Development of the Virtual Simulation: Classroom

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The Virtual Simulation: Classroom (VS:C) is a simulation of a realistic school classroom which is utilized as a training for children with ADHD by the University of Tübingen's LEAD Graduate School and as a training tool for teacher trainees by the University of Paderborn. This presentation will discuss lessons learned during the development of the VS:C. The following points are covered:

1. Creating realistic characters is one of the more complex aspects of developing a simulation, game or experimental software. Several tools within the Unity game engine as well as external character creation tools will be described as a proposed pipeline. Moreover, character animation solutions will be discussed.
2. Realistic environments are critical for immersive virtual reality (VR) experiences. The VS:C was first created when 3D scanning solutions and 360-degree-cameras were still prohibitively expensive. Its affordable pipeline for creating realistic 3D models will be contrasted against more modern approaches.
3. The VS:C has been built for the Oculus Rift DK1 and DK2. Over the course of the past two years, constant updates to the Oculus SDK and Unity's Rift integration have been a challenge to the VS:C's development and its use in psychological experiments. Challenges and different HMD solutions are discussed.
4. Data collection is central to psychological experiments. There are many layers to data collection in VR that require special consideration. Latency/optimization, data conceptualization, data reading/writing and collaboration between researchers and developers are briefly discussed in this section.

In conclusion, the talk will present an overview of the VS:C's development process with lessons learned and more broad recommendations for VR development in general.