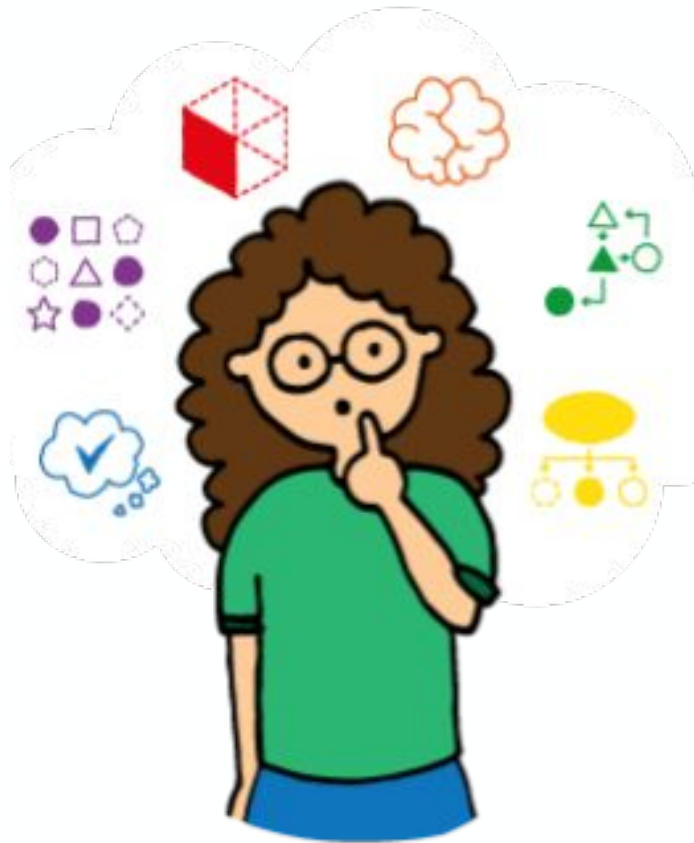




Heuristics lesson plan

Human Computer Interaction (HCI)



Lesson: Heuristics

Ages: 8 to 14

Learning outcomes

Students will be able to:

- Match issues with interfaces with Jakob Nielsen's 10 heuristics
- Apply Jakob Nielsen's 10 heuristics to their own programming

Lesson starter: introduction

Evaluating an interface is best done by getting feedback from having lots of potential users try it out. However, this can be expensive and time-consuming, so HCI experts have come up with some quick rules of thumb that help us spot obvious problems quickly. The formal word for a rule of thumb is a heuristic, and in this section we will look at some common heuristics that can be used to critique an interface.

There are various sets of heuristics that people have proposed for evaluating interfaces, but a Danish researcher named Jakob Nielsen has come up with a set of 10 heuristics that have become very widely used.



The information on heuristics comes from [CS Field Guide - Human Computer Interaction](#) chapter.

Lesson starter:

If you encounter a usability problem in an interface, it is almost certainly breaking one of these heuristics, and possibly a few of them. It's not easy to design a system that doesn't break any of the heuristics, and sometimes you wouldn't want to follow them strictly – that's why they are called heuristics, and not rules.

Often a confusing feature in an interface design will break multiple heuristics. For example, this error message (it genuinely occurred) doesn't help users recover from errors (the real error is a network setting, but it is explained as causing a flashing light!), and the "Skip", "Cancel" and "Ignore" buttons don't speak the user's language (match between the system and the real world).



The information on heuristics comes from [CS Field Guide - Human Computer Interaction](#) chapter 4.4 Usability heuristics.

Lesson starter:

Facilitate discussion(s) with students reviewing Jakob's Ten Usability Heuristics (*this could be done over several lessons*).

Explanations for each heuristic can be found on the [Computer Science Field Guide](#) website along with visual examples and interactives.

In addition you can get a poster on these heuristics from [Nielsen Norman Group](#).

1 Visibility of System Status

Designs should **keep users informed** about what is going on, through appropriate, timely feedback.

2 Match between System and the Real World

The design should speak the users' language. Use words, phrases, and concepts **familiar to the user**, rather than internal jargon.

5 Error Prevention

Good error messages are important, but the best designs **prevent problems** from occurring in the first place.

8 Aesthetic and Minimalist Design

Interfaces should not contain information which is irrelevant. Every extra unit of information in an interface **competes** with the relevant units of information.

Nielsen Norman Group

Jakob's Ten Usability Heuristics

3 User Control and Freedom

Users often perform actions by mistake. They **need a clearly marked "emergency exit"** to leave the unwanted state.

6 Recognition Rather Than Recall

Minimize the user's memory load by making elements, actions, and options visible. Avoid making users remember information.

9 Recognize, Diagnose, and Recover from Errors

Error messages should be expressed in **plain language** (no error codes), precisely indicate the problem, and constructively suggest a solution.

4 Consistency and Standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. **Follow platform conventions**.

7 Flexibility and Efficiency of Use

Shortcuts — hidden from novice users — may **speed up the interaction** for the expert user.

10 Help and Documentation

It's best if the design **doesn't need** any additional explanation. However, it may be necessary to provide documentation to help users understand how to complete their tasks.

The information on heuristics comes from [Nielsen Norman Group](#).

Lesson activity: eye spy heuristics bingo

Learning outcome: Learners will be able to develop an awareness for design heuristics.

1. Prepare resources

- Have available printed copies of the heuristic resource, enough for all students
- Activity instructions and resource are found through this link: [Eye spy heuristics bingo](#).

2. Set a time limit for collecting the heuristics (this might be over a period of a few days or even weeks, and they look out for issues with interfaces in everyday life). When one is shared use it as a teachable moment.

3. Have fun!

Click/hover over images to find resource links

