

Evaluation of AI Tools in the Software Design Phase Based on Output Quality and Usability

1. Introduction

This report evaluates the performance of AI-assisted design tools used during the design phase of software projects, focusing specifically on output quality and usability. Since the design phase includes essential elements such as diagram generation, GUI development, conceptual planning, and prototyping, the capabilities of AI tools significantly influence the efficiency and accuracy of the overall software development process.

Throughout the BeePlan and KidTask projects, both I and my teammate Dilan worked with Canva AI and Figma AI. This report presents a detailed comparative analysis based on our practical experiences and collaborative evaluations.

2. Personal Experience – Evaluation Based on Output Quality & Usability

2.1 Canva AI

Output Quality

For the BeePlan project, I attempted to generate activity diagrams and class diagrams using Canva AI. However, the AI struggled to produce valid, structured diagrams.

The tool could not directly generate diagram outputs, even when given detailed prompts.

When diagrams were imported using external AI-generated code, Canva still produced inconsistent, structurally inaccurate, and partially broken diagrams.

The outputs required extensive manual editing, especially regarding layout, label clarity, and logical flow.

Overall, the output quality was insufficient for software engineering design standards.

Usability

While Canva's general design interface is user-friendly for graphic design, its AI capabilities for technical diagrams were not intuitive.

The large number of design options increased complexity and cognitive load, making technical tasks harder.

The AI did not interpret prompts effectively, which reduced usability for software-specific work.

Navigation was smooth, but the tool lacked features optimized for engineering diagrams.

Overall usability for software design was low, despite the platform being polished and feature-rich for general content creation.

2.2 Figma AI

Output Quality

For the KidTask project, I created GUI designs using Figma AI. The quality of the AI-generated interface designs was notably high.

Figma AI produced clean, consistent, and professionally structured UI layouts.

The spacing, hierarchy, and component placement were logically correct.

The designs were directly usable in the project without requiring major adjustments, which significantly improved productivity.

Output quality was high and aligned with modern UI/UX standards.

Usability

Figma provided a much more streamlined and design-focused environment.

The interface was simple, minimal, and highly intuitive, reducing cognitive load.

Figma AI interpreted prompts accurately and produced results closely aligned with the requirements.

The collaborative features and smart component suggestions increased the speed and ease of design.

Overall, usability for GUI design was very high, making Figma a much more practical and efficient tool compared to Canva.

3. Dilan's Experience – Output Quality & Usability Evaluation

3.1 Canva (KidTask GUI Design)

Output Quality

Dilan designed the KidTask GUI using Canva. At first glance, the results appeared acceptable. However:

Detailed inspection revealed text alignment issues, inconsistencies in font usage, and visual clutter.

Some sections lacked structural clarity, requiring her to manually refine the design.

After revisions, the final outputs became more coherent but still lacked the precision of a UI-focused tool.

Thus, output quality was moderate but required substantial editing.

Usability

Dilan found the interface visually rich but somewhat overwhelming.

Canva's abundance of options made the process harder for structured GUI creation.

The tool is not specifically optimized for UI workflows, which affected task efficiency.

Despite this, she was able to create a presentable GUI through manual adjustments.

Usability was average, with significant reliance on manual corrections.

3.2 Figma (BeePlan Diagrams)

Output Quality

For the BeePlan diagrams, Dilan used Figma. The resulting diagrams were more consistent and clearer compared to Canva.

The diagrams were structurally aligned, visually precise, and easy to review.

Some parts required minor refinement after our joint review.

After editing, the diagrams met the expected academic and technical standards.

Output quality was good, with only minimal improvements needed.

Usability

Dilan found Figma easier and more organized for diagram design.

The interface allowed quick adjustments and consistent formatting.

Collaborative review features helped us efficiently edit and finalize the diagrams.

She adapted to the tool quickly, improving her design workflow.

Overall usability for diagram creation was high.

4. Collaboration and Learning Process

Throughout the design phase, we worked collaboratively and supported each other in understanding AI tool capabilities.

We regularly reviewed each other's results and provided constructive feedback.

We analyzed issues related to output quality and discussed how to refine them.

We experimented with different prompt techniques and workflows to improve usability.

This iterative process helped us understand how to use AI tools more efficiently and effectively.

Our teamwork significantly strengthened both the speed and accuracy of our design phase.

5. Conclusion

Based on evaluations across both output quality and usability:

Canva AI

Output Quality: Insufficient for technical diagrams; moderate for GUI with revisions

Usability: Low for software design tasks; better suited for general graphic design

Figma AI

Output Quality: High-quality outputs for both GUI and diagrams

Usability: Excellent; intuitive, consistent, and technically supportive

Overall conclusion:

Figma AI is significantly more effective and reliable than Canva AI for software design workflows. Through collaborative work and iterative refinement, we successfully completed the design phase while gaining valuable experience in evaluating and utilizing AI tools.