Expert Review (aka Heuristic Evaluation)

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What is the overall approach of this method? (How does it work)

During the early design or production phase, experts review sketches or prototypes to evaluate:

- If users might face difficulties based on their knowledge of user behavior.
- If the prototype follows established usability guidelines or principles. While there are common standards, researchers decide which specific rules to apply.

What kind of data is being collected, and how?

Qualitative

Experts analyze the design and **describe how well it meets specific criteria** based on their knowledge and experience.

Researchers gather **experts' feedback** on potential usability issues that could affect the player experience.For each issue, experts provide:

- A severity rating (to indicate its impact)
- A description and screenshot of the problem
- A suggested solution

Experts strive for an objective evaluation and **assign numerical severity rating**s, their **findings are generally considered qualitative** since they rely on judgment and detailed descriptions.

Which questions does it answer?
What potential usability or other gameplay issues can be identified and removed before playtesting?

Before playtesting, experts can identify and address various **usability and gameplay issues,** ensuring a smoother player experience. These issues typically fall into the following categories:

Player research's five key layers		**Heuristic Evaluation**	
Appeal	Does the game attract and engage players?	**Consistency and standards**	Does the game follow familiar conventions?
Understanding	Is the game effective at teaching the player how to play the game	**Error prevention and recovery**	Can players easily avoid or fix mistakes?

Usability	Are controls, menus, and interactions intuitive?	**Efficiency and effectiveness**	Are interactions smooth and functional?
Player Experience	Does the game feel enjoyable and immersive?	**Predictability and learnability**	Can players quickly understand and anticipate game mechanics?
Monetization	Are in-game purchases and rewards well-balanced and fair?	**Accessibility**	Is the game inclusive and usable by players with different needs?
		User control and freedom	Can players easily undo actions
		Aesthetic and minimalist design	Is the interface clear and free of unnecessary details?

How is data analyzed; What is the outcome?

- Designers receive expert reports that include identified issues, priority rankings, and recommended solutions.
- Feedback is limited to usability issues; no data about usefulness or effectiveness for learning, etc.
- Findings can be compared, and issues recognized by multiple experts can be given higher priority.
- Expert's recommendations focused on identifying problems that need to be addressed to improve the game's usability and player experience.

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How to Design Experimental Research

Authors: Beining Sun, Yuqi Hang, Heyi Zhang, Deqi Kong, Shengkai Xu
Date: 4/21/2025

What designs are used for experimental research?

- Between-Subjects Design: Each participant experiences only one condition (e.g., version A or B).
  Random assignment for group equivalence
  No carry-over effects
  Requires a larger sample size due to individual differences

- Within-Subjects (Repeated-Measures) Design: All participants experience every condition, usually counterbalanced.
  Higher statistical power
  Direct comparisons within individuals
  Susceptible to order effects (practice, fatigue)

- Pretest–Posttest Control Group Design: Participants are measured before and after the intervention.
  Useful for detecting changes and controlling baseline differences

Why do some experiments include Pretest observations?

- Baseline Control: Ensures initial equivalence between groups

- Change Detection: Measures impact by comparing pretest and posttest differences

- Statistical Power: Reduces error variance, allowing detection of smaller effects

Pretesting can also introduce testing effects, and increases time and cost.

What are Factorial Designs? When are they useful?

- Definition: Tests the effects of two or more independent variables at once
  Example: A 2×2 design with button color (red/blue) and headline style (short/long)

- Main Effects: The individual impact of each factor

- Interaction Effects: How the effect of one factor depends on another

- Benefits: Efficiently tests multiple hypotheses in one experiment

Biometrics - Skin Conductance

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Date: April 28, 2025

What is the overall approach of this method? (How does it work)

Skin Conductance Measurement, also known as Electrodermal Activity (EDA) or Skin Conductance Response (SCR) Method, tracks participants' emotional reactions while they are making decisions, without disturbing them.
Small sensors are placed on the fingers or palms to continuously record changes in skin conductivity.
Stronger conductance indicates a stronger emotional response.

What kind of data is being collected, and how?

Skin Conductance Level (SCL)

Skin Conductance Response (SCR)

Phasic and Tonic Components

Non-specific SCRs

Arousal Indexes During Specific Events

Quantitative Measures Related to SCRs: Amplitude, Onset latency, Frequency, Area under the curve

Which questions does it answer?

When do people experience heightened emotional responses during risk-taking or moral choices?
How strongly do individuals react to different decision options, even without verbal expression?
Can internal conflict or hesitation before a decision be detected?

Use sensors like Biopac or QSensor to record skin conductance (SCR/EDA).
Electrodes are attached to the non-dominant hand's fingers.
Sampling rate usually ≥100 Hz, often 1 kHz.
Event markers synchronize physiological data with user actions.
Baseline data (e.g., reading neutral text) is collected before the task.

How is data analyzed; What is the outcome?

Filter signals: low-pass for noise reduction, high-pass to extract SCR.
Focus on: SCR amplitude and frequency (number of responses).
    Area under curve for stronger emotional indicators.
    SCL for general arousal level.
Link SCR peaks/drops to specific task events and behaviors.
Combine with subjective feedback (think-aloud, questionnaires)

References

Figner, B., & Murphy, R. O. (2011). Using skin conductance in judgment and decision making research. A handbook of process tracing methods for decision research, p. 163-184.

Case studies for using biometrics in GUR:
Chalfoun, P., & Dankoff, J. (2018). Developing Actionable Biometric insights for Production Teams: Case Studies and Key learnings. Chapter 17, Games User Research.

Miro

Authors: Sherry Gao, Deqi Kong, Beining Sun, Zhengyang Xie, Zhaonan Xu
Date: 5/4/2025

What is this tool?

Miro is a cloud-based online collaborative whiteboard software for visual collaboration between teams. It provides a virtually unlimited canvas on which users can freely add sticky notes, graphics, arrows, text, images, documents, and more. Whether you're brainstorming, project planning, flowcharting, teaching, user research, or UX designing, Miro provides a flexible space to get hands-on, discuss and organize ideas together.

How does Miro use AI?

In the creation of the whiteboard, users can directly click on the **AI tab** in the left toolbar to access AI functions.

AI-powered features include:

1. Idea Generation: Automated brainstorming that generates ideas based on input topics.
2. Cluster & Group: Select multiple tags and let AI automatically organize them.
3. Summarize Content: Intelligent summarization of selected materials.
4. Format Conversion: Select text and reformat it automatically using AI.
5. Mind Map: Input key points and create a structured diagram.

   Miro also supports integration with third-party AI tools such as ChatGPT.
   Users can send note content from Miro to ChatGPT and receive automatic summarization, analysis, and content generation.

Why (or why not) would you use this tool as a researcher?

Advantage:

1. Save time
2. Visual collaboration
3. Remote teamwork
4. AI efficiency
5. Built-in templates

Disadvantage:

1. Learning curve for new users
2. Paid plans limit full functionality
3. AI features may have limitations