

Designing with multi-touch technologies

CORE PURPOSE: To support student collaboration and comprehension of difficult concepts through the use of multi-touch technologies

NARRATIVE OVERVIEW:

I, Mr Disdier, am a design and technology teacher and I want to engage students in my class in thinking about the theories and concepts behind spatial design. I decide to develop a design project using the available multi-touch interface technology in the school to support collaborative learning related to design.

I begin the topic with some introductory design activities that use the school's touch tables to foster collaboration amongst my students from the outset. Students look at photographs of different spatial designs and work together to analyse and annotate characteristics of the designs. I then organise students into small groups, each of which create fun design challenges for the other groups to solve. The multi-touch applications students work on are networked to the main classroom IWB, so I can demonstrate each group's progress on the IWB throughout the lessons.

The students feed back on the spatial design concepts they learn from the initial activities, and I integrate the class ideas to more theoretical design and maths concepts through lecture and supplementary materials. The developing set of shared knowledge within the class is recorded and shared on a class web page.

The groups are then asked to draw on their learning of spatial design and design a space (eg urban, small community, school) with certain conditions and criteria. I give each student a particular research or design role in their group, to ensure their contributions. Students' designs will be judged by an 'expert panel' of local architects and planners based on the agreed criteria. Groups create their designs collaboratively using the multi-touch technology interfaces and 3D modelling tools and applications. These tools allow students to visualise their design from different scales and angles, which provides an immersive experience in which students can assess and edit their designs as needed. Students share their designs with other groups who annotate and assess them. I also encourage groups to take their project outdoors to gather and record information and inspiration about spatial design. I am available to help with design ideas or use of the technology as required. As the design process unfolds, the groups contribute to the class' shared understanding of the topic on their collaborative document. Finally, they present their finished designs – and the concepts behind them - to the expert panel for feedback. This feedback is combined with the other assessments undertaken throughout the project to form the final summative assessment of the project.

TREND/S

Increasing frustration of young people with typical classroom activities

There is an increasing understanding across education systems in Europe - and globally - of how technology and a focus on emotional well-being can be effective to motivate young people, and help them engage with important subjects like Maths, Science and Technology (MST).

POSSIBLE APPROACHES TO TEACHING AND ASSESSMENT

- Instructional learning to introduce topic and relevant theory
- Project-based learning
- Common assessment practices agreed across subjects
- Peer formative assessment
- Summative assessment is combined from assessment collected throughout the project

ENVIRONMENT

- Classroom with multi-touch technology (ideally networked)
- Outdoor spaces
- Online shared web page

PEOPLE & ROLES

- One lead teacher organises the topic, activities and contribution of other teachers in the school. This teacher also motivates students to participate and structures the development of understanding of the topic's important themes so that all groups feel they can contribute..
- Students work as a whole class and collaborate in small groups. They may take on specific roles within the groups to ensure each individual's contribution.
- A 'panel of experts' (architects and planners working in the field) are involved at the end of the project to support assessment of students' designs and shared conceptual understanding and give professional feedback on designs and presentations.

ACTIVITIES

- Evaluating and critiquing design
- Competitive games
- Joint construction of understanding about spatial design
- Collaborative design

RESOURCES (INCL. TECHNOLOGIES)

- IWB
- Multi-touch interface technologies (touch tables)
- Relevant software applications for the multi-touch tech (eg drawing, design, 3D modelling)
- Shared collaborative web page (eg Google document, blog, wiki)