

Design Analysis of a Livestock Traceability E-learning Platform Through UX Research and AI

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Abstract

This project explores how artificial intelligence (AI) can support user experience research (UX Research) for digital learning platforms serving rural workers with limited digital literacy and technological barriers, including poor connectivity and geographic isolation.

Through a proposed redesign of a livestock traceability e-learning website, we examined tools such as ChatGPT, Microsoft Clarity and Relume alongside traditional human-centered design methods. We developed user personas, journey maps, and low- and mid-fidelity prototypes to identify barriers and propose improvements to navigation.

The findings highlight the potential of context-aware, critical use of AI to support accessibility and efficiency without replacing human validation.

Objectives

General objective
Explore the impact of AI on UX Research to improve the usability of an e-learning platform offering livestock traceability courses for rural users in Uruguay during the first semester of 2025.

Specific objectives

- Explore current applications of AI in product design and their relationship to UX.
- Examine the impact of tools such as ChatGPT, Gemini and LLaMA on data collection and analysis in digital education.
- Propose a research-informed interface redesign with practical recommendations to improve navigation and accessibility without requiring extensive testing.

Methodology

We combined human-centered design methods with AI tools.

Methods used:

- Heuristic evaluation (Nielsen's principles)
- Benchmarking of learning platforms
- Heatmaps from Microsoft Clarity
- Google Analytics and Synthetic Users for simulated navigation
- User personas and journey maps

AI tools:

- ChatGPT and Gemini to support data interpretation and design ideation
- Relume and Balsamiq for assisted low- and mid-fidelity prototyping

This hybrid approach combined human reasoning and automated analysis to identify critical points in the user journey and develop feasible improvement proposals.

Heuristic Evaluation Comparison: AI vs. Manual Evaluation			
Tool	Key Strengths	Main Issues Identified	Analysis Style and Depth
Manual	Precise, realistic observations. Accounts for user constraints.	Excessive text, confusing navigation and feedback errors.	Thorough and empathetic, grounded in direct experience.
ChatGPT	Well-structured analysis. Highlights Nielsen's principles. Suggests AI-assisted solutions.	Overlooks real-world barriers. Limited contextual sensitivity.	Methodical and clear, but somewhat generic.
Gemini	Accessible language. Concrete suggestions and good practices.	Limited prioritization. Superficial analysis without clear examples.	Concise and accessible to non-experts.
LLaMA 3 (POE)	Clear breakdown by heuristic. Issues and solutions supported by current references.	Repetitive observations. Limited contextualization.	Technical, direct and up-to-date, though less personalized.

Mobile Screens: From Prototype to Final Design



Enrollment screen (low fidelity)



Course progress screen (mid fidelity)



Course completion confirmation (high fidelity)

Results / Conclusions

The proposed redesign addressed key stages of the user journey: enrollment, guided navigation and certificate access. AI tools helped identify barriers more quickly and supported design decisions, while human validation remained necessary to assess coherence, accessibility and contextual relevance.

The hybrid approach showed potential for resource-constrained teams to improve efficiency without losing analytical depth. This project suggests that AI can enrich UX Research in technically constrained settings when used critically and alongside designers' judgment.

The proposed redesign has not yet been validated with target users.

