INSTITUT FÜR HÖHERE STUDIEN
INSTITUTE FOR ADVANCED STUDIES
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Co-Creating Interactive Virtual Reality Training Environments.

Reflections on a model for a participatory design process

Dr. Elisabeth Frankus
Institute for Advanced Studies
Science, Technology and Social Transformation

Dr. Elisabeth Frankus

Elisabeth Frankus holds a PhD in Sociology and a Magister in Sociology and Educational Sciences, is qualified project manager and has further education in business studies, coaching and training. Since 2008 she has been working in European projects and since April 2015 as senior researcher at the Institute for Advanced Studies (IHS) in the research group “Science, Technology and Social Transformation” focusing on the topics of Responsible Research and Innovation, Virtual Reality and participatory methods. She has been teaching at different universities in Austria since 2010.

Content

- Virtual Skills Lab project
- Limitations of the co-creative approach in the Virtual Skills Lab project
- Ideal-typical co-creative and participatory development
- Conclusions

Virtual Skills Lab

- Idea of the project was developed in the „Ideas Lab“ (human-machine interaction in working environments)
- Idea: developing an interactive VR environment for social skills training
- Transdisciplinary team
- Interactive VR technology in combination with technologies like speech recognition and natural language processing
- Co-creative process

Virtual Skills Lab

- Interviews with experts from different backgrounds (VR, business, training, trade unions)
- Co-creation with potential users
- „decline in an appreciative way“
- Decision on the characteristics of the virtual non-playable character:
  - woman aged about 30 years with migration background
  - + alternative characters
- Workshop with ethic experts

Limitations of the co-creative approach in the Virtual Skills Lab

- Several stages are carried out by the respective specialists
- Need of more interaction, reflection loops
- Lack of decision-making and working methods set up
- Gap between in-group and out-group was not bridged
- Potential users:
  - Motivation?
  - Lack of communication
  - Different expectations

Limitations of the co-creative approach in the Virtual Skills Lab

- Potential users were not involved in technical descisions
  - Focus was on VR content
  - Lack of time due to the pandemic
  - Lack of ressources
- More time and more ressources would have been necessary
  - More potential users from different organisations could have been involved

Participation

3 categories of participation (Bonney et al. 2009)

- Contribution
- Collaboration
- Co-creation

Virtual Skills Lab: contributory / collaborative project:
many activities in which qualitative and quantitative data are created by potential users and experts. But co-creative and participatory elements in the design and in the implementation of the project.

Virtual Skills Lab		
Building block	**Category**	**Method**
Conception	Co-creative	Sandpit Ideas Lab
Requirement analysis	Contributory, collaborative	Qualitative interviews
Transdisciplinary implementation	Co-creative	De-central coordination, discussion and cooperation beyond specialized tasks
Target group involvement	Collaborative, co-creative	Workshops
Usabilty and User Experience	Contributory, collaborative	Qualitative and quantitative evaluation
Gender and Diversity	Collaborative, co-creative	Qualitative interviews, common decision on virtual non-playable character's characteristics
Ethics	Collaborative	Workshops

Co-Creation

- Involvement in the design
- Generation of quantitative and qualitative data
- Participatory decisions at any stage of the process with the help of decision tools (required skills)
  - Sociocracy
  - Systemic consensing
- Continuouse participatory loops
- Involving researchers and members of the public in publications and dissemention activities

Ideal-typical Model		
Building block	**Category**	**Method**
Conception	Co-creative, participatory	Sandpit, Systemic consensing
Requirement analysis	Contributory, collaborative	Qualitative and quantitative interviews
Transdisciplinary implementation	Co-creative, participatory	Non-hierarchical organization (e. g., sociocratic, systemic consensing)
Target group involvement	Co-creative, participatory	Workshops, Systemic consensing
Usabilty and User Experience	Contributory, collaborative	Qualitative and qualitative interviews surveys
Gender and Diversity	Co-creative, participatory, collaborative	Qualitative interviews, co-creative design of characters, systemic consensing
Ethics	Collaborative	Workshops

Conclusions

Co-creative and participatory potential of the design of socio-technical information systems could be further raised. Therefor we propose:

- Decision-making instruments like systemic consensing or a sociocratic organisation of discussions for
  - Conception of the project
  - Whole process of transdisciplinary implementation
  - Involvement of target and stakeholder groups
- Researchers should acquire necessary skills / support of external professionals