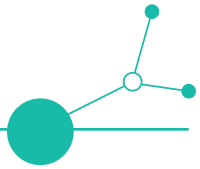
Interreg CENTRAL EUROPE

Co-funded by the European Union

VReduMED

D.1.3.1

Initial survey of key actors from edu, medtech and SMEs , comparative analysis, framework conditions



31st January | 2024 | PP5 EUBA

A. Questionnaire design and respondent distribution

The aim of this activity was to prepare the ground for further project work by investigating the needs of the key target groups in all parts of project region and their expectations regarding VR applications in care education and in the practice of care professionals.

For this purpose, the partnership conducted an initial transnational survey with key actors of care education, MedTech companies and SMEs interested in this sector as well as SMEs/start-ups with VR competence.

Based on analysis of competences and available solutions for care staff in the partner regions (D.T1.1.1) and active cooperation of the whole partnership the activity leader EUBA prepared a questionnaire, which has been then disseminated to the subjects from Academia, MedTech and practicing organisations and healthcare providers, based on the pool collected in the aforementioned mapping analysis.

In order to achieve as many answers as possible, it has been agreed upon that the questionnaire must not take more than 10 minutes to complete; must be anonymous; will give the subject opportunity to leave their contact in order to attend the subsequent activity, the D.T1.3.2 - Regional round tables involving key stakeholders in one of the project regions.

As the platform of collection, Google Forms were used.

The questionnaire has two possible paths, based on answer to the first question. The first pathway had 11 subsequent questions, the second pathway had 7 subsequent questions.

The total number of respondents is 112, out of which 44 were from Austria, 38 from Germany, 12 from Slovakia, 11 from Czech Republic and 7 from Hungary. Percentages were rounded into full numbers.

Full copy of Questionnaire will be attached at the end of this document.

B. Responses

As previously stated, the first question served as a junction, setting pathway of questions for the respondent based on his experience with VR usage in typical operations.

The question goes as follows: “Do you have experience with using Virtual Reality solutions in your typical activities?”, the possible answers were Yes or No. Here we highlight the fact, that our aim was not to ask whether the respondent has VR experience, due to the fact that the respondents were mostly directly targeted based on their own public communication about VR usage in their organisation. The core of the question lies in the “typical activities”, trying to differentiate between active users and occasional experimentations.

	Yes	No	**Total**
AT	21	23	44
DE	12	26	38
CZ	7	4	11
SK	11	1	12
HU	7	0	7
Total	58	54	112

As it can be seen in the table above, out of 112 respondents, 58 answered positively and 54 negatively.

C. Pathway "Yes" Q&A

Pathway "Yes"- Question 1

Qualitative question – Short paragraph

This was an open qualitative question, respondents could write their own perception. In order to process the answers, we have read through all of the answers and tagged them in multiple categories. Please note that some respondents expressed multiple opinions/ideas, therefore one answer can have multiple tags.

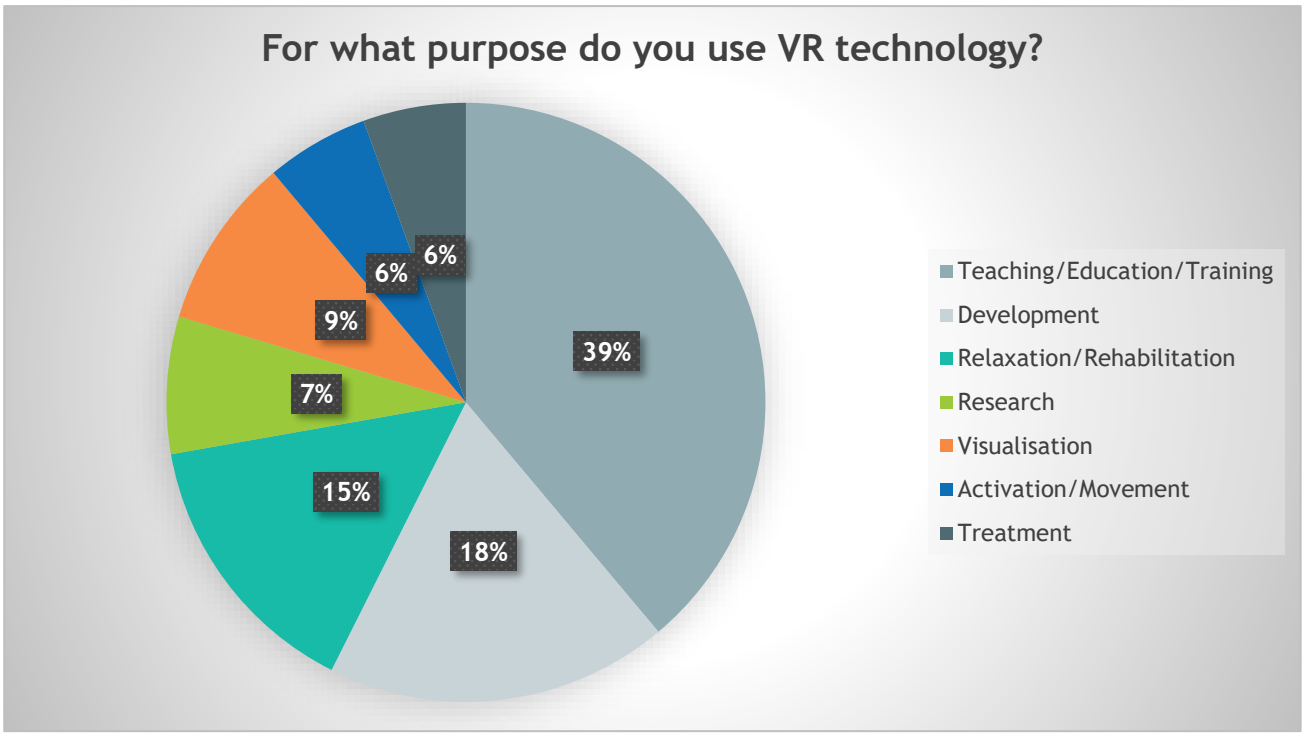
39% of respondents declared that they use VR within the "Teaching/Education/Training" category.

19% of respondents use VR for "Development", these are mostly the creators of VR applications or tools that are based off this technology.

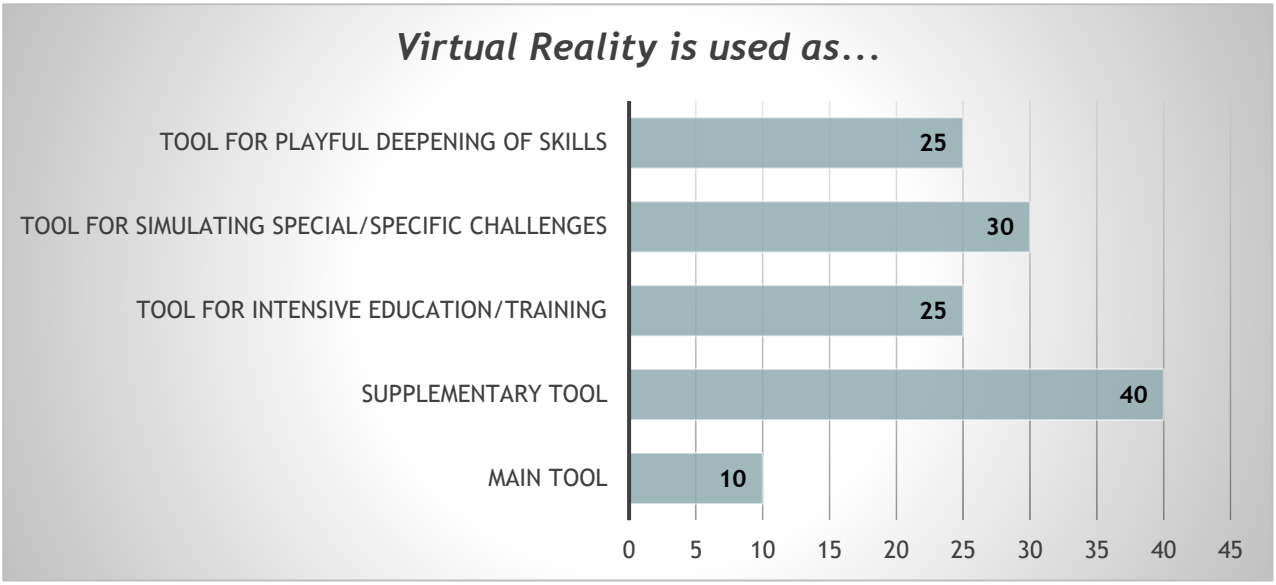
15% of respondents use VR for "Relaxation/Rehabilitation". In most cases these are healthcare professionals, but there have been also answers of a general leisure use in-between work setting to relax. 6% of respondents further describes that they use VR for specific treatment procedures. 6% of respondents also marked that they use VR for Activation/Movement. We highlight the fact that these don't have to be the same people as combinations of category tags were created.

9% of respondents use VR for visualisation, examples listed described either sightseeing tours or planning of work areas.

7% of respondent use VR technology for research purposes, we believe these are mostly academics.

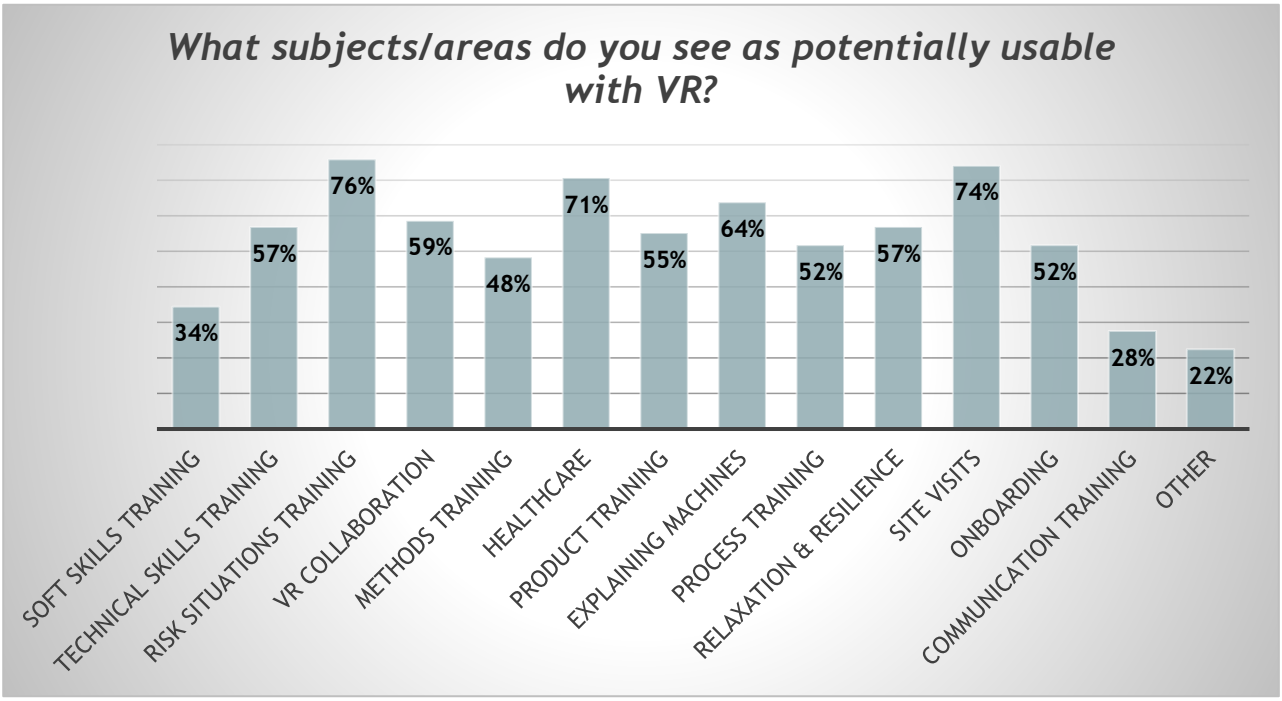


Pathway "Yes"- Question 2



The largest number, 69% of respondents, have selected the second option, Supplementary Tool. The first option, Main Tool, was the least selected option, with 17% of respondents. This clearly shows the position of VR in practice, suggesting usage in specific situations and/or scenarios. We would also like to highlight, that from the point of view of the consortium, this result is received positively as the goal of the project is to promote VR as a viable option exactly in specific scenarios and it is not our goal to try enforcing VR as primary option for every single process or procedure.

Pathway "Yes"- Question 3

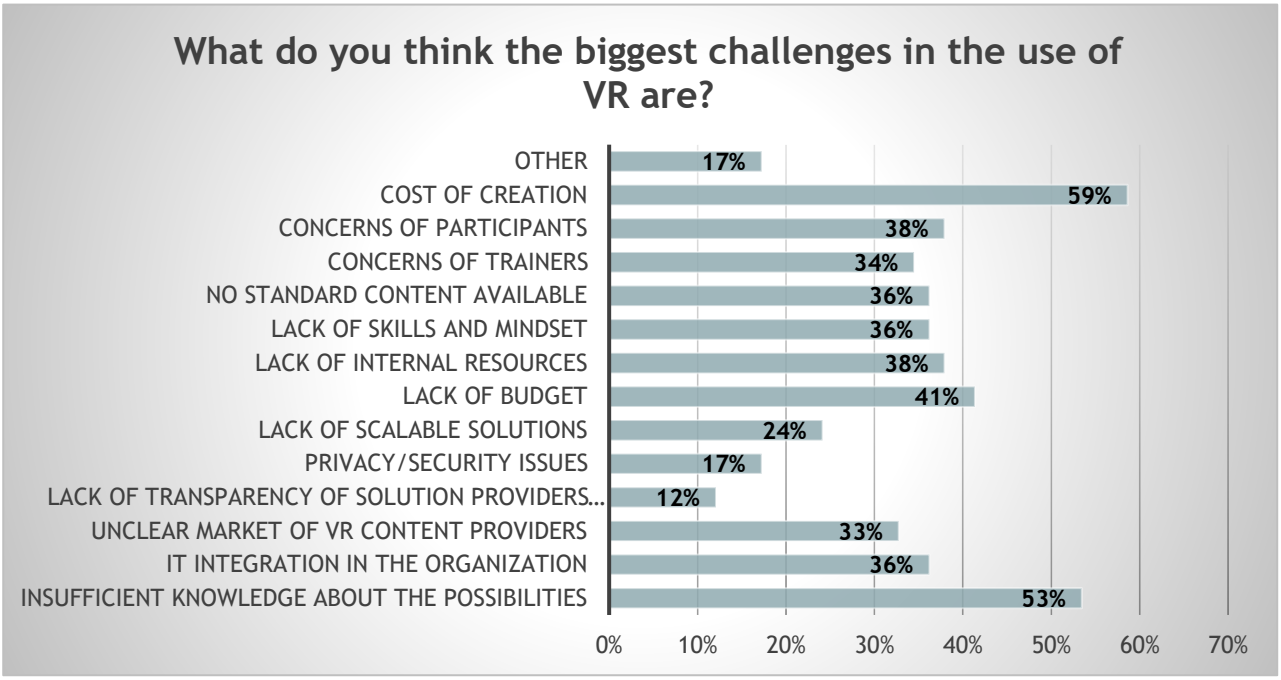


Respondents were allowed to choose any number of options.

With this group of respondents, the question combines both the actual usage in their practice but also shows, where these active VR users see future potential of the technology. Picking answers that were selected by more than 60% of respondents we see Risk Situations Training (76%), Site visits (74%), Healthcare (71%) and Explaining machines (64%). We are happy to see, that the most selected answers show a good fit with the goals of our project.

On the other hand, the lowest answers rates were at Soft Skills Training (34%) and Communication training (28%). This is in line with feedback from later qualitative questions, where respondents sometimes described the VR technology as isolating, lacking human contact.

Pathway "Yes"- Question 4

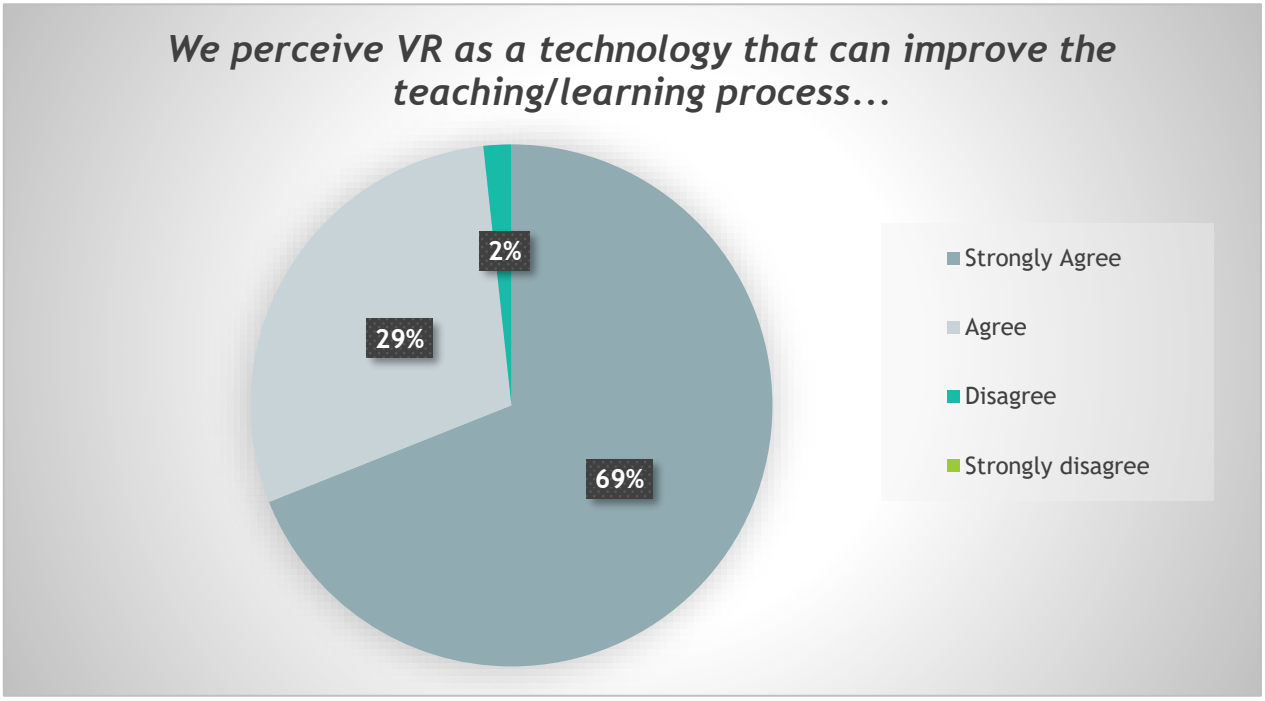


Respondents were allowed to choose any number of options.

As the biggest challenges (40%+ answers) were marked the Costs of creation (meaning costs for having a customized solution, 59%), Insufficient knowledge about the possibilities (53%) and Lack of budget (41%). These answer shows that the biggest perceived challenges are related to costs and education of both service providers and customers about how can VR technology make their life easier or better.

The least concerning (below 20% of answers) were Privacy/security issues (17%) and Lack of transparency of solution providers e.g. authoring tools (12%).

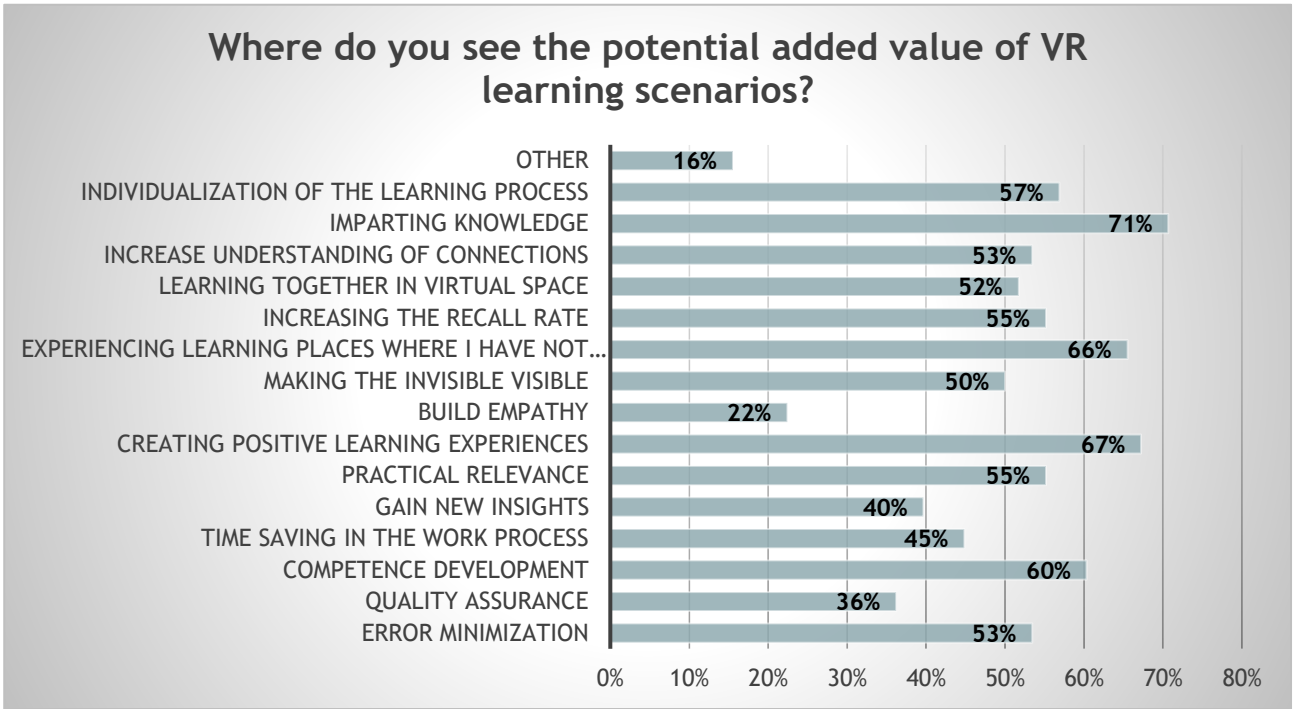
Pathway "Yes"- Question 5



69% of respondents strongly agree with this statement, 29% agrees and 2% disagrees.

Pathway "Yes"- Question 6

Where do you see the potential added value of VR learning scenarios?

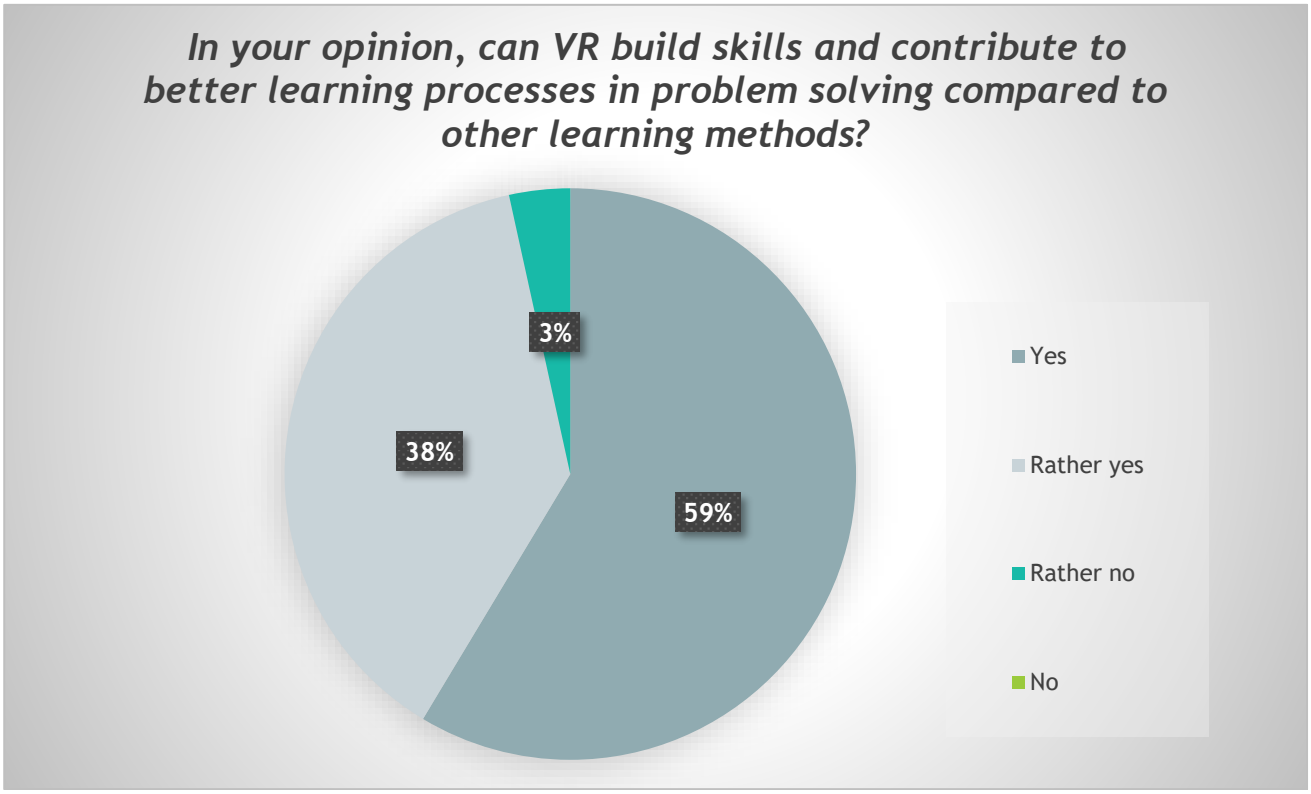


The largest potential for added value is seen in Imparting knowledge (71%), Creating positive learning experiences (68%), Experiencing learning places where I have not yet been (66%) and Competence development (60%)

This question confirmed out findings from the third question, highlighting potential seen in education and training scenarios, improving skills and visiting places in VR.

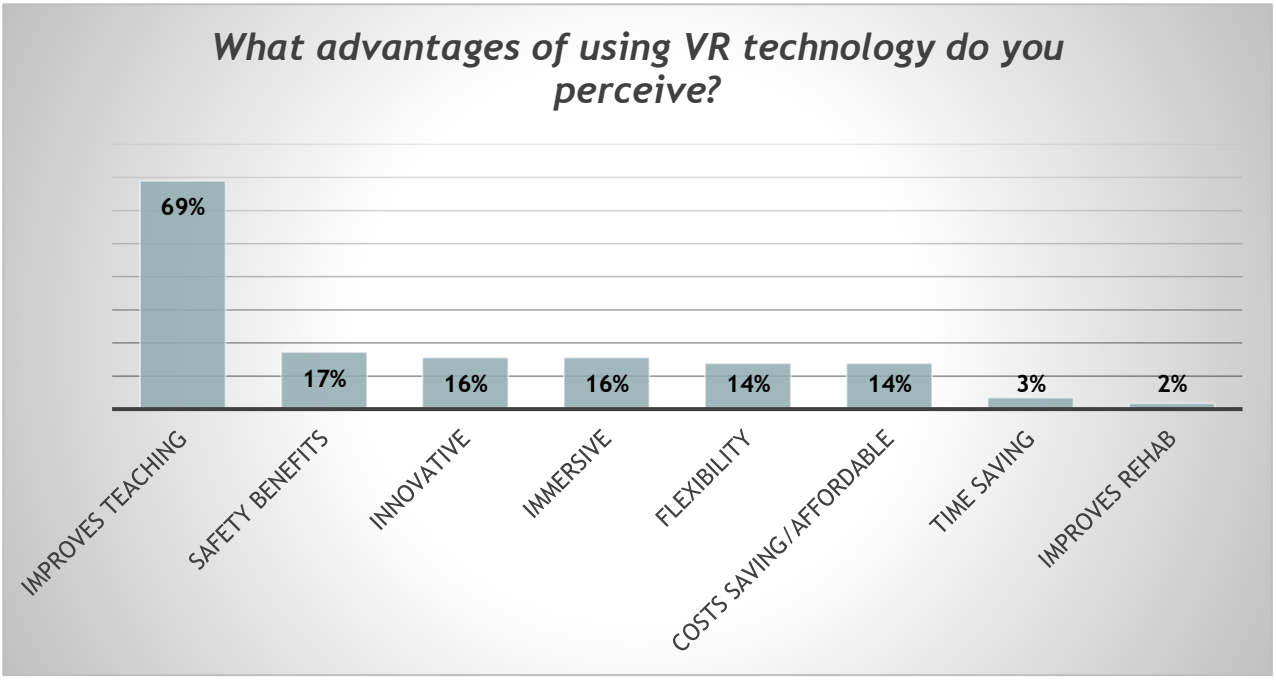
Only one option was notably lower in results than others, Building empathy, with just 22% selection rate. This partly confirms the previously mentioned narrative, that VR is perceived as isolating.

Pathway "Yes"- Question 7



59% of respondents answered "Yes" and 38% respondents answered "Rather yes". Only 3% of respondents (2 persons in this case) answered "Rather no" and nobody answered with a definite "No".

Pathway "Yes"- Question 8



This was an open qualitative answer, respondents could write their own perception. In order to process the answers, we have read through all of the answers and tagged them in multiple categories. Please note that some respondents expressed multiple opinions/ideas, therefore one answer can have multiple tags.

The most expressed advantages were from the "Improves teaching" category. This advantage was expressed in 40 cases, which is 69% of respondents.

17% of respondents sees advantage in the "Safety benefits" of the technology, mostly describing the repeatability and preparation for situations which are hard to simulate in reality.

16% of respondents listed the "Innovative factors" of VR and the new possibilities it brings.

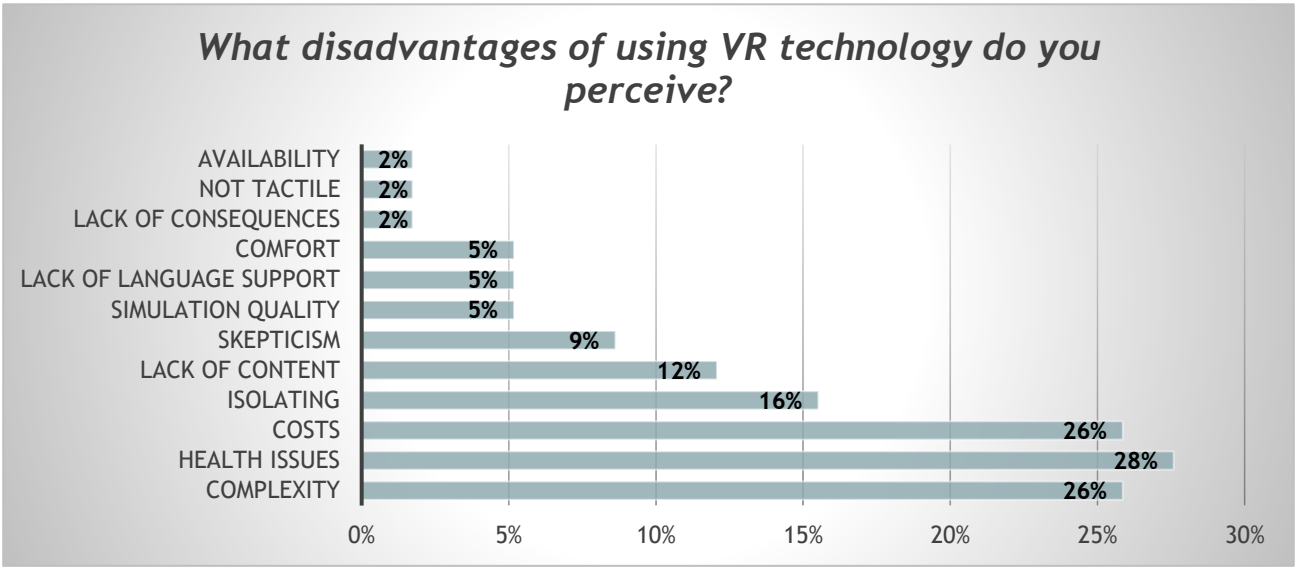
Also with 16% of respondents was the category "Immersive" where respondents complimented on the realism of the simulation.

14% of respondents stated as advantage the "Flexibility" of the solution, complimenting transferability, ease of setup but also saving on resources other than finances.

14% of respondents also stated as benefit the "Costs saving / affordability" of VR solutions. Descriptions stated affordable costs of buying VR tech or saving costs on consumable materials that would have to be used in a classroom training (ie. Needles, bandages, tubing and other one-time use material).

The less frequent answers were "Time saving" (even though this could be possibly merged into the "Flexibility" category as well) with 3% of responses and "Improved rehabilitation" with 2% of answers.

Pathway "Yes"- Question 9



This was an open qualitative answer, respondents could write their own perception. In order to process the answers, we have read through all of the answers and tagged them in multiple categories. Please note that some respondents expressed multiple opinions/ideas, therefore one answer can have multiple tags.

As the biggest group of disadvantages, with 28% of respondents, were seen the ones falling into the "Health issues" category. These were mostly related to headaches, vertigos, motion sickness and overall fatigue of user, sometimes explicitly stating that some people are not able to use the technology.

Next in order of occurrence were the "Complexity" issues, described by 26% of respondents. Respondents described mostly problems with setting up and using the technology, requiring specific training or a qualified person to be present.

With the same occurrence, 26% of respondents, were also the "Costs" disadvantages described, expressing worries about financial costs of hardware, software and licensing fees.

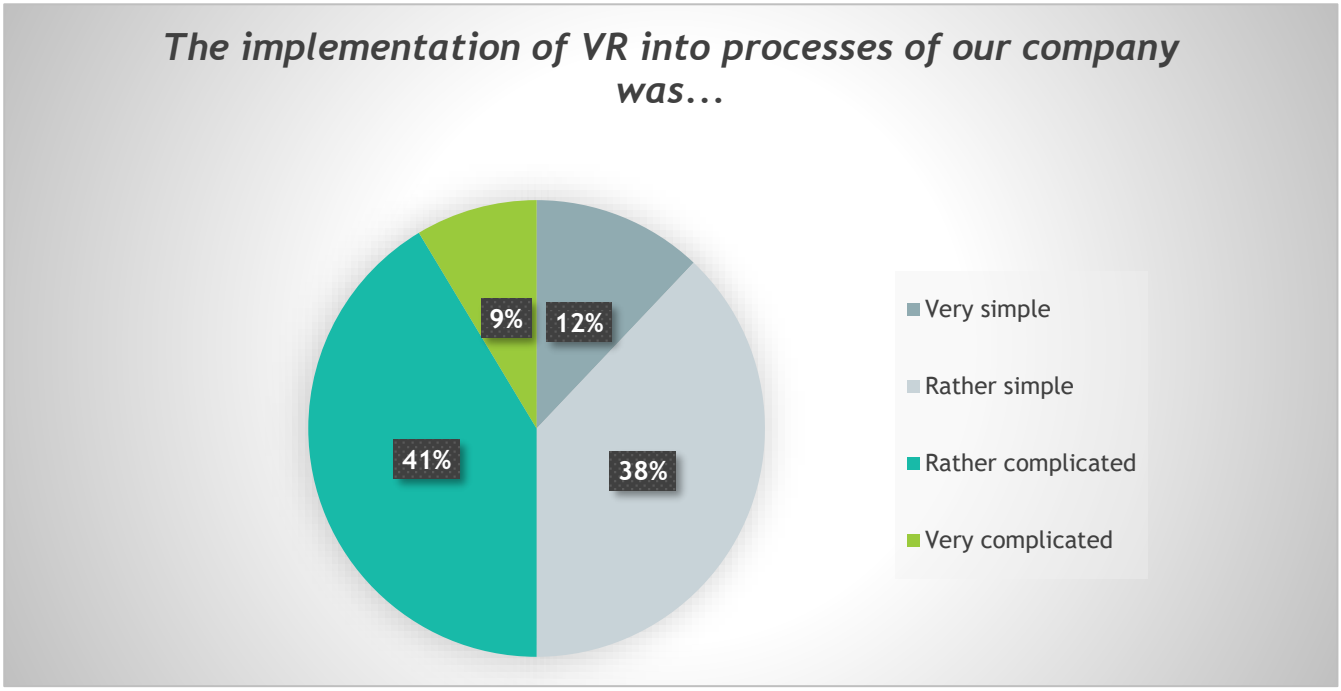
16% of respondents stated that VR Technology is "Isolating", creating a gap between real people exchanges and communication. In two cases there were also worries expressed that VR could be too immersive or even addictive.

12% of respondents expressed that "Lack of content" is a disadvantage that holds them back from more wide usage of the technology.

9% of respondents expressed that "Scepticism" of both users and even hospital staff holds back potential of usage. This honestly surprised us, and as a project we see that hands-on workshops are necessary.

From the less frequent answers these were present: "Low simulation quality" - 5%; "Lack of language support" - 5%; "Comfort" - 5%; "Lack of consequences" - 2%; "Not tactile" - 2%; "Availability" - 2%.

Pathway "Yes"- Question 10

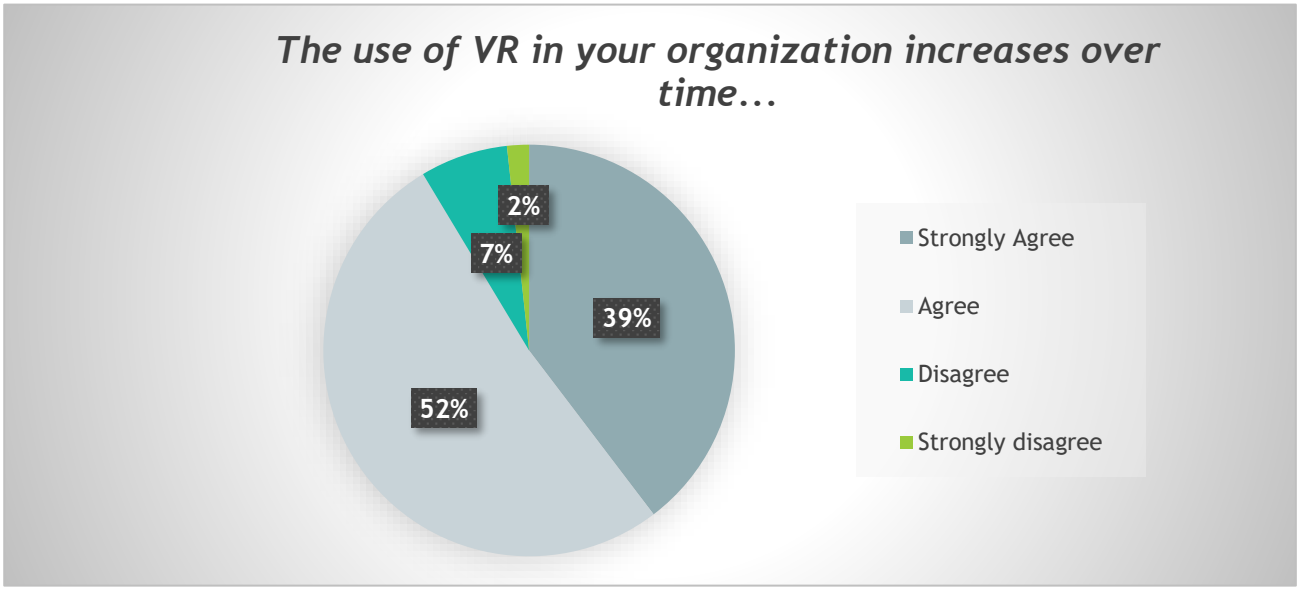


The largest group of respondents, 41% selected the option "Rather complicated", suggesting there is space for simplification of VR implementation in typical company practice. The partnership can research further details about this challenge, whether this is caused by hardware or software area during upcoming activities.

The second largest group, 38% of respondents, selected the "Rather simple" option, followed by "Very simple" with 12%. This gives us optimistic outlook that VR is a widely approachable technology.

The "Very complicated" option was marked by 9% of respondents. It would be desirable to have the experiences collected from these respondents, as this negative rating could lead to quality of life improvements across the VR market.

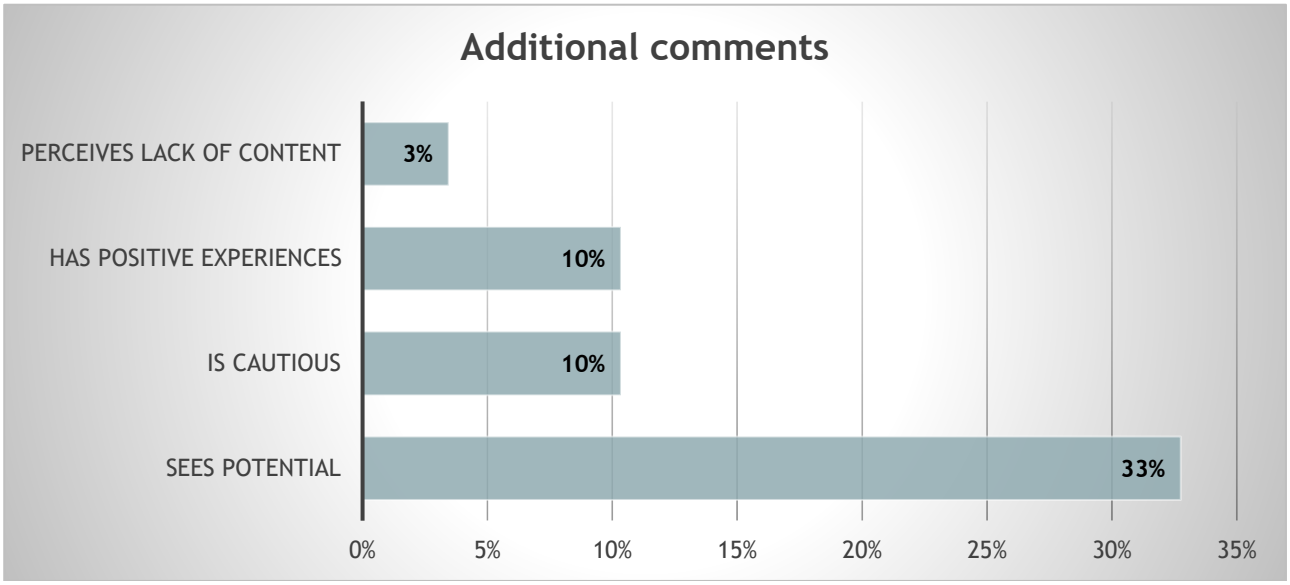
Pathway "Yes"- Question 11



In this question, the largest group of 52% of respondents selected the option “agree” followed by “strongly agree” with 40%. In total, 92% of respondents who already use VR in their daily operations continues to expand the use of technology! This is a clear marker for our project, that once tested and successfully implemented, VR technology gains additional momentum and companies are open to trying to expand its use.

Only 7% disagrees and 2% strongly disagrees in this question. This could mean that VR has reached their perceived or even maximal potential in their business, but it could also mean that they were not satisfied with the technology and stopped using it.

Pathway “Yes”- Additional comments



As this was a qualitative answer with possibility to provide custom answer, we had to process the answers, trying to “tag” these into categories based on topic or message they were trying to communicate to us. We will go from the most occurring type of answer. Please note that some responded expressed multiple opinions/ideas, therefore one answer can have multiple tags. Some respondents did not leave any comment.

33% of respondents provided answers that we have categorized as “Sees potential”, expressing interest or belief in usefulness of VR technology.

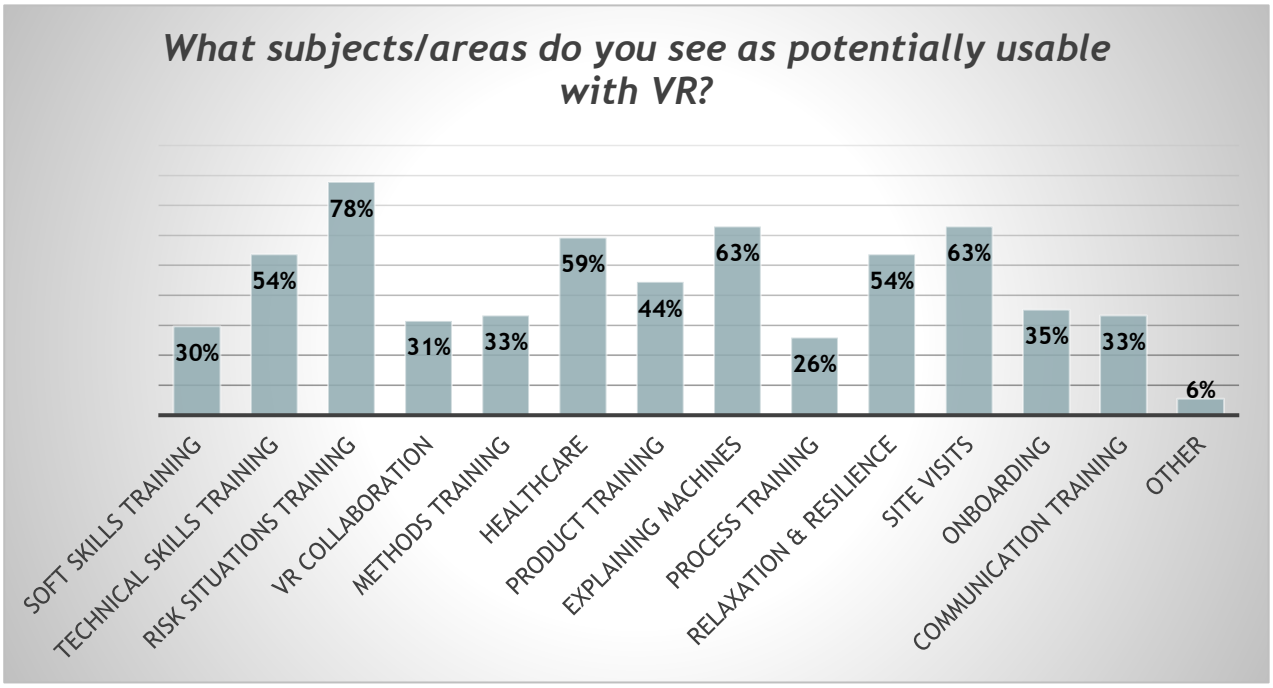
10% of respondents stated that they have, or even described their positive experiences with VR.

10% of respondents provided answers that we have assigned into “Is cautious” category, mostly highlighting some specific necessity in order for VR to be useful.

Two answers described lack of content, other notable comments were suggestion of developing multi-person scenarios for simulations; lack of haptic feedback in the technology and high introduction costs.

D. Pathway "No" Q&A

Pathway "No"- Question 1

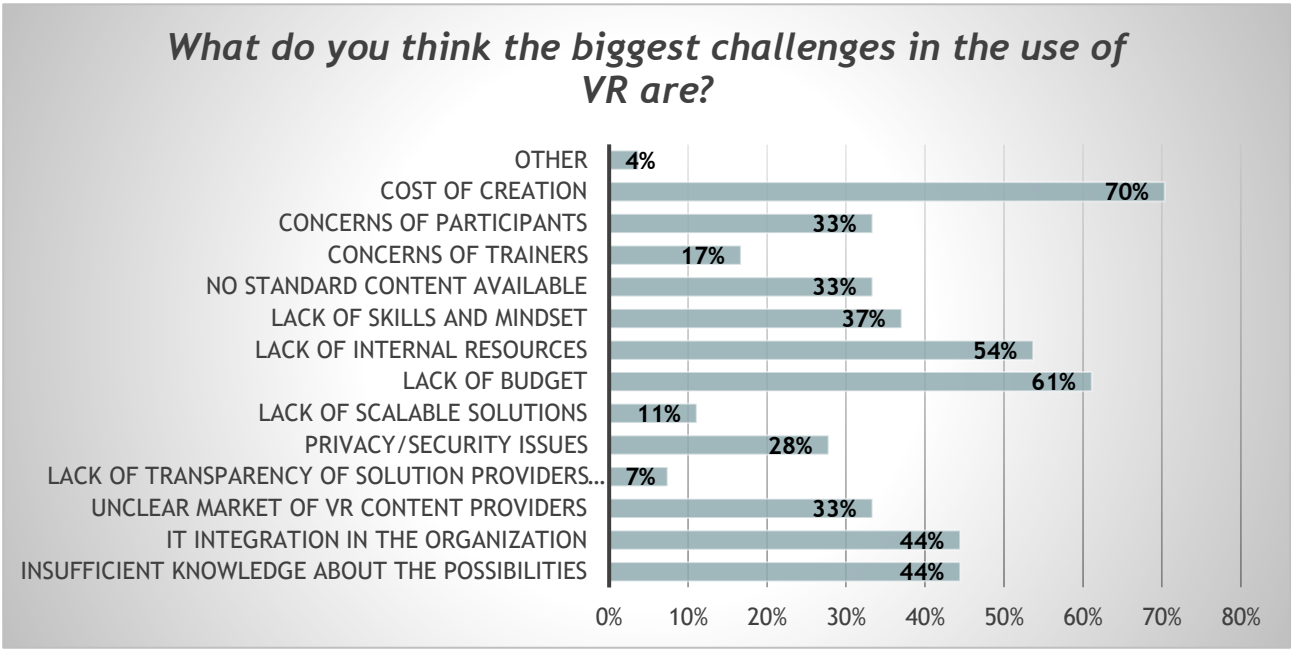


Respondents were allowed to choose any number of options.

Picking answers that were selected by more than 60% of respondents we see Risk Situations Training (78%), Site visits (63%) and Explaining machines (63%). We are happy to see, that the most selected answers show a good fit with the goals of our project. However, compared to the first group of respondents, the option Healthcare dropped from 71% to 59%, showing that awareness about VR possibilities in this field could be improved.

The lowest answers rates were at Process training (26%), Soft Skills Training (30%) and VR collaboration (31%). These answers are somewhat different from what the respondents form the active user group chose.

Pathway "No"- Question 2



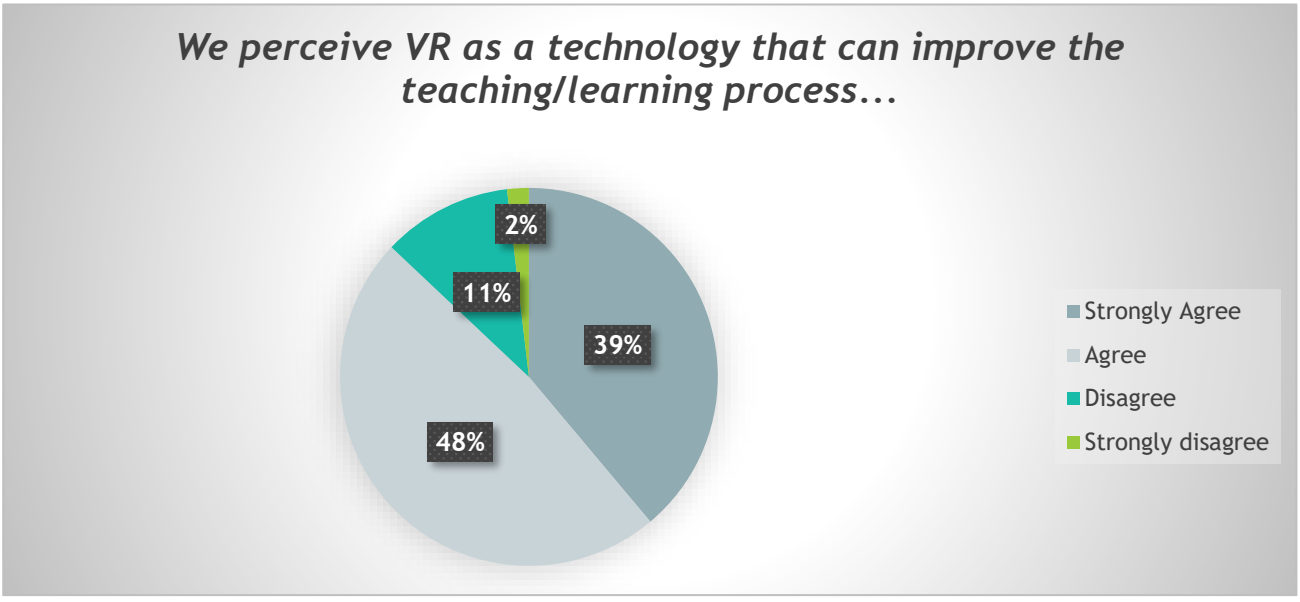
Respondents were allowed to choose any number of options.

As the three most selected challenges) were marked the Costs of creation (meaning costs for having a customized solution (70%), Lack of budget (61%) And Lack of Internal resources (54%). These answers show that the biggest perceived challenges are related to costs and resources.

Challenges In this group were seen as larger/more often selected, than in the group who is already using VR.

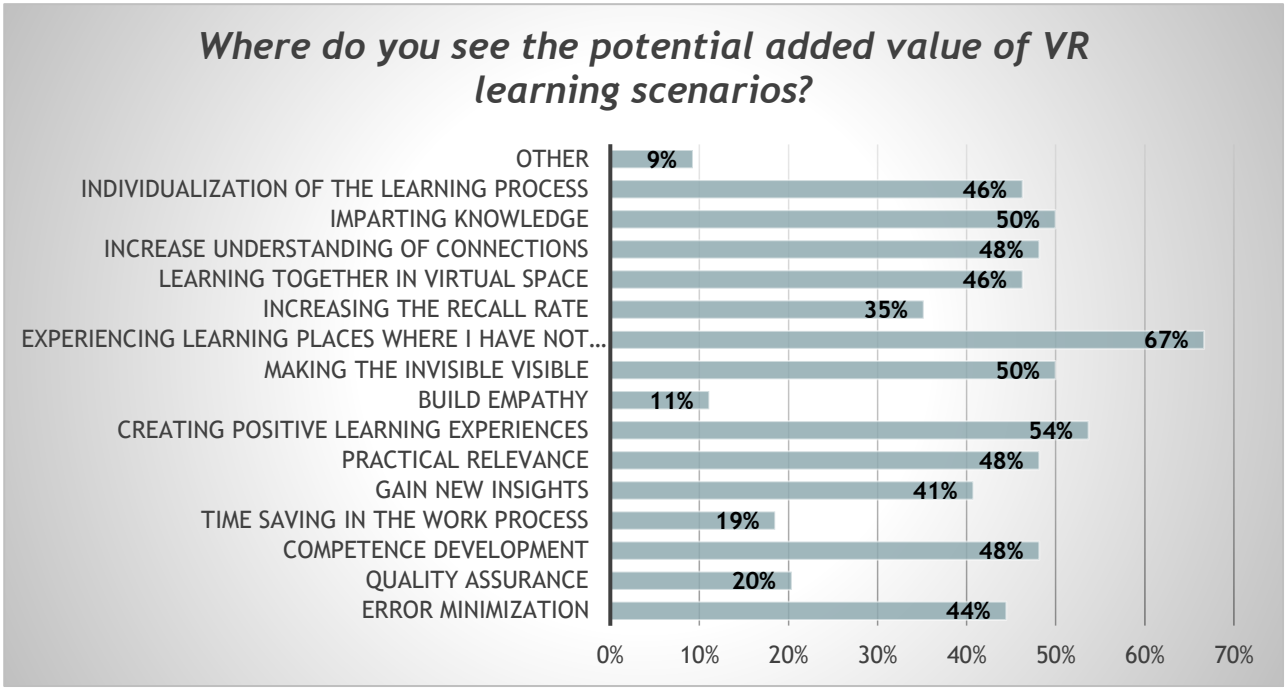
The least concerning options were Lack of transparency of solution providers e.g. authoring tools (7%) Lack of scalable solutions (11%) and Concerns of trainers (17%). This shows logical conclusion that organisations who do not use the technology actively and are lacking budget or other resources are not bothered with problems more related to usage of the technology.

Pathway "No"- Question 3



39% of respondents strongly agrees with this statement, 48% agrees, 11% disagrees and 2% strongly disagrees. This is a notable change for worse compared to respondents who already use VR on a daily basis.

Pathway "No"- Question 4

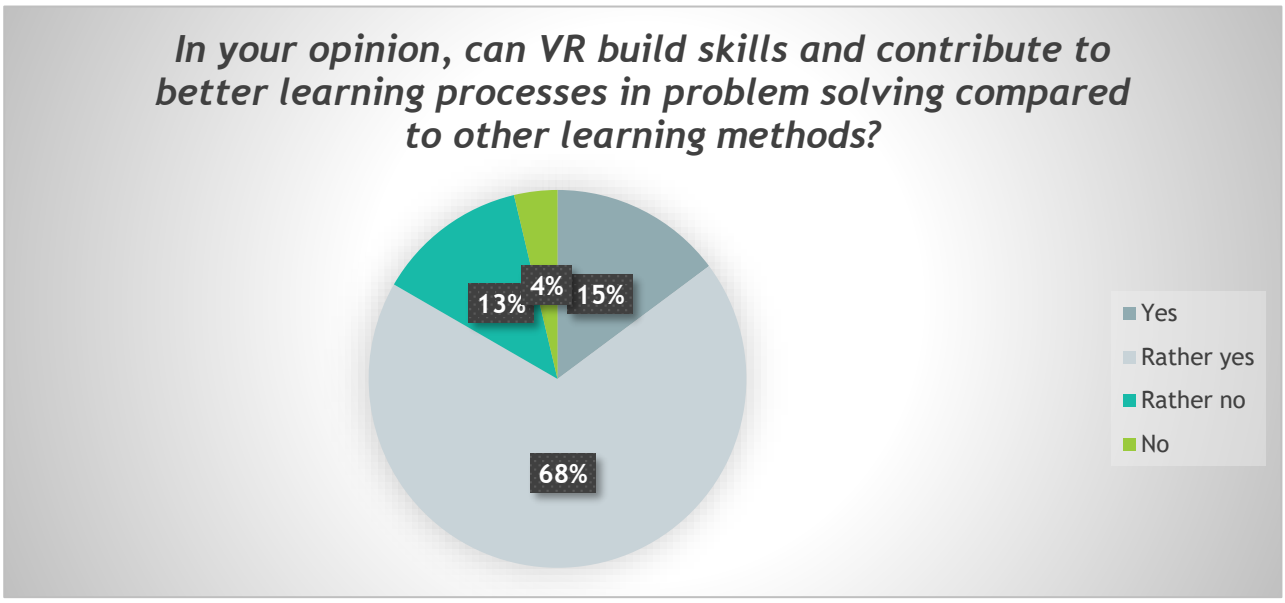


The largest potential for added value is seen in Experiencing learning places where I have not yet been (67%), Creating positive learning experiences (54%) Imparting knowledge (50%) and Making the invisible visible (50)

The answers selected match the responses of the VR active users, however, the numbers are lower than in the other group of respondents.

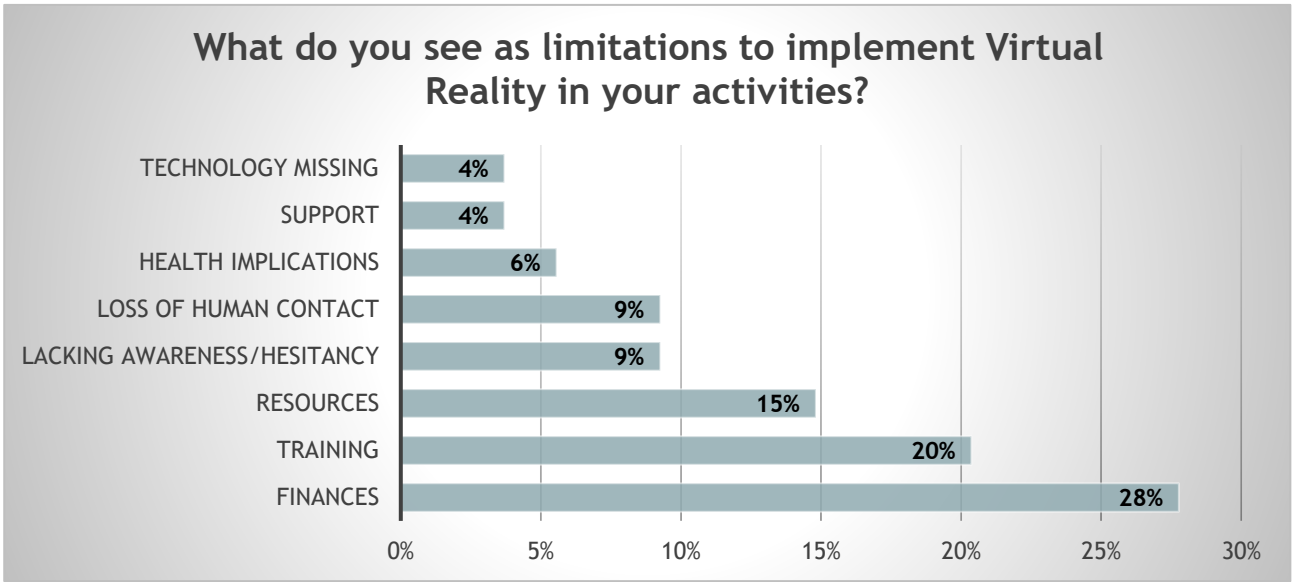
Just as in the other group, one option was notably lower in results than others, Building empathy, with just 11% selection rate.

Pathway "No"- Question 5



15% of respondents answered "Yes" and 69% respondents answered, "Rather yes". 13% of respondents answered, "Rather no" and 2 respondents answered with a definite "No". This result is a notable change to more negativistic result compared with the other group.

Pathway "No"- Question 6



This was an open qualitative answer, respondents could write their own perception. In order to process the answers, we have read through all of the answers and tagged them in multiple categories. Please note that some respondents expressed multiple opinions/ideas, therefore one answer can have multiple tags. Some respondents did not leave any answer.

28% of respondents stated that "Finances/Costs" are their largest limitation that prevents them from VR implementation. However, it could be, that while VR is getting more and more affordable, organisational budgets for overall innovation could be low or even non existing.

20% of respondents expressed as a limitation the necessity of “Training”.

Similarly, 15% of respondents stated various “Resources” as the limitation, here we have included time, staff/personnel or IT capabilities within organisation.

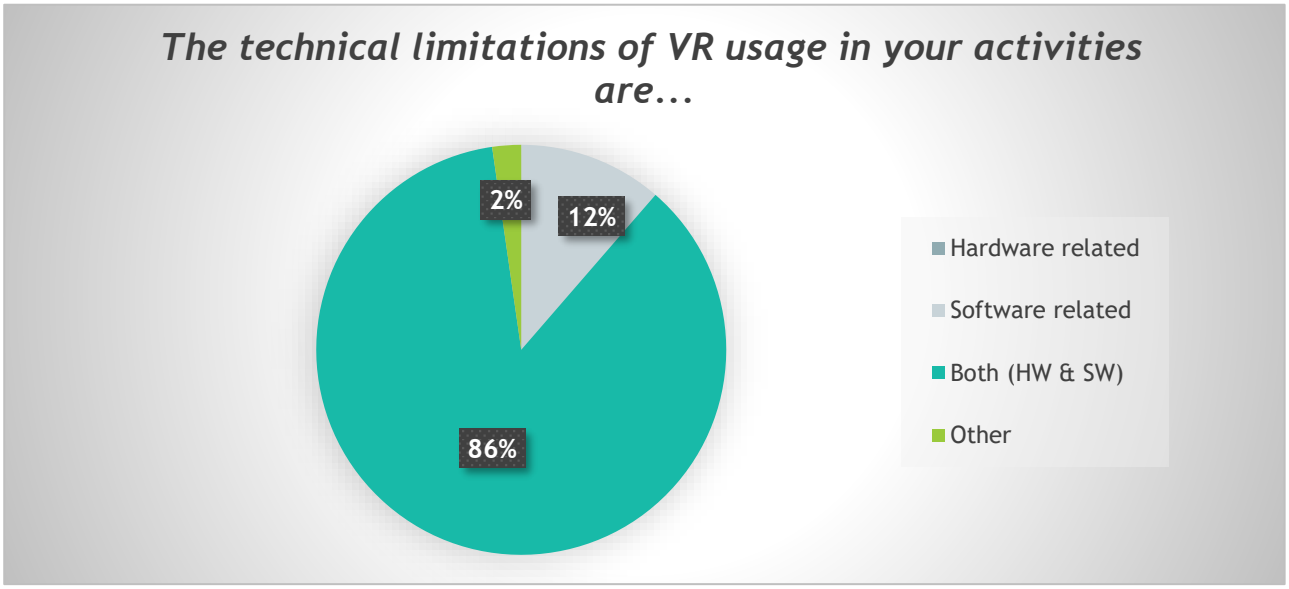
9% of respondents stated that “Lack of interest or Hesitancy” is the limiting factor. This one could be easily removed thanks to better information spread and possibility to try VR.

9% of respondents are afraid of “Loss of human contact”, seeing VR technology too isolating and removing social aspects.

Only 6% are stating that “Health implications” such as motion sickness or hygiene are holding them back from implementing. We expected this number to be higher.

Other, less popular answers include “lack of support” – 4% or “lack of fitting technology” – 4%.

Pathway “No”- Question 7



No respondents selected Hardware as their sole limitation. Only 11% selected software as their sole limitation. 86% of respondents described both Hardware and Software as their technical limitation.

One respondent entered a custom answer, stating Data protection as the hurdle. However, this could be not just technical but also a legislative hurdle.

E. Conclusion

When looking at the results of the survey, based on the data we can notice a few core findings.

The first one is, that VR is currently primarily used as a supplementary tool in treatments, not the main one. As a project we are, however, perfectly satisfied with this position, as there are procedures or operations that the technology is currently (and some maybe never) not able to replicate/replace.

As we continually upgrade the outputs of the projects, reaching to results of direct conversations and feedback from the actors in the field, their examples of best practice and experiences tell, that the position of a supplementary technology that supports the whole treatment process of a patient or training of new personnel is a great fit for VR and the search for new areas of where to use the technology within the fields of healthcare and education is desirable.

The second one is, that looking at the results, organisations that already have some experience in active VR use see the technology more optimistically and with potential of reaching into new areas and processes. The biggest challenges seen by the “not-active users” are mostly declared to be the lack of finances, other resources or IT knowledge/support. On the contrary, the “active users” declare insufficient knowledge about possibilities and internal personal capacities as challenge, fitting with the idea of “I wonder what else we could use VR for, but will we have enough people to manage it?”. To give fair conclusion, financial burden is also mentioned, but the response rate to it is not as prominent as with “non-active users”.

Based on the results of the questionnaire we can conclude that VR is a positively perceived supplementary tool by those who are already using it, but those who have not had enough practical experience with it are much more anxious about it.

This “gap” matches with the purpose of our project, which is to simplify the dissemination of VR technology and its perks into active usage in the areas of education and training and shows the need of assistance of various market subjects with the transition towards newer, cleaner, more sustainable but also human-friendly technology.

Interreg CE VReduMED Questionnaire

Dear respondent, in front of you is a short questionnaire about your experiences and usage perception of Virtual Reality (VR) based technologies.

Your inputs help us with achieving our goal of identifying innovative project concepts under the Interreg CENTRAL EUROPE project VReduMED, focused on developing VR-based solutions for the care sector, but also its affiliated sectors, such as education, medtech and other.

The questionnaire consists of 13 questions and shouldn't take you more than 10 minutes to complete.

If you are interested in attending a professional event focused on the possibilities of using VR solutions in the areas of education, training and everyday practice, please leave us your e-mail at the end of the questionnaire. (Participation in the event is free of charge.)

* Označuje povinnú otázku

1. Do you have experience with using Virtual Reality solutions in your typical activities? *

   Follow-up questions will be selected based on your answer.

   Označte iba jednu elipsu.

   - ◯ Yes *Preskočiť na 2. otázku*
   - ◯ No *Preskočiť na 15. otázku*

VReduMED Questionnaire - VR experienced

2. For what purpose do you use VR technology?

   Please write a short, but sufficiently explanatory answer.

3. Virtual Reality is used as... *

Začiarknite všetky vyhovujúce možnosti.

- [ ] Main tool
- [ ] Supplementary tool
- [ ] Tool for intensive education/training
- [ ] Tool for simulating special/specific? challenges
- [ ] Tool for playful deepening of skills

4. What subjects/areas do you see as potentially usable with VR? *

Začiarknite všetky vyhovujúce možnosti.

- [ ] Soft Skills Training
- [ ] Technical Skills Training
- [ ] Risk Situations Training
- [ ] VR Collaboration
- [ ] Methods Training
- [ ] Healthcare
- [ ] Product training
- [ ] Explaining machines
- [ ] Process training
- [ ] Relaxation & Resilience
- [ ] Site visits
- [ ] Onboarding
- [ ] Communication training
- [ ] Iné: _____

5. What do you think the biggest challenges in the use of VR are? *

Začiarknite všetky vyhovujúce možnosti.

- [ ] Insufficient knowledge about the possibilities
- [ ] IT integration in the organization
- [ ] Unclear market of VR content providers
- [ ] Lack of transparency of solution providers e.g. authoring tools
- [ ] Privacy/security issues
- [ ] Lack of scalable solutions
- [ ] Lack of budget
- [ ] Lack of internal resources
- [ ] Lack of skills and mindset
- [ ] No standard content available
- [ ] Concerns of trainers
- [ ] Concerns of participants
- [ ] Cost of creation
- [ ] Iné: _____

6. We perceive VR as a technology that can improve the teaching/learning process... *

Označte iba jednu elipsu.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree

7. *

Where do you see the potential added value of VR learning scenarios?

Začiarknite všetky vyhovujúce možnosti.

- [ ] Error minimization
- [ ] Quality assurance
- [ ] Competence development
- [ ] Time saving in the work process
- [ ] Gain new insights
- [ ] Practical relevance
- [ ] Creating positive learning experiences
- [ ] Build empathy
- [ ] Making the invisible visible
- [ ] Experiencing learning places where I have not yet been
- [ ] Increasing the recall rate
- [ ] Learning together in virtual space
- [ ] Increase understanding of connections
- [ ] Imparting knowledge
- [ ] Individualization of the learning process
- [ ] Iné: _____

8. In your opinion, can VR build skills and contribute to better learning processes in problem solving compared to other learning methods? *

Označte iba jednu elipsu.

- ◯ Yes
- ◯ Rather yes
- ◯ Rather no
- ◯ No

9. What advantages of using VR technology do you perceive?

10. What disadvantages of using VR technology do you perceive?

11. The implementation of VR into processes of our company was... *

Označte iba jednu elipsu.

- Very simple
- Simple
- Complicated
- Very complicated

12. The use of VR in your organization increases over time... *

Označte iba jednu elipsu.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

13. What else would you like to tell us about VR for training and further education in the medical sector?

14. I'm interested in attending a professional event focused on the possibilities of using VR solutions in the areas of education, training and everyday practice

(Participation in the event is free of charge.)

Please fill in your e-mail address and we will reach out to you.

VReduMED Questionnaire - VR inexperienced

15. What subjects/areas do you see as potentially usable with VR? *

Začiarknite všetky vyhovujúce možnosti.

- [ ] Soft Skills Training
- [ ] Technical Skills Training
- [ ] Risk Situations Training
- [ ] VR Collaboration
- [ ] Methods Training
- [ ] Healthcare
- [ ] Product training
- [ ] Explaining machines
- [ ] Process training
- [ ] Relaxation & Resilience
- [ ] Site visits
- [ ] Onboarding
- [ ] Communication training
- [ ] Iné:

16. What do you think the biggest challenges in the use of VR are? *

Začiarknite všetky vyhovujúce možnosti.

- [ ] Insufficient knowledge about the possibilities
- [ ] IT integration in the organization
- [ ] Unclear market of VR content providers
- [ ] Lack of transparency of solution providers e.g. authoring tools
- [ ] Privacy/security issues
- [ ] Lack of scalable solutions
- [ ] Lack of budget
- [ ] Lack of internal resources
- [ ] Lack of skills and mindset
- [ ] No standard content available
- [ ] Concerns of trainers
- [ ] Concerns of participants
- [ ] Cost of creation
- [ ] Iné: _____

17. We perceive VR as a technology that can improve the teaching/learning process... *

Označte iba jednu elipsu.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree

20. What do you see as limitations to implement Virtual Reality in your activities?

21. The technical limitations of VR usage in your activities are...

Označte iba jednu elipsu.

- ◯ Hardware related
- ◯ Software related
- ◯ Both (HW & SW)
- ◯ Iné: _____

22. I'm interested in attending a professional event focused on the possibilities of using VR solutions in the areas of education, training and everyday practice

(Participation in the event is free of charge.)

Please fill in your e-mail address and we will reach out to you.

18. *

Where do you see the potential added value of VR learning scenarios?

Začiarknite všetky vyhovujúce možnosti.

- [ ] Error minimization
- [ ] Quality assurance
- [ ] Competence development
- [ ] Time saving in the work process
- [ ] Gain new insights
- [ ] Practical relevance
- [ ] Creating positive learning experiences
- [ ] Build empathy
- [ ] Making the invisible visible
- [ ] Experiencing learning places where I have not yet been
- [ ] Increasing the recall rate
- [ ] Learning together in virtual space
- [ ] Increase understanding of connections
- [ ] Imparting knowledge
- [ ] Individualization of the learning process
- [ ] Iné: _____

19. In your opinion, can VR build skills and contribute to better learning processes in problem solving compared to other learning methods? *

Označte iba jednu elipsu.

- ◯ Yes
- ◯ Rather yes
- ◯ Rather no
- ◯ No