready for immediate use	Felt Immersed in the scenarios	Felt engaged by the scenarios	Overall Rating out of 10 for the whole experience
1	Yes	Yes	Yes	Yes	9
2	Yes	No	Yes	Yes	6
3	Yes	No	Yes	Yes	6
4	Yes	No	Yes	Yes	7
5	Yes	No	Yes	Yes	7
6	Yes	Yes	Yes	Yes	6
7	Yes	No	No	Yes	5
8	Yes	Yes	Yes	Yes	8
9	Yes	No	Yes	Yes	7
10	Yes	No	Yes	Yes	7
11	Yes	No	Yes	Yes	6
12	Yes	No	Yes	Yes	6

The Results

We found that this technology has fallen into a great interest of people, and everyone was excited about using the technology, so we had a high level of interest in it.

This helped with the testing and talking to our clients about it as they were interested in the potential of the project and the eagerness to test and improve it.



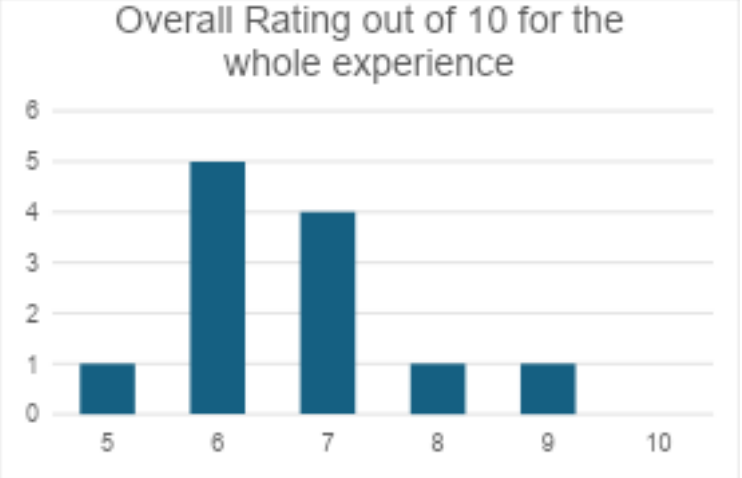
However, we found that this would also prove to be problematic as people were expecting a higher class and perfected form then what they were shown. This was primarily since as employment advisors we are not cinematographers and to understand the different complex needs of the individuals as one side does not fit all. However, this was highlighted during testing. We will go further into the negatives and improvements we found later in this report.

But overall, the project we found has a high level of potential to be amazing for people with disabilities and can help further their employment goals and aspiration.

Positives

Overall, there was a positive reception to the use of VR. Throughout the entire testing with clients, we would hear happiness and amazement when put the headset on.

We found that the testing using VR made people more excited to learn and more open to watching and participating in videos. This was very useful as a problem with a lot of training and working with people who are neurodivergent is the struggle to focus and we found that by presenting it in this format helped them have better retention for the information and understanding of their environment.



One of the clients noted that they would be more willing and calmer in a new workplace after experiencing the videos.

Another client asked if there was more, they could be test and try, and was excited about using the VR and was confident about what they learnt in the videos.

We found that people with learning disabilities really took to learning the information this way as it encouraged them to immerse themselves and learn from directly watching people work and see it from different angles.

Whereas we found people with sensory problems found the videos more helpful in helping them understand the different sounds and sights they can expect to experience in the workplace so can mentally prepare for those events. We found this in the Angelina's Café scenario as the clients said they found themselves immersed in the café and knew what to experience before they went into the café.

The hard skills we very well received with clients commenting on how they felt confident to go into the workplace and work on them as they were more clearly shown how to do the skills in VR over learning them on site.

The soft skills candidates found useful if they more directly linked to the client and found the ones about mental health useful whereas others not linked to themselves less so.

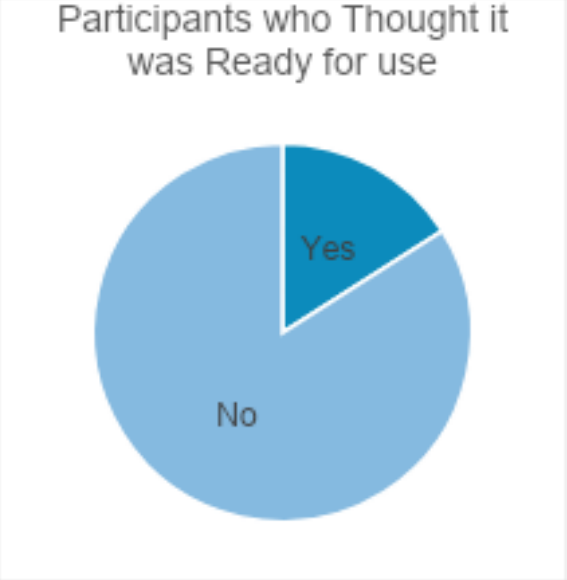
Improvements

One big problem that caused us some issues was the fact that we lacked the overall planning for each scenario. This ended up causing problems later in the line with when we recorded the videos as they were less organized, and then when we did edit trying to sort out any issues. This was not a perfect fixed and was able to see the effects on it after.

Also, an issue we found is that after making videos there was some problems which were not seen or caught during filming so is important to either check on site or to reshoot later to fix any issues, one time this happened we didn't account for the bright light from outside to the inside area so caused a sudden and bright flash during filming.

Another big issue caused was on the sound and what was said as it was not as planned it was more uncontrolled and caused more issues. This helped us quickly discover the importance of ambient room noise throughout each scene, to increase the immersivity of the experience. However, a major drawback was the inability to increase/decrease the volume of the scene audio to balance with audio descriptions/narration/videos within the scene. This had to be done in a trial-and-error fashion on an exterior Audio program until audio was balanced.

Also, with our lack of planning it caused problems with recording the videos and with the camera, this led us to becoming more aware of keeping camera as still as possible and if preferable using tripod to reduce movement and motion sickness. Also being aware of everything in the background can help control what is seen to best reduce the distractions and better improve focus.



There were also various problems caused by other uncontrolled factors. Sometimes the films would not work due to assorted reasons, such as the internet policy was sometimes dictated by the internet policy of the organisation we were visiting. A workaround would be to connect to the mobile data of our mobile phones for the session to not be abandoned. Due to the nature of the VR story and depending on how may films were embedded in the story, this might be a massive amount of data usage.

Technical issues such as internet dropouts, VAR360.com being blocked by school IT policies, sub-par or outdated laptop/PC specifications, browsers other than Chrome being default for school can all lead to either an interrupted VR experience, or at worst, complete inability to run the session. We also discovered PC resolution needed to be set to 100% - otherwise Question Hotspots would not show all the possible answers, and the "Answer" button would not be viewable.

It is also important to maintain a clear file hierarchy on local machines and application for creation scenarios so that any future changes or reshuffling of the files is easier to complete and can be done quicker. Making sure that your software updated regularly also was crucial to prevent project delays, and allowing sufficient time for questions can accommodate all participants.

With VR it was a brand-new technology for them, so they did not understand it as easily as others so for these individuals we suggest developing a separate "Introduction to VR Orientation" to help them adjust to VR environments more easily. This can be a basic tutorial going over what the hotspots do and how they can be interacted with and such to make going through easier for clients.

From the various testing we found that to improve the accessibility, it is recommended to provide instructions through text, audio, and information hotspots, while avoiding unnecessary icons, which can cause distractions and overwhelm the client. Another Problem we found is that we did not incorporate speech bubbles or subtitles which could reduce the understanding of people with audial issues. It is encouraged to involve clients in VR projects and film during quieter periods, utilizing high-quality equipment for enhanced sound. To be able to pause the video when the questions are not fully answered so the client has enough time to finish them all and not have to rush through them.

For both VR scenarios, we only incorporated 2D popout films and a limited number of static camera 360 films. In future we would like to include 360 films with smooth tracking/panning shots. We have discussed various methods to make this feasible – drone shots, remote control vehicle etc.

Lastly, it is essential to regularly obtain feedback from clients to ensure the ongoing success of the project. This will help catch any problems that occur so you can fix them as soon as possible and better improve their quality.

Conclusion

Virtual Reality is a very powerful tool that can help candidates with disabilities in a variety of way. It can be used in the job searching aspect of supported employment. If used correctly it could be used at developing soft skills for candidates especially if targeted. We saw some good progress with candidates around disclosure of mental health issues, which is a big quandary for people with severe and enduring mental health needs whether to disclose to employers and then if they do what skills they will need. There is tremendous potential in the development of hard skills, but mind needs to be taken as regards being disability specific. This tool should think of what the disability is and what is trying to be achieved. For instance, a person with learning disability would want to have the steps of a task broken down as in TSI. Someone who is neuro diverse may want the sound turned down or want to be able to meet the potential team of workers that they may be working with. What is very clear is that virtual reality should augment the supported employment method and is not there to replace it. It should be used responsibly, and professionals should involve people with disabilities in the continued development of Virtual Reality

15. Annex 2: Zkušenosti českého partnera

V této části chceme posdílet zkušenosti přímo z českého kontextu a pro usnadnění využitelnosti přinášíme proto text v českém jazyce.

Rádi bychom zde doplnili poznámky pro případné české čtenáře, zájemce o VR.

Úvodem dovolte pro lepší kontext pár poznámek k naší organizaci.

Aspekt z.s. se věnuje oblasti podporovaného zaměstnávání a kariérového poradenství již více jak 15 let. přímé služby, kde vycházíme z podporovaného zaměstnávání máme od roku 2015 začleněny pod sociální službu sociální rehabilitace a vycházíme v ní z praxe podporovaného zaměstnávání. Službu poskytujeme velmi individuálně a s velkým důrazem na rozvoj dovedností klientů.

Našimi klienty jsou osoby s nejrůznějšími dlouhotrvajícím zdravotními komplikacemi, které jim stěžují uplatnění na trhu práce. Pracujeme s dospělými klienty s mentálním postižením, duševním onemocněním, ale

V našich službách máme také možnost spolupracovat se speciálními a praktickými školami. I zde jsme do práce se studenty posledních ročníků zařadili VR. Pro studenty jsme naše simulace využívali především pro pracovní pohovory a některé příklady pracovního prostředí. To jsme kombinovali i s komerčně získanými programy, kupř. obsluha robotické ruky atd. Jeden až dva studenti sledovali interaktivní tabule. Práce s VR byla nová i pro pedagogy, kteří VR často znali a někteří ji měli i možnost využít ve škole a se studenty, ale nedovedli si představit, že by VR uměli efektivně využívat studenti s mentálním postižením nebo studenti s PAS. Ze zpětné vazby na místě a později i od učitelů a asistentů jsme se však dozvěděli, že i oni sami byli překvapeni, jak dobře studenti spolupracovali. Najednou nerušili, spolupracovali s cizími lidmi, aktivně se zajímali o další možnost využití VR. U některých objevili pedagogové své silné stránky až po využití VR v naší práci.

VR využíváme v individuální práci s klienty. Krásný příklad je naše klientka, paní Marcela, která má roztroušenou sklerózou. Její nemoc má dopad na fyzickou i psychickou stránku. Paní Marcela má poškozenou motoriku celého těla - chodí s berlemi. Dopad nemoci je viditelný i v kognitivních dovednostech – zmínit můžeme především ve vztahu k práci zhoršenou krátkodobou paměť a potíže se zpracováním složitějších informací.

V jedné firmě pracovala 28 let, o práci přišla kvůli nemoci. Její znalost současného trhu práce a jeho požadavků byla tedy minimální. Virtuální realitu jsme využili proto, aby paní Marcela, pro kterou je těžké jet někam na exkurzi, co nejrealističtěji zažila různá pracovní prostředí a udělala si o nich představu. 360stupňový zážitek, kdy vás prostředí pohltí, a kdy můžete zažít kupř. i hladina hluku na pracovišti, má na mozek jiný vliv, než kdyby se dívalo na 2D video nebo 2D obrázky.

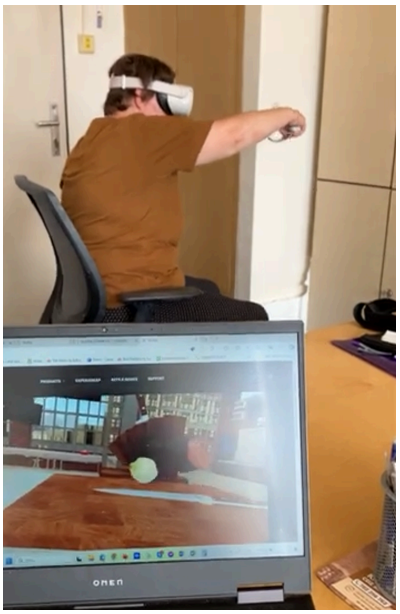
Zároveň jsme pomocí virtuální reality trénovali kognitivní dovednosti, aby si klientka co nejvíce udržela šanci na uplatnění. Trénovali jsme nejen s videi, která jsme vyrobili, ale i s profesionálními aplikacemi. Některé z nich byly vyvinuty přímo v souladu s fungováním mozku.

Vzhledem k fyzické kondici klientky jsme k procvičování psychomotoriky využili i virtuální realitu. Klientka trénovala nejen harmonii mozku a rukou, ale někdy i celého těla.

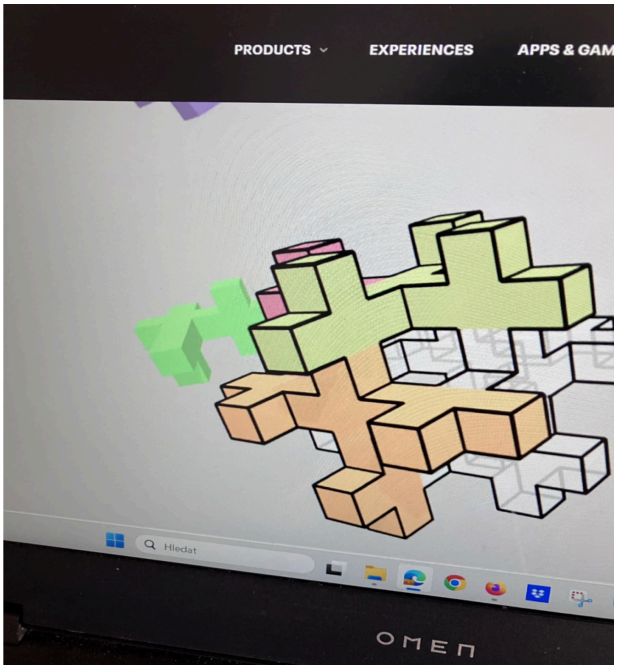
Pomocí virtuální reality jsme identifikovali silné stránky klientky a zjistili jsme, že má velkou prostorovou představivost.

S respektem k individuálním potřebám klientky a jejímu zdravotnímu stavu jsme jí pomohli vyjednat vhodnou práci - skládání různých krabic a pouzder v továrně na klíče. Klientka zde využívá všech natrénovaných dovedností – od psychomotoriky až po výbornou prostorovou představivost, pozornost a soustředění.

Zde jsme ji seznamovali s různými pracovními prostředími, protože to právě potřebovala. Ve virtuální světě se tak dostala třeba do školní kuchyně. A vyzkoušela si tam i virtuální práci pomocí simulátoru.



V kuchyni by kvůli svému zdravotnímu stavu pracovat nemohla. Ale pomocí volně dostupné aplikace Cubism si vyzkoušela, že má velmi dobrou prostorovou představivost.



A poslední fotka je už do opravdového zaměstnavatele, kde své dovednosti uplatnila.

Další z našich klientek, slečna Helena, je člověk s mentálním postižením. Natočili jsme pro ni výukové video přímo k procvičení konkrétních pracovních dovedností v její skutečné práci.

Do 37 let byla slečna Helena svým okolím považována za nezaměstnatelnou – a pokud ano, tak rozhodně ne tak, aby tu práci zvládla sama.

Když s námi začala pracovat, neměla ponětí o světě práce, roli zaměstnance, žádné pracovní návyky, ani ona, ani její okolí neznali její potenciál.

Kvůli jejím omezeným mentálním schopnostem je s ní složitější diskutovat, proto jsme nejprve zkusili, zda práci zvládne a bude ji bavit. Povedlo se a slečna Helena začala pracovat jako distributor letáků. V jejím případě nebylo nic automatické, vše se musela učit kousek po kousku. Práce byla vhodná i pro její fyzické zdraví – chůze pro ni byla velmi namáhavá.

Nejprve jsem s ní mimo pracovní dobu vyrazila do ulic, abychom si procvičili rozpoznávání schránek, kam má letáky doručit. Pak jsme se začali učit natáčet tréninková videa ve virtuální realitě a začal jsem natáčet její problémová místa na trase. Jedna scéna byla jakýmsi tutoriálem, kdy mě sledovala, jak přecházím ze schránky do schránky a v další scéně musela ovladačem klikat na všechny správné schránky. Byla zima, sněžilo a ona seděla v teplé místnosti a přitom mohla cvičit v dané ulici. Líbilo se jí v teple a nemusela chodit kilometry

navíc. Nakonec jsem si uvědomil, že když ji přímo zapojím do tvorby tréninkového nástroje, učení bude ještě efektivnější.

Video bylo i jejím videem a učení pro ni bylo o to atraktivnější, že se vlastně dívala sama na sebe.

Trénink v podobě osobní chůze do ulic byl jistě platný, ale daleko fyzicky a časově náročnější. Cvičili jsme ve virtuální realitě třikrát týdně pár minut po dobu několika týdnů. Postupně jsme odstraňovali ulice, kde byl pokrok, podle potřeby natáčeli nové, například na jednom velmi problematickém místě, kde chronicky minula jednu schránku, jsem zjistil, že stačí říct „brýle" a ona se automaticky otočila správným směrem. Před tréninkem se jen zmateně rozhlížela na všechny strany. Takto jsem přímo viděla vliv videa na mozek klienta.

Cvičení jsme doplnili procvičováním kognitivních funkcí pomocí dalších aplikací. Klientka byla ve virtuální realitě jako doma a dnes nejen samostatně pracuje, ale také samostatně jezdí autobusem a používá počítač.

Můžete se na ni podívat na tomto odkazu: https://youtu.be/faJ-sh35u0s.

VR se nám osvědčuje také když chceme zmírnit obavy z neznámého prostředí. Například jsme připravili virtuální prohlídku úřadu práce. Naše klientka s psychickým onemocněním si tak jejich prostory prohlédla nejprve se svou konzultantkou v bezpečí kanceláře a následná reálná návštěva na úřadu práce pro ni byla mnohem jednodušší.

VR také velmi rádi využíváme, my i naši klienti, jako diagnostický nástroj a nástroj pro rozvoj kognitivnách dovedností. Například pro:

- pravolevou orientaci,

- paměť,

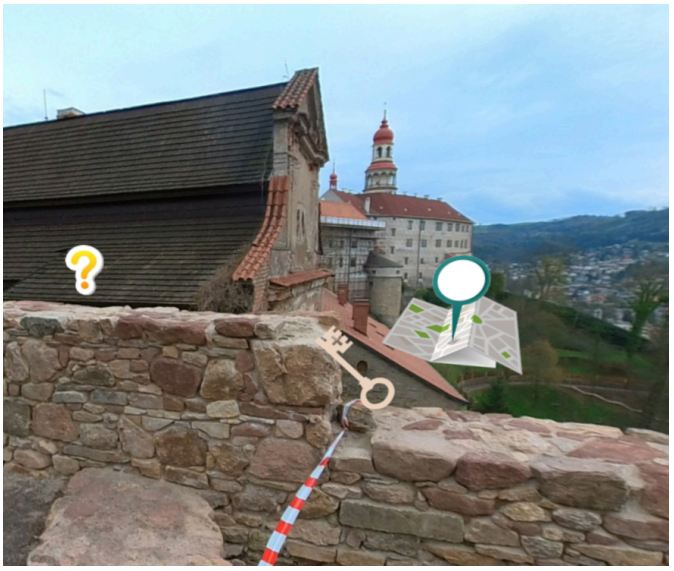
- koncentraci,

- pochopení instrukcí a jejich následování,

- rozhodování

- plánování.

Tyto funkce trénujeme pomocí vlastních videí a také dostupných aplikací, například Enhance.



Využívání VR si velmi ceníme pro svou variabilitu. Videa kombinujeme jak naše, tak dostupná. Pro tvorbu vlastních videí je potřeba si vyhradit dostatek času a mít prostředky na aplikaci. Pokud najdete nadšený tým kolegů, vybavení a finance, je VR velkou příležitostí, jak rozšířit nástroje pro vaše klienty, ale i pracovníky.

Díky VR se naši kolegové velmi posunuli v IT dovednostech a naučili se nové věci. Navázali také cenné kontakty s pracovníky partnerských organizací.

VR nám dále otevírala cesty se spolupráci s dalšími organizacemi i v rámci ČR. Například s MAS, kde jsme žádali o další technické vybavení a následně s nimi spolupracovali. Navázali jsme také nové spolupráce s organizacemi, které se věnují podobným službám nebo univerzitami.

16. Annex 3 Feedback from the professionals involved in the project

At the end of our handbook, we are offering the direct comments of the helping professionals who joined the project and who tested in their practice. We have chosen the ones which supplement and emphasize our experience:

"I think the use of personalised scenarios offers clear advantages allowing activities to be adapted to the abilities and needs of each individual user. Plus, it allows them to perform tasks as they would in real life. What I found most helpful was to be able to provide real-time feedback and assess user actions and performance within a certain given scenario. This type of feedback can help users learn from their experiences, improve their skills, and make informed decisions about their career paths."

"I see the potential in responding to the current needs of clients or employers. But you need to set aside enough time for it. Then different, interesting applications can be created that will respond to different needs, in the longer term (e.g. I add elements and scenes). I also see the potential in involving more of the "public" to promote our service. I think we should focus more on employers and offering videos in their work environment. I see the potential to use VR where it would be ineffective to go to "workplace support" for a long time. It saves money and energy."

"There were a number of technical issues that frustrated our attempts at times. These included internet dropouts, applications being blocked by school IT policies, sub-par or outdated laptop/PC specifications, and browsers other than Chrome being the default for school can all lead to either an interrupted VR experience or at worst, complete inability to run the session. Also for filming, the Insta360 capture software is not compatible with some smartphones."

Practitioners need to be mindful of the values principles and practices of supported employment. To ensure VR technology did not undermine those principles, we developed a set of questions to guide us:

- How can VR be used as a complementary tool within the SE armory?
- How can we ensure that VR does not drift us back towards train and place?
- How can it be used to raise expectations, aspirations, and assumptions about what people can do?
- What questions must we ask to ensure VR is the right approach for a specific candidate?

"In Romania, disabled people are not familiar with technology and therefore there is some resistance on their part to use something new. And some parents stated that they do not agree with the use of VR by their children because it affects them in a negative way (headaches, dizziness, addiction to VR, the way they think and relate to real reality, etc). For

me would be helpful to use VR easier in my practice if people with disabilities were more familiar with VR technology.

One of the participants was assisted by his mother when he used VR. She has previously tested the material to make sure it is in order."

"I would definitely rejoin a similar project because I think VR has the potential to address barriers to employment and enhance vocational outcomes. Our VR scenarios were able to provide individuals with disabilities opportunities to develop job-specific skills in a safe and controlled environment. They could then practice tasks relevant to their desired employment field without the pressure or potential consequences of real-world settings, skills that are essential for success in the workplace. VR scenarios can provide a low-pressure environment for honing these skills. VR can also facilitate job matching by allowing individuals to explore different career paths and job roles through real work simulations so that they can assess their interests, strengths, and preferences in a virtual context, helping them make informed decisions about their career goals."

"VR projects involve cutting-edge technology and interdisciplinary collaboration, providing valuable opportunities for learning and professional growth. In terms of continuous learning and challenges, on the other hand, a similar project to EVR could be very rewarding".