



Discussion Terminals as Scaffold for Critical Thinking and Reflective Judgment about Controversial Socio-Scientific Issues

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In addressing current socio-scientific issues science museums are challenged to present the ambiguity and controversy of these topics and to support visitors in developing reflective and critical thinking. Boyd (1998, p. 214) considers the modern science museum as a “marketplace of multiple points of view, a forum where controversy can be aired”. However, museums might not only provide information about competing viewpoints and sources but also place visitors into the centre of the debate by giving them an own voice: Cameron (2003, p. 21) states that “the key issue in the reformation of museums is the audience participation in debates”. Thus, science museums face the challenge to develop new installations which emphasize visitors’ involvement, challenge their views, and foster opinion formation about current socio-scientific issues.

Modern discussion-based installations for visitor engagement



Fig. 1-4: Design Proposals for Innovative Dialogue Terminals, Deutsches Museum, Germany (©Kaiser Matthies, Berlin)

The potential of discussion-based activities for knowledge acquisition and opinion formation

The idea of scaffolding systematic processing of relevant information about risks and potentials of NT and thereby enhance opinion formation of museum visitors is central to our research: Based on innovative design proposals for dialogue-based installations (see fig. 1-4), a discussion terminal has been developed that supports critical evaluation of relevant arguments pro and con nanotechnology, gives the opportunity to express one’s own opinion, and elicits social comparison of opinions by means of opinion exchange between different museum visitors (see fig. 5-7).

We tested the impact of three factors on knowledge acquisition and opinion formation:

1. Expression of one’s own opinion
2. Support for critical evaluation of relevant arguments
3. Social comparison and opinion exchange

The first study showed that expression of opinion nanotechnology enhances knowledge acquisition. However, salience of arguments was crucial for formation of well-founded opinions that are independent from prior beliefs and general attitudes towards technology.

The second study found that social comparison and opinion exchange reduces the myside bias in argumentation and stimulates elaboration and integration of counter positions when visitors disagree.

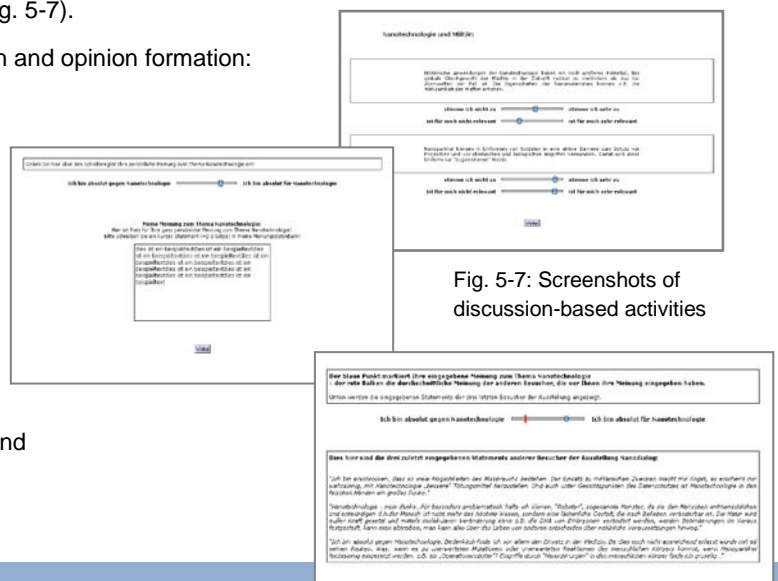


Fig. 5-7: Screenshots of discussion-based activities