

Cognitive Style Heuristics (from the GenderMag Project) To Avoid Gender-Inclusiveness “Bugs” in Technology

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Abi



Pat



Tim

Support ALL TYPES of users and their Cognitive Styles¹

Heuristic #1: Explain the *benefits* of using new and existing features

Abi and Pat are motivated to use tech only as needed for their task. They rarely have spare time and prefer familiar features so they can keep focused on the task. Unless they see how features will help with their task, they may not be interested in using them.

Abi is risk-averse with tech. For example, they may avoid using features that have an unknown time cost and other unknown risks.

Pat is also risk-averse with tech, but might try out the features to determine whether they are relevant to accomplishing their task.

Tim likes learning what features can help them accomplish and is motivated to investigate new, cutting-edge features. Tim is also risk-tolerant so may use features without knowing their cost or even what they do.

→ To support their **motivations** and **attitudes toward risk**, allow Abi and Pat to quickly assess the benefits of features so they can choose whether to use them. Allow Tim to quickly assess which features are new and unique and what the features do so they can explore it if desired.

Heuristic #2: Explain the *costs* of using new and existing features

Abi and Pat are risk-averse, so they may want to avoid features with high effort costs if the benefits of using these features are unclear.

Tim is risk-tolerant, so may begin using features that require extra effort and time, and that are unrelated to the task at hand.

¹ The individual differences in cognitive styles explained here tend to statistically cluster by gender. Thus, supporting these ranges of cognitive styles improves the technology's gender inclusivity. See <http://gendermag.org> for more information.

→ To support their **attitudes toward risk**, allow Abi and Pat to decide whether or not a feature will require too much effort to use. To help Tim stay on track with their task, allow them to understand that a feature may take extra effort, and thus more time.

Heuristic #3: Let people gather as much information as they want, and no more than they want

Abi and Pat gather and read relevant information comprehensively before acting. Tim likes to delve into the first option and pursue it, backtracking if need be.

→ To support their **information processing styles**, allow Abi and Pat to easily obtain as much information they want, but don't require them to spend excessive time or effort gathering that information. Allow Tim to get to directly useful information immediately so that they can act upon it without wading through a lot of information they don't want.

Heuristic #4: Keep familiar features available

Abi has lower computer self-efficacy and is more risk-averse than Tim, so if a problem arises when they are trying to use an unfamiliar feature, Abi blames themselves and stops using the tech rather than potentially wasting their time trying to get the unfamiliar feature working.

Pat has medium self-efficacy with technology, so if a problem arises when they are trying to use an unfamiliar feature, Pat will try alternative ways of succeeding for a while. However, Pat is also risk-averse so prefers to perform tasks using familiar features, because they're more predictable about what Pat will get from them and how much time they'll take.

Tim has higher computer self-efficacy and is more risk-tolerant than Abi, so if a problem arises when they are trying to use an unfamiliar feature, they'll blame the tech, and may spend a lot of extra time trying to work around a problem in numerous ways.

→ To support their **computer self-efficacies** and **attitudes toward risk**, and to encourage Abi, Pat, and Tim to keep using the tech without wasting their time, enable them to interact with it using the same features they've used in the past.

Heuristic #5: Make undo/redo and backtracking available

Abi and Pat are risk-averse, so they prefer not to take actions in technology that might not be easy to reverse.

Tim is risk-tolerant, so is willing to take actions in technology that might be incorrect and need to be reversed.

→ To support their **attitudes toward risk**, provide undo/redo and backtracking to allow Abi and Pat to feel comfortable proceeding with actions whose consequences may not be clear, so that that they know they can easily reverse these actions, and so that Tim can recover from mistakes.

Heuristic #6: Provide an explicit path through the task

Abi is a process-oriented learner, so prefers to proceed through tasks step-by-step. Tim and Pat learn by tinkering, and therefore prefer not to be constrained by rigid, pre-determined processes.

→ To support their **learning styles**, explicitly provide Abi a clear process to go through task, and provide Tim and Pat a way to bypass step-by-step processes and tutorials if those are not required for learning the technology.

Heuristic #7: Provide ways to try out different approaches

Abi has lower computer self-efficacy than Tim, so if a problem arises when they are trying to use technology, Abi blames themselves and stops using the tech.

Pat has medium self-efficacy with technology, so if a problem arises when they are trying to use technology, Pat will try alternative ways of succeeding for a while.

Tim has higher computer self-efficacy than Abi, so if a problem arises when they are trying to use technology, they'll blame the tech, and then will try numerous workarounds to get around the problem.

→ To support their **computer self-efficacies**, point Abi toward a different approach when they feel unable to proceed with the current one. This will also point Tim and Pat to multiple ways they can try to solve the problem.

Heuristic #8: Encourage tinkerers to tinker mindfully

Tim learns by tinkering, but sometimes tinkers addictively and gets distracted from their task.

Pat learns by trying out new features but does so mindfully, reflecting on each step.

→ To support their **learning styles**, encourage Tim not to over-tinker (e.g., by adding an extra click), so that they make fewer mistakes, have time to absorb important information, and stay on-task.