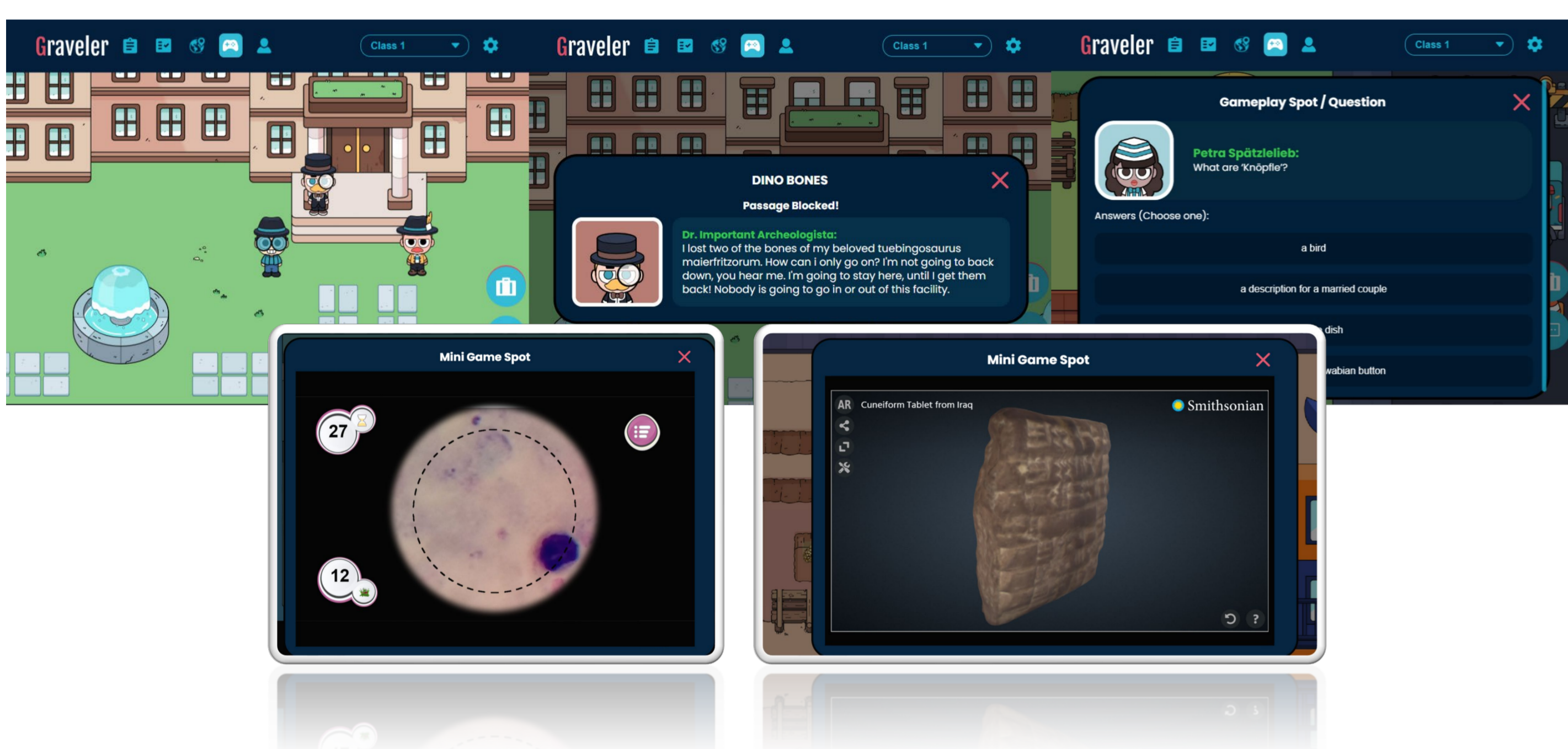




In response to students' growing expectations for digital learning methods, already in 2020 an interdisciplinary team at the University of Tübingen developed the innovative game-based e-learning system **Graveler**. The project brought together *Global Awareness Education*, the *M.A. specialization Digital Humanities*, and the *Center for Teaching and Learning in Higher Education*.

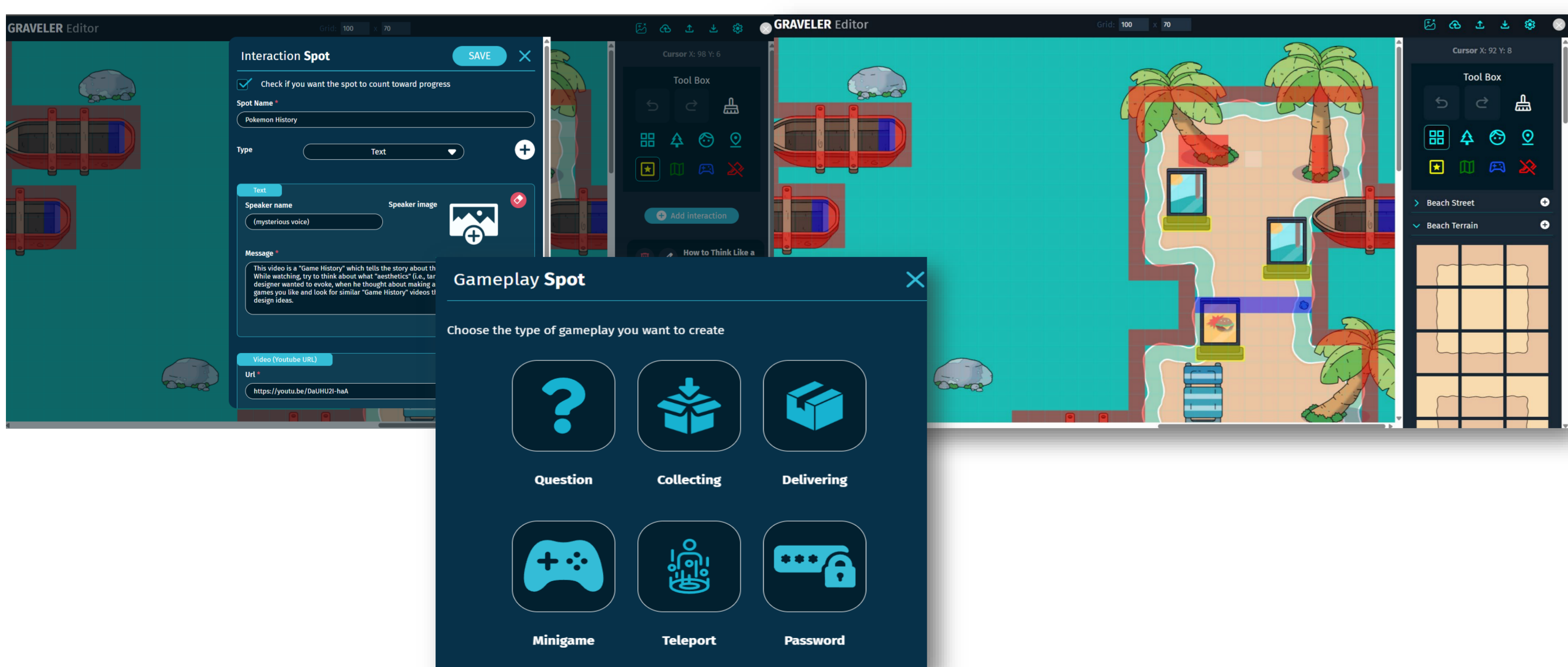
## PLAYFUL EXPLORATION

Graveler is a web-based multiplayer role-playing environment with spatial chat and integrated learning technologies, inspired by *Moodle*, *RPG Maker*, and *Gather*. Players explore interactive environments guided by non-player characters (NPCs) that support navigation and storytelling. Interaction points provide information and access to external resources such as videos, 360° images, 3D viewers, AI chatbots, browser-based games, and collaborative tools.



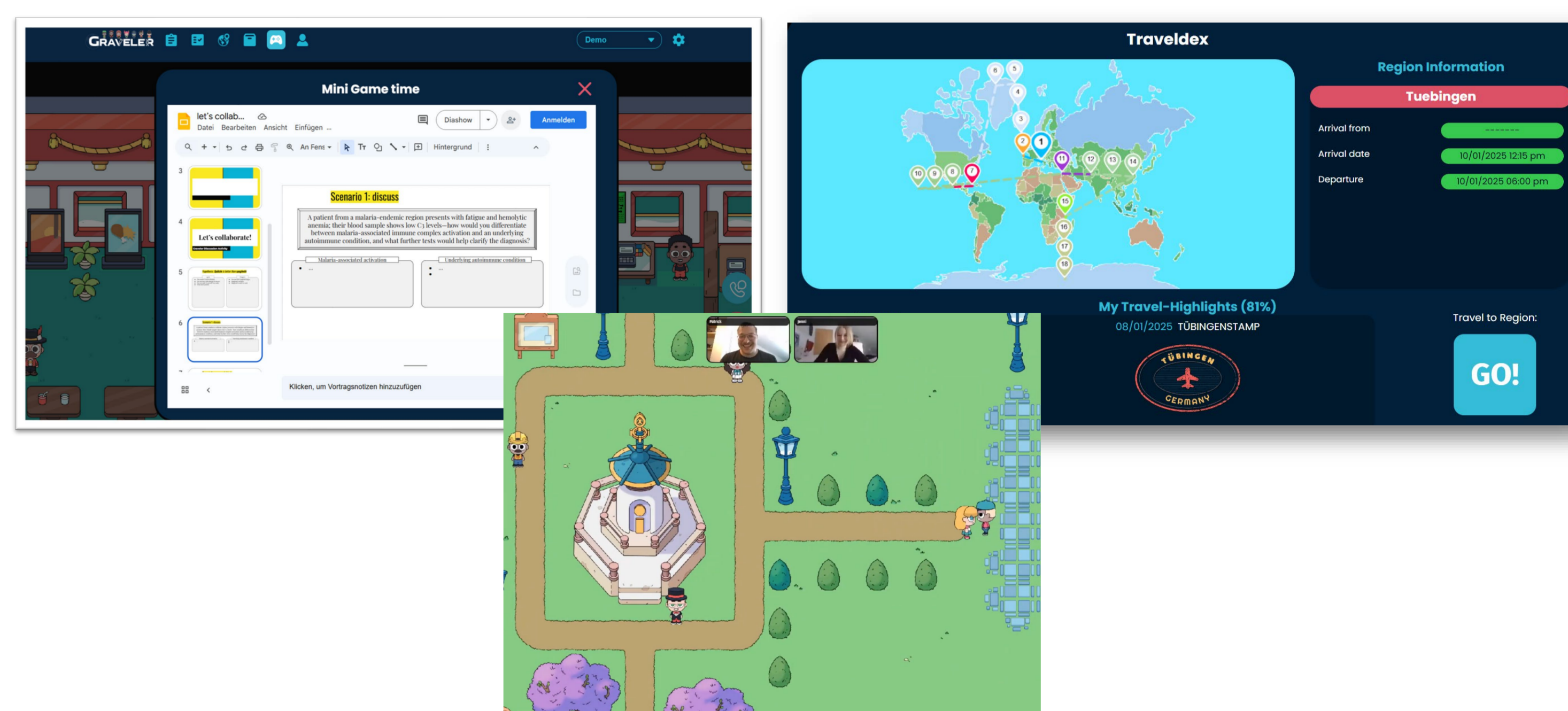
## MULTIMEDIA EDITOR

A built-in WYSIWYG editor enables the creation of scenic virtual environments, including the placement of NPCs and interactive elements. Graveler supports the integration of diverse media types and external resources – such as text, images, video, audio, immersive games, and VR experiences – allowing existing teaching materials to be reused without modification.



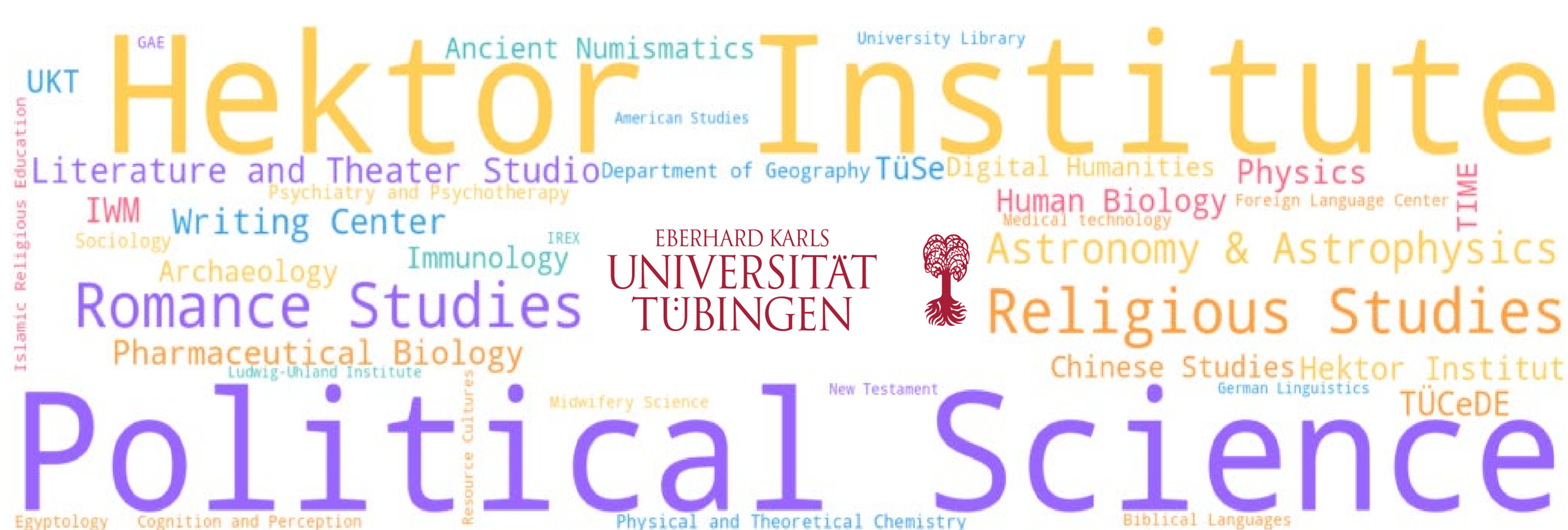
## COOPERATIVE EXPLORATION

The spatial chat feature allows players to initiate video calls directly in their browser when multiple characters meet in the virtual environment. This facilitates interaction among players, encourages active discussion, supports group-based tasks, and promotes the exchange of knowledge and experiences. In addition, spatial chat can be used to create virtual environments for workshops that incorporate expert sessions, even when participants and experts are geographically separated.



## INNOVATIVE E-LEARNING SYSTEM

Graveler includes core functionalities typical of e-learning systems, such as literature and media portfolios, assignment management, workshop and class organization, and user administration. In addition, modern gamification elements have been implemented to motivate players, including visualizations of task progression and the player diary – known as the *Traveldex* – inspired by Japanese Eki stamp books. This diary visually records key events in the player's virtual journey, such as highlighted moments and unlocked achievements.



## COMMUNITY OF PRACTICE

Funded by the *Stiftung Innovation in der Hochschullehre*, a community of practice was established. Accordingly, Graveler has been used in a wide range of university classes and workshops across diverse fields, and a strong and active community was built throughout the last years. Using their practical user experiences, Graveler was improved iteratively, e.g. through functionalities that enable the export of virtual worlds, their publication as OER, and their re-import for reuse and adaptation.

