Document name: Examples of design patterns and design principles
Document date: 2015

OpenLearn course: Exploring innovative assessment methods
OpenLearn url: https://www.open.edu/openlearn/education-development/exploring-innovative-assessment-methods/content-section-overview

Examples of design patterns and design principles

The Open University.

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Design patterns

Two examples of the design patterns available from The Pattern Language Network are:

Wear your skills on your shirt

http://web.lkldev.ioe.ac.uk/patternlanguage/xwiki/bin/view/Patterns/WearYourSkills.html

‘Potential collaborators need to know about each other’s skills and abilities to complete a certain task. The aim of this pattern is baselining skills among potential partners before a task is approached together.’

In virtual environments, learners are often represented by avatars. These avatars could have visual attributes (or ‘badges') that represent skills the learners possess.

Objects to talk with

http://web.lkldev.ioe.ac.uk/patternlanguage/xwiki/bin/view/Patterns/ObjectsToTalkWith.html

‘Natural, face to face discourse makes extensive use of physical artefacts: we gesture towards objects that mediate the activity to which the discussion refers. This dimension of human interaction is often lost in computerized interfaces. … Learning activities involve the use or construction of artefacts.

When providing tools for learners to discuss their experiences, either as part of the activity or at a reflective meta-level, allow them to easily include these artefacts in the scope of their discussion. If the activity is mediated by or aims to produce digital artefacts, then the discussion medium should allow embedding of these artefacts. Whatever the nature of the objects, the medium should support a visual (graphical, symbolic, animated or simulated) 1:1 representation of these objects.’

Design principles

Build on student ideas

http://www.edu-design-principles.org/dp/viewPrincipleDetail.php?prKey=166

‘This principle calls for designing instruction that encourages students to build on their ideas as they develop more and more powerful and useful pragmatic scientific principles, rather than isolate new information from existing knowledge. Students’ epistemological ideas about science dictate their techniques for developing understanding of science and suggest additional aspects of the learner that need

consideration in instructional design (Bell and Linn, 2002). By illustrating the wrong paths, shaky assumptions, and inadequate interpretations that have contributed to science historically we help students expand their understanding of cultural influences on science and make a broader set of science ideas accessible.'

Connect to personally relevant contexts

http://www.edu-design-principles.org/dp/viewPrincipleDetail.php?prKey=171

'This principle calls for designing instruction that encourages learners to investigate personally relevant problems and revisit their science ideas regularly.

Too often students find academic science lacking personal relevance. This sense of irrelevance leads to lack of personal interest and low engagement levels. Personally-relevant problems drawn from students' everyday lives, such as determining how to keep a drink cold or how to minimize the potential radiation danger associated with cellular phone use can make science accessible and authentic. Such problems can elicit intuitive ideas to fuel inquiry because students have had prior experiences related to the problem scenarios. … eliciting the broad range of student ideas about science and supporting students to negotiate and explore these ideas enables them to build more coherent, durable scientific knowledge.

To make science accessible, instructional designers have to design the scientific content they offer students rather than necessarily choosing the most sophisticated ideas or the most attractive illustration. Designers have the responsibility of selecting the scope of knowledge integration, the examples, the sequence of topics, and the context of generalization.'