ASCILITE 2025

Future-Focused:

Educating in an Era of Continuous Change

Revisiting Laurillard's Conversational Framework in the GenAI Era

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Diana Laurillard's Conversational Framework has long provided a powerful model for designing technology-enhanced learning, emphasising dialogue, feedback, and the iterative exchange between conceptual understanding and practical application. Historically, building educational tools that supported these rich learning interactions required significant technical expertise and development resources. However, the emergence of Generative AI chatbots capable of generating, previewing, and sharing web application code, such as Anthropic Claude Artefacts as well as Open AI's ChatGPT and Google Gemini's Canvas functionality now allow educators and learning designers to describe an idea in natural language and receive working, interactive web applications in return. In this paper we explore how these tools enable the rapid creation of learning experiences that embody core principles of Laurillard's Conversational framework. Drawing on real examples built using Anthropic Claude's AI enabled Artefacts, we illustrate how AI-generated applications can support perspective-taking, problem-solving, feedback-driven learning, and structured reflection. From a Linear Regression explainer to a Multi-Perspective Elaboration Tool, these examples show how AI can now scaffold not just content delivery but interactive learning conversations. We argue that this shift lowers the barrier to educational innovation and empowers a broader community of practitioners to design learning tools. We conclude by discussing current limitations and outlining directions for future research and practice in AI-assisted learning design.

Keywords: Conversational Framework, generative AI, learning design, Claude Artefacts, interactive learning, AI tutoring, educational technology, no-code authoring, AI in education

Introduction

Generative Artificial Intelligence (GenAI) has rapidly become a transformative force in education (Zhang et al,. 2024; Xiaoyu et al., 2025). With tools such as Claude's AI Artefacts, OpenAI's ChatGPT and Google Gemini's Canvas, it is now possible to create functional, interactive learning applications through natural language prompting. These tools allow users to describe the purpose and behaviour of a tool in everyday language and receive fully working front-end web applications, complete with layout, interactivity, and logic, without writing a single line of code. Until recently, producing such educational tools required significant technical knowledge, time, and collaboration with developers. Even simple interactive experiences involved manually writing HTML, CSS, and JavaScript, along with iterative testing and refinement. This barrier often limited experimentation and innovation to those with programming expertise or access to specialist development teams.

The emergence of GenAI significantly changes who can build interactive learning tools, how they are made, and how quickly they can be prototyped. With the right prompt and pedagogical vision, educators and learning designers can generate and iterate on custom learning experiences within minutes. This process still requires skill, particularly in prompting, learning design, and the ability to review, test, and refine both interface logic and user experience. However, the entry point is now far more accessible than ever before.

Recent developments in these tools signal another leap forward. For example, Claude's latest AI Artefacts update (Anthropic, 2025) introduces live API calling within apps, enabling designers to embed Large Language Model (LLM) API calls directly into the app's logic. Rather than relying on hardcoded, deterministic rules,

educators can now build smart learning apps that make contextual LLM calls at key points, allowing for dynamic explanation, reflection prompts, peer-like elaboration, and responsive feedback based on learner input. This creates the conditions for learning tools that do not just simulate interactivity but engage in genuine dialogue, mirroring the kinds of adaptive, reflective feedback loops central to Laurillard's Conversational Framework (LCF) (2013). In this paper, we explore how GenAI is not only lowering barriers to the creation of educational applications, but also enabling a new generation of interactive tools that embody the core pedagogical principles of Laurillard's model. We argue that this shift opens new opportunities for learning designers to bring learning conversations to life through prompting.

Background and Theoretical Framing

Diana Laurillard's Conversational Framework (2013) is a widely recognised model in the learning sciences and educational technology fields. It outlines the essential components of effective teaching and learning as an iterative, interactive dialogue, whether between teacher and learner, peer and peer, or learner and digital tool. The framework provides a structure for designing learning environments that support conceptual understanding and practice-based refinement through cycles of feedback, reflection, and adaptation.

At the core of the framework is the belief that learning is not passive. It requires sustained interaction between two key spaces. The first is the conceptual space, where ideas, theories, and models are introduced and explored. The second is the experiential space, where learners apply those concepts, experiment, receive feedback, and revise their understanding (Laurillard, 2013). Several types of dialogue are used to bridge these spaces, and GenAI can play a role in enabling these dialogues to enhance learners' educational experiences. Table 1 outlines each type of dialogue in LCF, how it is used within the context of the framework, and how GenAI can be used to support the dialogue activity.

Table 1
Dialogue types within the Conversational Framework

Dialogue Type	Description	GenAI Opportunities
Teacher–Learner Dialogue	The teacher introduces ideas, offers explanations, and responds to learner questions. Crucially, the learner is encouraged to engage, challenge, and reflect. In digital learning environments, this is often simulated by interactive explainers or tutor-like systems that respond dynamically to input.	With GenAI, educators can now design tools that not only guide the learner but also generate new responses using LLM calls at key points, offering targeted elaboration, clarification, or coaching in real time.
Learner Internal Dialogue	As learners explore new concepts, they must reconcile them with existing knowledge. Prompts that invite elaboration, justification, or contrasting perspectives support this reflective process.	GenAI-generated tools, such as multi-perspective elaborators or decision-making assistants that can provide peer-like feedback, alternative viewpoints, and prompts that adapt to learner inputs using embedded LLM reasoning.
Practice and Feedback Loop	Learning through application requires learners to act and receive feedback. Traditional digital tools could only support this through pre-programmed rules or simple responses.	With GenAI, tools can now be used to generate custom responses, new examples, or just-in-time scaffolds, based on how the learner interacts. For instance, a tool may ask a student to solve a problem or enter free-text reasoning, and then call an LLM to evaluate the input and respond accordingly, offering

		immediate, personalised feedback or follow-up questions.
Adaptation and Redescription	Deep learning occurs when learners revise their mental models. This involves cycles of reformulation, where ideas are re-expressed in light of feedback.	GenAI tools can facilitate this by allowing learners to experiment with parameters, input variations, or perspectives, with the system dynamically updating its explanations or responses. In some cases, the UI itself can change in response to learner needs. For example, dynamically revealing sections of a scaffold, visualisation, or reflection prompt triggered by an LLM-generated decision.

LCF is not tied to any one technology. Instead, it offers a design lens for evaluating and constructing learning experiences that could employ a variety of technology solutions to support conversation, iteration, and refinement. What makes GenAI a breakthrough in this space is its ability to automate aspects of the dialogue, generate adaptive feedback, and build dynamic interfaces. Previously, these capabilities required extensive programming and data modelling. Now, GenAI tools allow educators to create learning tools that embed live LLM calls to simulate tutor pedagogical moves, offer tailored feedback, and support open-ended input. They also allow dynamic interface generation and logic within a prompting workflow, making it possible to prototype interactive, LCF-aligned learning environments without writing code. In the next section we will show that these tools are not just simplifying the process of building learning apps, but they are enabling a new class of tools that instantiate Laurillard's model in lightweight, flexible, and intelligent ways.

Prompting for the design of interactives aligned to LCF

One of the most significant shifts introduced by GenAI tools is the move from programming to prompting as the primary mode of designing digital learning tools. Instead of writing code or specifying logic explicitly, educators now describe the goals and interaction patterns of their tools in plain language. The GenAI system interprets this description to generate not just the interface and logic, but in the case of tools like Claude's AI Artefacts even the prompts the app will use when calling the underlying AI itself.

This "meta prompting" represents a key evolution. When building with Claude Artefacts, educators don't write full codebases or even the prompts used during app execution. Instead, they describe what the app should do, when it should call the Claude API, and what kind of feedback or functionality is expected. An example prompt to create a multi-perspective elaboration tool with AI brainstorming is shown in Figure 1. Claude then scaffolds everything behind the scenes: the user interface, internal logic, API handling, and the prompt-writing logic. The LLM itself is writing prompts which allows for smart, dynamic applications.

The UI should follow these steps:

1. Describe Multiperspective Elaboration.
2. Ask the user for a topic and let them choose from two templates (e.g., Pros & Cons or SWOT).
3. Create either a 2-cell or 4-cell grid based on their choice. Each cell should contain a markdown editor for bullet point entry.
4. Validate that all cells contain at least one line. Include a "Get Other Users' Perspectives" button with a loading spinner.
5. On click, send all user input and task details to the Claude API. Ask the AI to identify missing perspectives and provide feedback for each cell.
6. Display feedback below the user's responses under the heading "Feedback".
7. Include a button to copy a markdown version of the entire interaction.
8. The UI should be clean. Use light background colours for cells that don't interfere with readability.

Figure 1. Example prompt used in Claude Sonnet 4 to create the Multi-perspective Elaboration tool.

The prompt in Figure 1, results in an interactive application that:

- Collects learner input across multiple conceptual dimensions
- Uses an LLM call to evaluate and expand on those ideas
- Provides contextualised, feedback-rich responses
- Enables learners to reflect, revise, and articulate refined understandings

The Multi-perspective Elaboration tool (shown in Figure 2) demonstrates multiple dimensions of Laurillard's Conversational Framework in the following ways:

- Teacher–Learner Dialogue: The AI acts as a conversational partner, offering elaboration and critique.
- Learner Internal Dialogue: Prompts and feedback support reflection and redescription.
- Practice and Feedback: The learner generates artefacts, receives targeted feedback, and iterates.
- Adaptation: The feedback loop supports shifts in understanding across perspectives.

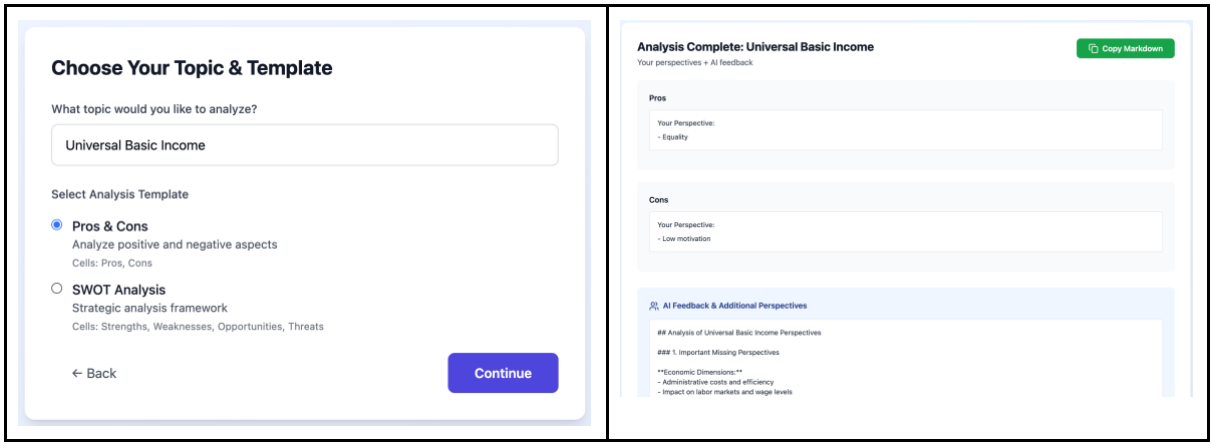

Figure 2. The Multi-perspective Elaboration tool generated by Anthropic Claude Sonnet 4

As a further proof of concept, several other examples were built using Claude Artefacts to show how different aspects of LCF can be instantiated through prompting:

Table 2
Examples of interactive learning activities built using Claude Artefacts

Interactive	Description	LCF Alignment
Six Thinking Hats Interactive	Learners select a thinking hat or are randomly assigned one. The AI provides a prompt aligned to that perspective (e.g. emotional, critical, optimistic).	• Encourages conceptual understanding through lens-shifting • Fosters internal reflection and role-based elaboration • Simulates peer dialogue via AI-generated prompts
Linear Regression Explorer	An explainer where learners input data, view regression lines, and explore error minimisation.	• Supports experimentation and visual feedback • Enables practice-to-conceptual reflection • Encourages iterative model adjustment
Business Model Canvas Helper	Guides users in completing a startup canvas. Claude offers AI-generated suggestions for each section, editable by the learner.	• Scaffolds structured articulation of concepts • Provides dynamic feedback and alternatives • Mirrors teacher–learner dialogue in digital form

These examples illustrate that GenAI-generated apps can realise core pedagogical dynamics without manual programming. Through well-structured prompts, educators can simulate conversations, trigger adaptive feedback, and support conceptual-practical interplay. This allows for the rapid development of learning tools that are not just technically functional but pedagogically aligned. The design process involves three key steps, including: (1) Framing the pedagogical goal and interaction pattern in a clear prompt, (2) Reviewing and testing the generated app for usability and alignment, and (3) Refining the prompt iteratively, just as one would with code, but using natural language. This shift in the capacity of GenAI empowers educators to become designers of learning conversations, not by mastering code, but by shaping intent, guiding logic, and prompting meaningful learner–tool interaction.

Limitations and Future Directions

While prompting enables rapid creation of interactive learning tools, several limitations constrain broader adoption. Currently, Claude Artefacts run in sandboxed environments and require an Anthropic account to access or share. Exported code uses proprietary API calls, limiting deployment to external platforms like LMSs or institutional websites. There is also no support for saving learner data or tracking progress over time. Embedding this functionality within a Learning Management System could allow for personalised, trackable learning conversations, integrated analytics, and adaptive scaffolds. However, such integration would also raise important data privacy and governance concerns. Finally, rigorous testing is essential to ensure that prompted interactives function as intended, highlighting the need for new emerging skills in evaluating, debugging, and validating AI-generated tools.

Conclusion

Generative AI tools like Claude Artefacts, Open AI ChatGPT, and Google Gemini Canvas are reshaping how interactive learning tools are designed and implemented. What once required front-end development and institutional resources can now be achieved through prompting, enabling educators to rapidly prototype tools that embody the feedback, iteration, and dialogue central to Laurillard's Conversational Framework. This shift from programming to prompting redefines the educator's role as a designer of learning conversations. With the right pedagogical intent, educators can now create dynamic tools that support conceptual understanding, practice, and reflection without writing code. While current platforms have limitations, the creative potential is already clear. The next step is to explore and evaluate how these tools can be integrated into real-world learning environments.

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