

Bridging the Digital and Drama

The Use of Physical Computing With the Micro:Bit and Digital Props as a Tool for Co-creating Drama Scenes

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Abstract

This workshop is based on theater improvisation according to G. Czerny (2017) and the methods of digital making (Ingold & Maurer, 2021).

In this session, we will teach the connection between theater improvisation and physical computing created with the help of digitally controlled props. The concept of “Informatiktheater” is based on pre-programmed objects. The participants receive a digital prop, examine the interaction and behavior of the object and give it a theatrical meaning. From this, they create their own theater scene. Only then do they learn the basics of the Micro:bit. They assign the sensors and actuators used to the behavior of their prop and get to know the corresponding code. The physical experience of playing is directly assigned to the IT system. The participants now adapt the code of their prop to their scene. Theater and programming are developed iteratively until the scenes can be performed in front of an audience.

By merging computer science and theater, this collaborative and creative coding process leads to the creation of a small-scale performance that showcases the potential of this combination. The concept of ‘Informatiktheater’ combines drama education with digital teaching methods, making programming more accessible and enjoyable, especially for children and young people who struggle with IT topics. This unique combination makes it possible to teach participants IT skills as well as social and performance skills in a creative environment. Programming should be perceived as a means of artistic expression.

The plan is to further develop the concept so that the props can also be programmed with Python in order to appeal to older participants. The method and hardware will be described so that teachers can also carry out projects without specialising in computer science and drama.

The workshop is suitable for teachers, education managers and those interested in developing new educational formats. Participants will not only enhance their programming skills, but also discover fresh opportunities for creative design and storytelling.

Tools, Skills and Materials: Tools -> Micro:bit, Digital props, Microsoft Makecode, theatre improvisation, Skills -> experimenting and programming with digital props

Keywords and Phrases: Physical Computing on stage, theater, Improvisation. drama education, Making, Creativity in Education, Collaboration



Scope, Motivation, and Background

Computer science has been part of basic education in Switzerland since the introduction of Curriculum 21 (Swiss-German Conference of Cantonal Ministers of Education, 2016). However, what should be understood by computer science education is the subject of intense debate (Döbeli-Honegger, 2016, p. 85). The constructionist approach forms the basis for the workshop “BRIDGING THE DIGITAL AND DRAMA”. Theater improvisation has many parallels with digital making. When improvising, structures are sought, recognized and formalized on stage. The same goes for experimenting with microcontrollers. Both approaches require open-ended planning, an iterative approach and creative and collaborative development.



Figure 1:

This workshop invites participants to explore the integration of digital technology and theater through hands-on activities using the Micro:bit microcontroller. They will learn to code interactive props that respond to actors' movements and cues, enhancing the theatrical experience. The session will involve collaborative brainstorming and coding, culminating in a mini-performance showcasing the coded interactive elements. “Informatiktheater” is a collaboration between drama education and digital didactics, which aims to create a sensual, playful and creative approach to programming. Children and teens who usually struggle with ict find a real sense in programming and succeed. We will present our format and exchange ideas to enhance it. For participants there is no previous knowledge in drama or coding necessary.

References

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