

# Leveling the Playing Field: A Tutorial on Game Accessibility in Education

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## Abstract:

In the field of educational gaming, ensuring equal access to learning experiences is essential. "Leveling the Playing Field: A Tutorial on Game Accessibility in Education" is a 90-120 minute workshop designed for beginner and intermediate level participants. We explore the intersection of game development and accessibility, addressing the need to remove barriers for people with impairments or disabilities. Our session begins with an overview of the potential of game development in education, followed by an exploration of accessibility challenges in different game formats, including virtual reality. We introduce guidelines such as the Game Accessibility Guidelines and offer insights into their practical implementation. Through interactive activities and discussions, participants will gain hands-on experience in applying accessibility principles. Ultimately, the workshop aims to equip participants with essential knowledge and strategies for creating inclusive educational gaming experiences.

## About the speakers:

Saba Mateen and Paula Wiesemüller are academic researchers from studiumdigitale - innovation unit for technology-supported teaching and learning at Goethe University Frankfurt. Both have a masters degree in computer science and are part of the media technology department of studiumdigitale. Their research fields include accessibility, virtual reality and artificial intelligence. Mateen and Wiesemüller presented the virtual reality escape room "Access to Escape" as the outcome of their masters thesis at different international conferences.

## Our research field:

Various concepts on gamifying education, such as gamification, serious games, and game-based learning, are designed to enrich learning through positive and playful experiences. These approaches have the potential to significantly motivate students and yield positive impacts on learning outcomes. However, when introducing such new formats into educational settings, it is essential to ensure that all individuals can benefit equally from the presented material. Educational institutions are often legally obligated to provide equal chances to every student; failure to do so can lead to disparities in learning opportunities among the diverse student population. This is where the crucial subject of game accessibility comes into play: It describes the area of game development that deals with the removal of barriers for people with impairments or disabilities.

Within this field, there are various sets of recommendations. For instance, the game accessibility guidelines (GAG) are a set of guidelines that is particularly broad and therefore covers a wide range of barriers. In addition, they recommend a workflow to assist the development process of accessible games. However, it is important to recognise that different media types have specific accessibility requirements. Take, for example, Virtual Reality (VR) which has the potential to create immersive learning environments and increase motivation while reducing distractions. Nevertheless, VR games must adhere to a distinct set of accessibility standards. The Oculus manual, for instance, offers an insight on accessibility requirements which are specifically tailored to VR environments. Regardless of the media type of the game, developers face the challenge of recognising which guidelines can be implemented within the framework of the individual game rules without disrupting the game mechanics.

## Workshop concept:

Duration: 90 - 120 minutes

Level: Beginners / Intermediate

This workshop is designed to offer participants a comprehensive introduction to the crucial field of game accessibility. First, we will introduce the basics of game development and its broad potential to enhance learning experiences. We will then explore the different ways in which barriers can appear in games and explain why accessibility in games is essential. Moving on, we will recommend guidelines for different game formats and present lessons learned regarding their application. Following this theoretical input segment, we will transition into an interactive session, facilitating hands-on exploration and discussion to deepen the understanding and application of accessibility principles. We will conclude our session with a final summary, outlining the key takeaways and looking ahead to planned developments and future efforts in the field of game accessibility.