Collaborative Immersive Virtual Environments:
new dimension of working and learning

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What does mean „Virtual Reality“ and „Collaborative Immersive Virtual Environments“

- Virtual Reality (VR) is a technology which enables an user presence and interaction in simulated environment.
- Collaborative Immersive Virtual Environments (CIVE) is a form of VR which enables:
  - Virtual representations of the users (avatars)
  - Communication between the users
  - Online access from various geographical distant places
  - Locomotion in virtual environments
  - Immersion into virtual worlds; usually with Head-Mounted Displays (HMD)
  - to solve tasks in a collaborative manner and interaction with virtual environment
VR semestral course at the Faculty of Arts, MUNI

English lesson in CIVE focused on preposition practising

Groups of students and English language teacher met each other every two weeks during the autumn semester course in the Virtual Environments.

(example video; e.g. 40:15)
About our research team and project

Education in Collaborative Immersive Virtual Environments

Goals:
- To develop software solution for education in CIVE (called eDIVE)
- To develop instructional modules for Geography and English
- To empirically evaluate effectiveness of education in CIVE
- To implement education in CIVE into the everyday praxis

Team
- Faculty of Arts, Faculty of Informatics and Faculty of Science, Masaryk University
- Computer scientists, Psychologist, Geographers, Pedagogues…
History of our VR research group

- Close cooperation between Psychologist, Geographers and Computer scientist started
  - Established 2014
- Research infrastructure at the Faculty of Ars - HUME Lab
  - Established 2015
  - Among others, Oculus Rift with an SMI eye tracing system (20 000 Euro)
- Interdisciplinary research project Edu-Geo-IT
  - Started 2016
  - First software for CIVE and geographical educational tasks, 2017
- Empirical qualitative study – user experience in CIVE, 2017
  - Šašinka et al. (2019). Collaborative Immersive Virtual Environments for Education in Geography, IJGI, 8(1).
Main findings from the study

- Immersive VR has a great potential
- Advantages
  - VR Visualizations help to understand various phenomena
- Limits
  - Ways of the communication has to be adjusted
- Do not try to teach in the same ways as in „REAL“!
- Important aspects regarding effectiveness:
  - It has to be COLLABORATIVE
  - It has to be INTERACTIVE (active ways of learning)
History of VR our research group II

- Applied for funding TACR ETA2
  - Project „Education in Collaborative Immersive Virtual Environments“
History of VR our research group II

- Applied for funding TACR ETA2
  - Project „Education in Collaborative Immersive Virtual Environments“
  - Not funded because
    - VR technology is to Sci-Fi
    - There is no need for such tools and procedures in the context of education
History of VR our research group II

- Applied for funding TACR ETA2
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- Year 2018
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  - Year 2018

- Applied for funding TACR ETA3
  - Project „Education in Collaborative Immersive Virtual Environments“
History of VR our research group II

- Applied for funding TACR ETA2
  - Project „Education in Collaborative Immersive Virtual Environments“
  - Not funded because
    - VR technology is to Sci-Fi
    - There is no need for such tools and procedures in the context of education
  - Year 2018

- Applied for funding TACR ETA3
  - Project „Education in Collaborative Immersive Virtual Environments“
  - Financially supported
  - Year 2020 - COVID 2019
History of VR our research group II

- Applied for funding GACR 2021
  - Project „Spatial data visualization in CIVE – a support for decision-making“
  - Not funded
History of VR our research group II

- Applied for funding GACR 2021
  - Project „Spatial data visualization in CIVE – a support for decision-making“
  - Not funded
  - Next year 2022 (COVID Plus, small war or natural disaster)
The platform eDIVE

- Platform eDIVE - tool for CIVE
- eDIVE is universal and customisable (new functionality, content)
- eDIVE for education as well as for research
- eDIVE developed based on user experience
- Priority HMD (VR glasses), works as the desktop app as well as.
Flatscreen user-interface of the platform eDIVE
Meeting alert !!!

when 13.12. 2021  15:10
where Villa Stiassni, Brno
who Alžběta, Natálie
Examples of VR apps of our team

1. English education
2. Geography education
3. Rekonstruktion of archeological findings
4. Sharing of cultural heritage: Vila Stiassni
5. Creative using of VR: 3D painting
6. Flight simulator for paraglde pilots
7. Emergency evacuation
1. English lessons - eDIVE

„Furnishing home“
Thank you for Your attention

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