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

- Virtual Realita (VR) is a technology which enables to 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

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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 autumm semestral course in the Virtual Environments.

(example video; e.g. 40:15)

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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 empiricaly 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…

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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).

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Main findins 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)

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History of VR our research group II

- Applied for funding TACR ETA2
  - Project „Education in Collaborative Immersive Virtual Environments"

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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

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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

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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"

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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

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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

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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 distaster)

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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.

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Flatscreen user-interface of the platform eDIVE

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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. Rekonstruction of archeological findings
4. Sharing of cultural heretige: Vila Stiassni
5. Creative using of VR: 3D painting
6. Flight simulator for paraglide pilots
7. Emergency evacuation

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1. English lessons - eDIVE

„Furnishing home"

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Thank you for Your attention

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