

True Digital Poiesis: A Conceptual Framework and Interface Design for Generative AI in the Humanities

Will Hasty <hasty_at_ufl_dot_edu>, University of Florida  <https://orcid.org/0009-0004-0893-5449>
Mark Law <law_at_ece_dot_ufl_dot_edu>, University of Florida  <https://orcid.org/0000-0002-0363-2041>
Daniel Maxwell <danielmaxwell_at_ufl_dot_edu>, University of Florida  <https://orcid.org/0000-0002-4115-2727>
Lauren Dulick <laurendulick_at_ufl_dot_edu>, University of Florida  <https://orcid.org/0009-0001-6251-8847>
Ying Xiao <yx241_at_ufl_dot_edu>, University of Florida  <https://orcid.org/0009-0006-5369-9267>
Markus Pope <markus_dot_pope_at_codescientists_dot_com>, University of Florida  <https://orcid.org/0009-0006-1224-6982>
Idalis Villanueva Alarcón <i_dot_villanueva_at_ufl_dot_edu>, University of Florida  <https://orcid.org/0000-0002-8767-2576>
Stephan Kory <skory_at_ufl_dot_edu>, University of Florida  <https://orcid.org/0009-0006-9890-7293>

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Abstract

This article introduces True Digital Poiesis (TDP), a conceptual pedagogical framework and proposed interface design for engaging generative AI in the Humanities. Drawing on experiential learning theory and grounded in the humanistic preoccupation with alterity — the otherness of history — TDP proposes the use of AI to simulate premodern events while foregrounding the active interpretive effort involved in constructing the past. The framework envisions the design of a digital prompt-builder, the Event Cruncher Stylus (ECS), and a structured critical review process, both of which are designed to support student engagement with the complexities of historical construction. In presenting the theoretical foundation, practical applications, and interface design of TDP, this article argues that precise and responsible use of AI in historical simulation — ranging from non-immersive to fully immersive simulative modes — requires a systematic, embodied method for engaging the alterity of the past. As a conceptual proposal grounded in hermeneutic theory and experiential learning research, TDP is presented here as a framework whose empirical evaluation through classroom implementation and outcome assessment is a primary objective of ongoing and future research.

1. Introduction

The educational potential of computer simulations has long been recognized within the field of experiential learning [Allison 2008] [Asad et al. 2021] [Bonsu et al. 2025] [Conrad, Kablitz, and Schumann 2024] [Croghan et al. 2025] [Hutson 2021] [Lin et al. 2024] [Marougkas et al. 2023]. Yet with the growing technological power driving simulations comes epistemological risk with respect to their accuracy. When simulations are used to reconstruct or represent the past, they engage the persistent challenge of the latter’s alterity, the fundamental differences between remote historical subjects and the contemporary world. As philosophers Hans-Georg Gadamer and Paul Ricoeur have argued in different ways, historical understanding is always mediated by present-day assumptions; representations of the past are not transparent windows but constructed interpretations. To address the tensions between present and past, this paper proposes True Digital Poiesis (TDP) as a methodological framework and simulative method. TDP seeks to harness the experiential learning power of generative AI simulations while introducing rigorous structures for critical engagement, revision, and historical accountability. We argue that TDP — which employs a combination of traditional humanities methods (such as source-based inquiry and iterative revision) and novel digital tools — provides a systematic approach to embedding humanistic reflection within AI-driven learning environments.

By emphasizing *poiesis* — the act of making — as a creative and interpretive process of understanding the past, the TDP method teaches students to generate historical simulations as well as to actively negotiate the meanings, omissions, and perspectives that shape them. Crucially, TDP frames this act of making as something qualitatively distinct from other forms of student-AI interaction: It is not the use of AI as an answer machine or as a writing assistant, but as a medium of structured historical construction in which the learner’s interpretive choices are continuously foregrounded, tested, and revised. This article presents the theoretical grounding of the framework, its technical and pedagogical components, and its broader implications for digital learning in the humanities.

2. Alterity and the Digital Simulation of the Past

The concept of alterity — the appreciation of the otherness of the past — has long stood at the heart of humanistic inquiry. Whether in historical writing, literary analysis, or the study of art and culture, scholars have sought to engage and interpret the distance that separates us from past worlds and historically remote cultures. This distance places significant constraints on historical representation. To claim to see the past “*wie es eigentlich gewesen*” (“as it really was,” as historian Leopold von Ranke famously put it in the early nineteenth century) has long since come to be widely understood as an illusion. As R.G. Collingwood argued in *The Idea of History* (1946), historical knowledge is not the passive recovery of past facts but the active re-enactment of past thought in the historian’s own mind — an insight that anticipates the constructivist turn in historiography and speaks directly to the designed interactivity of TDP. Hayden White’s *Metahistory* (1973) further demonstrated that historical accounts are shaped by narrative forms and rhetorical choices that are irreducibly present-oriented: Representations of past events, figures, and systems are always mediated by language, by interests and preferences, and by the narrative frameworks of the present. Historical accounts, as the mere subtitle of Stefan Berger’s 2022 historiographical study *How Historical Theory Shapes Historical Practice* announces, tell us as much about the interests and needs of the present as they do about the content of the past.

The humanities must take seriously the imperative to negotiate alterity; to account both for the ultimate irrecoverability of the past “as it really was” and for the pressing immediacy of the concerns of the modern interpretive frameworks through which the past is being accessed.

Within the critical hermeneutic tradition, Hans-Georg Gadamer has argued that historical understanding is never a simple recovery of what was, but always a dialogical process, a “fusion of [...] horizons supposedly existing in themselves” [Gadamer 2004, p. 306]. In this “fusion,” present and past engage and transform each other. The engagement with the past is not an act of assimilation but of negotiation, a mutual reshaping in which, as Gadamer puts it, understanding involves “guarding against overhastily assimilating the past to our own expectations of meaning. Only then can we listen to tradition in a way that permits its own meaning to be heard” [Gadamer 2004, p. 305]. Also in the critical hermeneutic tradition, Paul Ricoeur addresses the necessity of resisting the “violence of interpretation” — or the wholesale adoption of the past in the interest of some compelling present agenda — on the one hand; and the possible “redundance” of an interpretative approach that would naively (mis)take the past as just another version of the present, on the other [Ricoeur 1988, pp. 71–72]. The insights of Gadamer and Ricoeur applied to the present moment make clear that any procedure for digital simulation — especially those with a high degree of audiovisual realism — must be designed not to collapse or “flatten” our distance from the past overhastily (contrast [Krämer 2023], but to highlight and sustain the plenitude of its alterity.

The term *poiesis*, in our use, reflects the tension between creative construction and interpretive fidelity. A substantive form of the Ancient Greek *poieîn* — to make, to bring into being — this term foregrounds the active role we play in shaping the past. What makes poiesis the right concept here, rather than merely “iteration” or “construction,” is its implication of purposeful, skilled making: the craftsman who shapes material toward a form that did not previously exist but that is constrained by the properties of the material itself. In TDP, that material is the historical record — primary and secondary sources whose alterity resists arbitrary reconfiguration. The poetic act in TDP is not arbitrary creativity but responsible making: a process in which students or researchers negotiate between the demands of historical evidence and the inevitably present-oriented frameworks they bring to it. This is what distinguishes TDP from other structured prompting approaches: It is not enough to produce a well-formed prompt or a plausible narrative; the student must account for the interpretive choices embedded in each step of the construction.

Generative artificial intelligence raises the stakes for this kind of poetic engagement precisely because of its power to simulate historical scenes with persuasive realism. The rise of generative AI introduces a new and urgent complication to our interpretive landscape. With tools ever more capable of producing fully immersive, richly detailed audiovisual simulations at scale, the temptation to mistake the fake for the real has never been greater. Large language models (LLMs), trained on vast corpora of human-generated text, generate outputs by predicting statistically likely continuations of prompts — they do not “know” history in the way a trained historian does. This distinction has significant implications for historical simulation. LLMs may produce historically plausible-sounding narratives that are factually inaccurate, anachronistic, or that systematically favor perspectives overrepresented in their training data [Bender et al. 2021]. The phenomenon popularly known as “hallucination” — the confident generation of false or fabricated information — arises from this statistical mode of text generation: The model produces what is likely, not necessarily what is true. Moreover, training corpora reflect the biases and gaps of the historical record itself, which skews toward literate, elite, and Western perspectives. A simulation of a medieval peasant uprising, for

instance, may draw more heavily on chroniclers' accounts than on archaeological or social-historical evidence, simply because the former dominate the available textual data. The persuasive power of simulations produced by generative AI as a potentially "superintelligent" tool [Bostrom 2014] risks sidelining the critical sensibilities for engaging otherness that the humanities must cultivate. If "seeing is believing," then any simulated past risks being mistaken for the recovered past unless the learner is trained to recognize and account for the structured processes behind its generation.

To counteract the risk of remaking the past in the image of the present (either violently or redundantly, recalling the Scylla and Charybdis of Ricoeur) the True Digital Poiesis method emphasizes the iterative, reflective nature of historical simulation. It does not propose a single definitive version of events but treats each simulation as a provisional interpretive act, a hypothesis to be tested rather than a product to be consumed. The concept of "truing" is useful here. In its verbal, mechanical sense, to true something is to bring it into alignment or balance, to make it level, square, and concentric relative to a set of defined criteria [Merriam-Webster 2025]. A simulation, in TDP terms, is never absolutely *true* — this would be to repeat the illusion of Ranke — but it can be *trued* relative to the complexity and rigor of the criteria against which it is assessed. This concept of truing provides an epistemologically honest metaphor for what TDP asks students to do: not to recover the past, but to calibrate their representations of it as carefully and self-consciously as possible. It also provides a productive organizing principle for the method's iterative structure, as we describe below. The educational challenge remains never completely to collapse the tension between our participation in the past and present, but to hold it open so that the learner is always situated both within and at a distance from the simulated events.

The connection between these hermeneutic concepts and the specific steps of the TDP workflow — described in full in Section 4 below — is worth making explicit here. The initial population of the 5W1H (i.e. who, what, when, where, why, how?) framework (Step 1) represents the learner's pre-understanding: the horizon of assumptions, knowledge, and interpretive frameworks they bring to the encounter with the past. The AI-generated simulation (Step 2) represents the first articulation of that pre-understanding in narrative form — a moment in which the learner's inputs are rendered visible as a constructed object. The critical review step (Step 3), in which the student discovers discrepancies between the simulation and their sources, represents the kind of productive dissonance that Gadamer describes as the encounter with the genuinely other: the moment at which the past resists assimilation. The revision step, in which the student adjusts their inputs for the purpose of regenerating the simulation, represents the reshaping of understanding that constitutes the fusion of horizons — not a dissolution of the distance between past and present, but a more critically aware negotiation of it. In this sense, TDP is not merely a workflow that uses AI; it is a hermeneutic method that uses AI as one of its instruments.

Our method undertakes this through iterative cycles of revision in which learners assess the coherence of their simulations, cross-check historical accuracy against primary and secondary sources, and identify anachronisms or assumptions that may distort the past. The steps involved in producing and reviewing a simulation as something being made remain front and center in the workflow as a practice to be cultivated and appreciated as much as the overall quality of the simulations produced. In a classroom scenario, the role of the instructor correspondingly shifts, in part, from judging based on their own subject matter expertise the correctness of the content of the produced simulation, to keeping the students' focus as much on the steps they are taking to produce the simulation as on the simulation content itself. A critical awareness of the inevitable codependence of TDP steps and resulting output is thereby inculcated. The fusion of generative AI with a self-aware and hands-on approach to the past thus leads — to the degree TDP can be foregrounded and cultivated as learning practice — to a dynamic poietic engagement that keeps alterity at the center of a digital pedagogy that is both creative and historically aware.

3. Digital Simulations as Experiential Learning

The hermeneutic insight that simulations of the past must be designed to sustain rather than collapse alterity, that they must keep the learner simultaneously within and at a distance from the events being reconstructed, has a natural and productive counterpart in the theory of experiential learning. If Gadamer and Ricoeur tell us how to engage the past responsibly, the tradition of experiential learning research tells us why the simulative mode of engagement is worth taking seriously in the first place: because it is precisely this mode — the active, iterative, hands-on encounter with constructed scenarios — that research consistently identifies as among the most cognitively and motivationally powerful available to learners [Kolb 1984] (wildman_etal 2017). The challenge, as the following discussion makes clear, is to bring these two bodies of insight — the hermeneutic and the experiential — into alignment, so that the experienced power of simulation does not come at the expense of the critical distance that humanistic inquiry requires.

In his seminal work, *Experiential Learning: Experience as the Source of Learning and Development* (1984), David Kolb identifies simulation as a means of enabling learners to engage in "active experimentation," receive "immediate feedback," and refine their understanding through iterative practice [Kolb 1984]. Simulations, in this sense, are not simply illustrative; they are generative tools that catalyze learning by doing. Building on Kolb's framework, recent scholarship has explored the power of immersive and interactive technologies — particularly virtual reality (VR), augmented reality (AR), and now generative artificial intelligence (AI) — to expand the reach and intensity of experiential learning across disciplines. Studies by [Allison 2008], [Asad et al. 2021], [Bonsu et al. 2025], [Conrad, Kablitz, and Schumann 2024], [Crogman et al. 2025], [Hutson 2021], [Lin et al. 2024], and (maroukaskas_etal, 2023) have emphasized in different ways the motivational and cognitive benefits of immersive experiential learning environments. Technological developments increasingly allow learners to engage in experiential learning with complex material in a fully immersive, multisensory (i.e. multimodal), emotionally resonant, and often collaborative manner.

While maintaining its stake in hermeneutic reflection and experiential learning, TDP also takes its place within a landscape of simulation-based historical pedagogy grounded in the digital humanities that predates AI-driven approaches and provides important precedents for assessing what is genuinely new about them. Jeremiah McCall's work on the Historical Problem Space framework — which conceptualizes historical simulations as structured possibility-spaces in which different inputs produce different historical outcomes [McCall 2020] — and on gaming the past more broadly [McCall 2022] demonstrates how video games function as environments in which students engage with the constraints and possibilities of historical agency. Mark Carnes's *Reacting to the Past* method (2014) uses elaborate role-playing simulations to immerse students in historical debates, with documented effects on student engagement and historical thinking. These approaches share TDP's core conviction that constructing and inhabiting simulated versions of the past is a powerful pedagogical mode. TDP extends this tradition into the domain of generative AI, where the simulation is not pre-authored by a game designer or instructor but co-constructed by the student and the AI — a configuration that raises the stakes for critical scaffolding, since the AI's outputs may carry an authority that a student-authored text does not. The digital humanities tradition reinforces and extends this conviction: Stephen Ramsay's concept of "algorithmic criticism" suggests that computational tools can serve as instruments of interpretive inquiry rather than merely as efficiency aids [Ramsay 2011] — a principle that TDP extends into the domain of historical simulation.

For all its promise, the application of simulations for the purposes of experiential learning in the humanities has often lagged behind its use in technical and professional fields [Wildman, Fishwick, and Shults 2017]. Part of the reason likely lies in the humanities' emphasis on interpretation, ambiguity, and critical reflection — of the hermeneutic kind considered in the previous section, for example — qualities that can be difficult to reconcile with the immersive realism of simulation environments. Humanities scholars understandably balk in the face of the risk that students will mistake engagement with high-fidelity reproductions for understanding, simulated presence for real historical experience. This problem is particularly acute in the context of generative AI where outputs can be so convincing in their audiovisual verisimilitude that they risk short-circuiting the critically self-reflective distance essential to humanistic inquiry.

True Digital Poiesis proposes to resolve this tension between the humanities' commitment to critically reflective distance and the immersive pull of AI-generated simulation, not by slowing down or stepping back from the technology, but by building the structures of humanistic reflection directly into the simulation workflow, into the way prompts are constructed, into the criteria by which outputs are assessed, and into the iterative cycle of revision through which each simulation is progressively trued. Rather than positioning generative AI as an end-product tool, the TDP method treats it as part of an iterative, critical method that combines simulation with structured research, embodied interaction, and systematic review. In this way, TDP seeks to reclaim AI-generated simulation as a vehicle for active learning on humanistic terms: through guided construction, embedded revision, and self-reflective interpretation. Just as Kolb emphasized the cyclical nature of experiential learning — moving from concrete experience to reflection, conceptualization, and experimentation — TDP designs a parallel process for engaging with the past in a hermeneutically informed way. Learners construct simulations based on their research, test and revise those simulations in response to inconsistencies, anachronisms, and other shortcomings, and reflect critically on the assumptions embedded in the simulative process. The result is a dynamic, hands-on encounter with historical records and artefacts that preserves the rigor of humanistic inquiry while embracing the power of new technologies.

4. The True Digital Poiesis Method

The TDP Method is a structured pedagogical framework designed to harness the power of generative AI while embedding it within the interpretive and critical methods of the humanities. At its core, TDP is an iterative and source-based simulation-building process that involves students in constructing historically aware event simulations while constantly engaging with the alterity of the past as they are constructing and simulating. TDP consists of three primary steps:

1. structured research and prompt construction,
2. simulation generation using generative AI, and
3. iterative review and revision (see Figure 1).

Each step is guided by the principle of *poiesis* — a deliberate, creative, and critically informed process of making. The Event Cruncher Stylus (ECS), described in detail in the following section, is an interface implementation, currently in design development, that gives three-dimensional embodied form to this method. In its current classroom-tested implementation, the method is realized through a two-dimensional Questions Grid that guides students through the 5W1H framework using a standard web-based interface:

Step 1: Structured Research and Prompt Construction

The initial step of the TDP Method centers on embedding traditional scholarly practices — such as the use of primary and secondary sources, coherent narrative structure, and causal reasoning — within the very architecture of generative AI prompts. Students begin by populating a digital prompt-building tool (currently the Questions Grid, later the ECS) based on the classical 5W1H method: Who? What? When? Where? Why? and How? These questions recommend themselves as a principled framework for historical inquiry because they correspond to the basic categories through which historians structure causal narrative: actors, actions, localities, temporalities, and teleological and instrumental causalities. Crucially, these are also interpretive categories. To sort evidence under the heading *why?* is already to make a claim about causation that the historical record may complicate. This is the insight that Drucker develops through her distinction between data and capta [Drucker 2011] [Drucker 2014]: What we treat as raw information is always already shaped by the interpretive choices involved in its capture and formatting. The fields of critical making [Ratto 2011] [Hertz 2012] and critical code studies [Marino 2020] extend this point to the design of tools themselves, arguing that the assumptions embedded in a tool's architecture are never neutral — an insight that TDP endeavors to take into account by making the (revisable) defining criteria associated with each 5W1H question a transparent component of its method, as further explained below.

Each of the six questions of the TDP method is linked in the prompt-building tool to specific criteria set by the instructor, such as the backstories of historical actors, the temporal and geographical specificities of events, the motivations and mechanics according to which historical events are assumed to play out, etc. Students assemble information from textual, visual, and audiovisual sources corresponding to the criteria for each question, thus grounding their simulations in historical research. This process of assembling and categorizing sources is itself a poetic act: The student is not merely retrieving information but actively building a structured representation of the past shapes what the AI can produce.

Step 2: Generative Simulation

Once the Questions Grid is complete, students use it to generate a narrative simulation using a large language model (LLM). The output is a simulation — a narrative account or dramatized historical scene — that reflects the content of the prompt. Criteria can be scaled to require research that leads to simple simulations with basic information or more detailed simulations requiring greater precision and detail. The aim is not to produce a definitive account of the past but a provisional simulation that can be interrogated, tested, and refined — a hypothesis, in Collingwood's terms, to be submitted to historical criticism [Collingwood 1946, pp. 243–245] .

The use of the term *simulation* for text-based AI generation may seem to require some justification, since simulation typically implies a dynamic, multi-state model. We use the term deliberately, in alignment with the broader tradition of historical simulation studies [Wildman, Fishwick, and Shults 2017], to indicate that the AI-generated narrative represents a specific configuration of historical variables — actors, places, times, causes — that can be altered and re-run. What makes this configurability epistemologically significant is precisely that adjusting the student's prompt inputs produces a different rendering of the same historical moment. The simulation is not a fixed account but a structured representation of a possible past, subject to revision. In this sense, a screen-based narrative output functions as a simulation in the meaningful sense the term requires because it externalizes a set of interpretive choices — choices that can be identified, interrogated, and revised. The broader tradition of historical simulation pedagogy (wildman_etal 2017) has established this usage; the specific contribution of TDP is to make the configurability of those choices — and therefore the revisability of the outputs they generate — explicit and pedagogically foregrounded through the 5W1H framework.

Current LLMs perform unevenly across historical domains, tending to generate more plausible and detailed outputs for periods and places heavily represented in their English-language training data — medieval Western Europe, for instance — than for periods and cultures underrepresented within it: e.g. sub-Saharan African medieval history, pre-Columbian Mesoamerica, or pre-modern East Asian contexts in which the primary sources are not in English. This unevenness is not a disqualifying limitation of the TDP method; rather, its review step (Step 3) is precisely designed to make such imbalances visible and correctable. Students working on underrepresented historical contexts will find that their simulations require more intensive revision and that the review step surfaces limitations traceable to the generative AI's configuration and training and TDP's own question criteria rather than to the historical record — a distinction that is itself a significant lesson in the critical use of AI.

Step 3: Iterative Review and Revision

The final step of the TDP method is paramount: The simulation undergoes structured critical review. Students analyze the simulation output according to three key criteria:

- 1. **Internal Consistency:** Are the actions, actors, temporalities, localities, and causal structures coherent within the framework of the prompt?
- 2. **Source Accuracy:** How faithfully does the simulation reflect the primary and secondary sources cited in the prompt construction?
- 3. **Historical Plausibility:** What inaccuracies, inconsistencies, or anachronisms have emerged, and how can they best be addressed?

Learners then revise the information in the digital prompt builder based on their critical findings, with a view to re-running the simulation with the expectation of a better result. Each iteration is undertaken on the understanding that it can bring students into closer contact with both the historical material and the interpretive assumptions with which they have arranged it. The process of truing the simulation — bringing it into closer alignment with the criteria and sources that define it — is itself the primary educational experience, not the means to any finished product.

When a student's iterative review reveals that the LLM consistently fails to represent certain historical perspectives regardless of what sources are supplied, this is not a failure of TDP but a boundary condition that TDP is designed to make visible. An LLM trained on a corpus that systematically underrepresents non-Western, non-elite, or non-literate historical actors will tend to produce narratives that reflect those biases even when the student's prompt includes corrective sources. Making this limitation legible — teaching students to recognize and name it as a feature of the tool rather than of the historical record — is itself a significant pedagogical outcome of the review step.

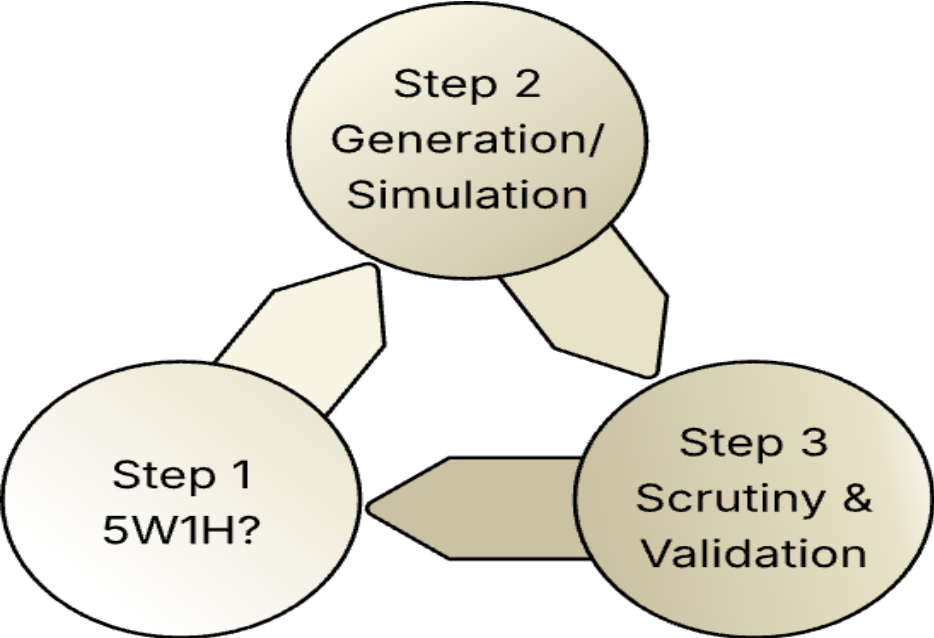


Figure 1. The True Digital Poiesis Workflow

5. Academic Context and Pedagogical Application

The TDP method is currently being developed, with support from the University of Florida Artificial Intelligence and Informatics Research Institute, in MEM 3510: Engineering the European Middle Ages, an undergraduate course at the University of Florida. This course serves as the primary site of prototype development for the TDP methodology and its supporting tools. Within this learning environment, students engage with historical materials through a structured, research-based process that culminates in the generation and critical scrutiny of AI-enhanced simulations of premodern events.

The workflow is currently based on a simple Questions Grid (Figure 2 below) that guides students through the 5W1H framework. For each of these fundamental questions and its respective criteria, students populate the grid with specific content drawn from primary and secondary sources. This includes textual passages (composed by the students themselves or other scholars), image references, audio files, etc. Information must be duly cited according to the standards set down in the prompt criteria. Once the grid is completed, the data is used to prompt a large language model (LLM), which generates a “non-immersive” (i.e. screen-based) narrative simulation (definitions of the different immersive scales of VR are provided by [Bonsu et al. 2025]. These simulations vary in form — from dramatized accounts of historical episodes to imagined dialogues, ritual descriptions, or political negotiations — but all reflect the source material and question criteria for the 5W1H framework as set down in the grid. In this way, the simulation becomes a kind of testable hypothesis, produced not merely for its aesthetic or narrative value, but as an instrument of historical thinking. Following generation, simulations are subjected to a structured critical review. In the current working version of TDP, students have completed this review using the Track Changes feature in Microsoft Word, inserting comments, corrections, and reflections directly into their AI-generated narrative simulations.

Questions:	"Who?"	"What?"	"Where?"	"When?"	"How?"	"Why?"
Criteria:	Actors & Main featured Objects (information may be provided for significant "background" Objects that make the foreground possible. Actors in order of appearance or importance (designate which)). Featured Objects in order of appearance or importance (designate which). (Optional: A background Object of importance for foreground; if you don't have a significant technology in your foreground, insert here.)	Main featured Actions, ordered from most general to more specific actions, most important to least important.	Information about Locations and Destinations, ordered from most general to most specific	Information about Internal (Event temporalities) and External (relation of depicted events to other historical events) Temporal Relationships	Information about the "Instruments" whereby the event occurs, including 1) dialogue among actors; discursive and audiovisual information about how technologies function.	Information about the ontological, ideological, and/or psychological reasons why the event occurs as it does.
Enter text and data here corresponding to Criteria						

Include at least six primary or secondary sources for each question. For all your citations use one of the standard citation methods (MLA, Chicago Style, etc.) parenthetically where the source is being used in your work (not at the end) using this Citation Generator. If you need to abbreviate URLs to make them fit more easily in the Questions Grid, you can use one of the many free URL-shortening websites such as Short URL <https://www.shorturl.at/>.

Figure 2. TDP Questions Grid

Example of Student Work using the Questions Grid

For an example of the TDP workflow as it currently operates in the classroom with the two-dimensional Questions Grid as the prompt-building interface, consider the following example drawn from actual student work in MEM 3510. In Module 5 of MEM 3510, a student group with the name *The Last Romans* was assigned to simulate an episode involving medieval warfare technology. They chose to reconstruct the Siege of Orléans of 1428–1429, centering their simulation on the intersection of traditional siege warfare and the emerging gunpowder weapons — cannons, hand-held firearms, fireboats — that marked a turning point in the Hundred Years' War. Their Questions Grid (Figure 3) populates all six 5W1H columns: situating Joan of Arc within the political and theological context of late medieval France, locating the siege within Orléans's strategic geography as the northernmost city still loyal to the French crown, and encoding the students' research judgment that gunpowder weapons — particularly on the French side — were a defining feature of this phase of the conflict.

Who?	What?	Where?	When?	How?
Joan of Arc was born in 1412 in Domremy, France. No one could have expected this young peasant girl would become one of France's most iconic historical figures, standing high as a Patron Saint and national hero comparable to the French on the levels of Napoleon or De Gaulle (#1, Joan of Arc: The Image of Female Heroism). Northern France had come under foreign English occupation, and as the Hundred Year's War continued to rage on, she claimed to have heard divinely inspired messages from holy Christian visions and voices.	 (Image Source: Google Images) The Hundred Years' War between France and England originated as a dispute between two nobles and their respective claims to the throne. Philip of Valois from France, who was backed by the French nobility, did not recognize the claim of Edward III from England (History Mapped Out, 2024). While France allied with	Orléans is a city in the north of France located on the Loire River. It was notable in the period for it being the northernmost city in France which was still aligned with the French crown. Most of the rest of the north was controlled by the English and allies of the English such as the Burgundians. (#1 Jeanne d'Arc (1412-1431))  (Photo Credit: Siege of 1429) The location of Orléans was	The time period of the Battle of Orleans, and greater 100 Years War marked a turning point in the tools of warfare for the time.  (Photo Credit: Cry Havoc: Siege of Orléans)) It was significant for tying together the traditional tools of Siege warfare along with the emerging weapons of warfare such as gunpowder artillery. (#1 EBSCO Siege of Orléans) The battle took place from October 12, 1428 to May 8, 1429 and	 (Image Source: The Hundred Years' War) change in Infantry: essential: famous (Green, 2 warfare w and tower and peas; England. structure, roles in m commone in nationa tactics an

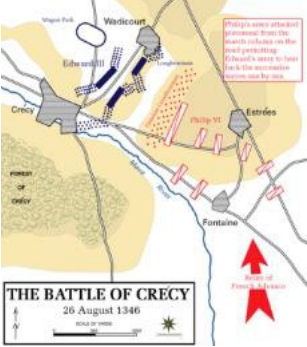


(Image credit: Joan of Arc: A Military Leader). She identified these voices as saints and called on the fighting French to keep pushing out the English conquerors. Her most legendary contribution to the Hundred Year's War came at the Siege of Orleans, where her arrival was marked by banners and armor which she, a woman in medieval Europe, was bold enough to don. (#2, Siege Warfare during the Hundred Years War). The inspiration she gave to the French army in Orleans brought them great strength and confidence, allowing them to push out bold attacks that ended the siege within days.



(Image credit: Battle of Crécy). In this narrative, one French soldier, Jacques and Louis, fictional characters inspired by the real fighting men of France during the Siege of Orleans, stand strong and live through the horrors of war. Jacques' survivorship comes with a renounced sense of nationalist pride in France after their successive victories, inspired by Joan of Arc's heroic presence. Jacques and Louis represent the early national spirit of the French people as they fought to secure their freedom. (#3, Page not found | Taylor & Francis Group). His role in the army as an archer, specifically trained as a soldier to fire arrows from crossbows, makes him a powerful and precise shooter.

Scotland, they mounted an attack on English-held Gascony at the south of France. This marked the start of the Hundred Years' War. (#1 <https://www.youtube.com/watch?v=VO0yIL3JRkk>)



(Image Source: Google Images) The Hundred Years' War was marked by a series of decisive battles that shaped Europe's political landscape. The English secured early victories at Crécy (1346) and Poitiers (1356), thanks to their skilled longbowmen and disciplined infantry. However, momentum later shifted toward the French under figures such as Joan of Arc, whose faith and strategy inspired the French to reclaim key territories, including Orléans in 1429. These turning points not only demonstrated the evolving art of warfare but also reflected the rise of nationalism in both kingdoms (History Mapped Out, 2024).



(Source Image: Google Images) The Siege of Orléans became one of the defining moments of the Hundred Years' War. English and Burgundian forces launched an assault on the French city of Orléans, a strategic gateway to southern France and one of the last strongholds loyal to Charles VII (Gillum, 2022). After months of siege, the city's defenders were struggling to hold out. The arrival of Joan of Arc in April 1429 changed the course of the conflict. Her presence revitalized French morale and inspired a series of daring attacks that forced the English to retreat in May 1429. (#2 <https://www.ebs.co.com/researchstarters/history/siege-orleans>)

essential to the time period because of its significance as the capital of the Orléans Duchy. The dukes of Orléans were also notable leaders of a political faction called the Armagnacs which were loyal to the uncrowned Charles VII. Beyond that, the city served as a barrier of sorts from the English-loyal north to the French-loyal south and protected the French area from exposure to the English.



(Photo Credit: Jeanne d'Arc (1412- 1431)) There were various aspects of the physicality of Orléans which predisposed it to this warfare. For one, the aforementioned loyalty barriers of Orléans and the psychological blow that conquering the city would give to the already weakened French. More than that, the geography of the area also predisposed the city for battle. The location of the city on the Loire River allowed for a physical barrier which if overtaken would easily allow the siege of the rest of France. Anticipating this siege on the River and Bridge, the French fortified the Les Tourelles gatehouse which was located in the water. This further protected the river from weaponry of warfare such as cannons which previously would have easily taken over the weakened bridge. (#2 Siege of Orleans | Sevenswords)



(Photo Credit: Significant Battles in 'Henry the Sixth Part One' | Theatre Production Archive | University of Waterloo)

was placed within the larger context of the 100 Years War which took place from 1337–1453.



(Photo Credit: The Origins of the Hundred Years War - Historic UK) This battle took place at an essential turning point within the war. If the French city of Orleans would have fallen, it most likely would have meant that France as a country would have entirely fallen to the English due to their dominance in the war previously, demonstrated in their victories such as Crécy in 1346, Poitiers in 1356, and Agincourt in 1415. The larger war was a story of English victories so the French's victory was essential to their survival as a nation. (#2 Joan of Arc: a military leader | DeVries, Kelly) and (#3 The Maiden of France: A Brief Overview of Joan of Arc and the Siege of Orléans | Cam Rea) Finally, this battle was so essential to the war because of the timing of the battle itself. As previously mentioned, the war was heavily dominated by English successes so the French victory was essential for French morale. Without the victory at Orléans, the French, if not conquered through warfare, likely would have surrendered to the English due to the hopelessness experienced. Through the blockade, supplies were being held from the French living in Orleans, causing many residents to starve, or not have essential materials for living.



(Photo Credit: Cannons Firing At The Walls During The Siege Of Orleans) Through this victory, the French secured a turning point in the war and allowed their people to hang on. (#4 Siege of Orléans | Britannica)

period laid the foundation of feudalism.



(Source: (12th century) became the Hundred Years' War. Longbows and crossbows were used in the war, but they were not as effective as they were placed in the hands of the English. The English trained their archers from a young age, and this discipline was a key factor in their success. (https://tiny.cc/12thcentury)



(Image Source: other than adopted in the early years of the war. Later battles saw the use of gunpowder weapons, such as cannons and muskets. France's military duties of defense and establishment of a strong state were also key factors in the war. (https://doi.org/10.1017/9781009000000.001)

The narrative simulation generated from this grid — *The Siege of Orléans: Voices of Faith and Fire* — places named fictional characters inside the historical event with dialogue, sensory detail, and dramatic stakes. Among the French troops marching with Joan are Jacques, a crossbow archer, and Louis, his companion designated as a cannoneer, through whom the simulation renders the shift in medieval warfare from the chivalric rhythms of armored combat toward the psychological and material force of gunpowder. The simulation follows the two soldiers through Joan’s arrival in Orléans on April 29, 1429, the assault on the English stronghold at Les Tourelles on May 7, and the lifting of the siege the following dawn (the AI-generated narrative is included in this article as Appendix 1).

The students’ Track Changes review (Figure 4) conducts Step 3 of the TDP workflow directly on this simulation, and the annotations reveal something the method predicts: that the AI’s output, however fluent, systematically reorients the historical material toward the statistically familiar. One student changed Louis’s original designation from “swordsman” to “cannoneer,” noting that the revision was intended “to highlight the importance and prevalence of gunpowder weapons on France’s side of the latter half of the Hundred Years’ War” — a correction grounded in what the grid’s sources had established and the AI had quietly set aside. The same student then removed a reference attributing cannon fire to the English as well, because the sources “placed more emphasis on France’s use and adoption of cannons”, where the grid had encoded an asymmetry between the two sides’ weapons profiles, the AI had smoothed it into symmetry. Another student adjusted Joan’s dialogue and a soldier’s affirmation of faith to better reflect, in the annotation’s words, “Christian values as a Frenchman of the time would think” — a correction in which the AI’s generically heroic register is identified as insufficiently historically estranged and revised toward the specific theological idiom of late medieval French piety. This is the encounter with alterity that TDP’s review step is designed to produce: not an abstract awareness that the past was different, but a concrete, comparative confrontation with the differences between what the sources encode and what the model generates.

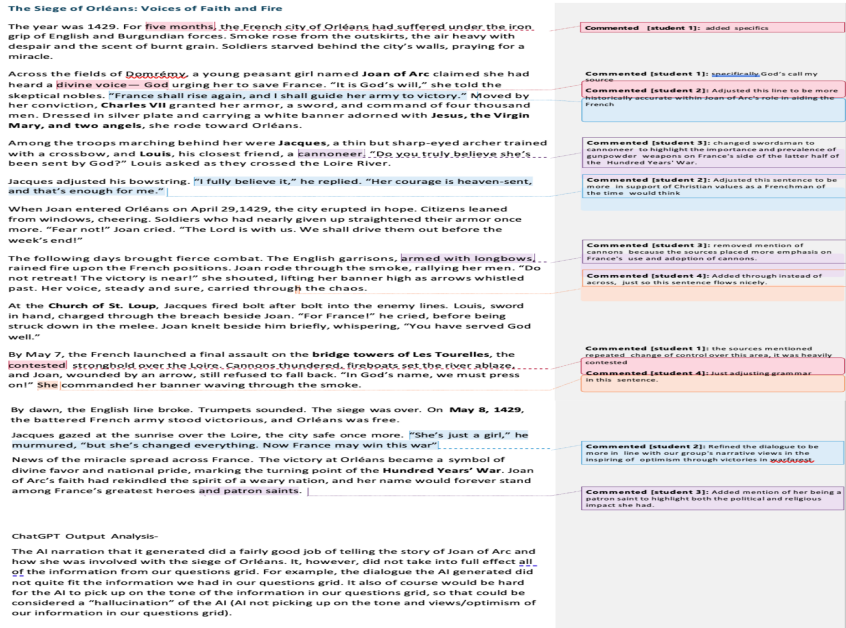


Figure 3. The Last Roman’s Critical Review

The group’s written analysis of the AI output identifies this gap in terms that echo the article’s own theoretical framework. The AI, they observe, “did not take into full effect all of the information from our questions grid,” and its failure to capture the tone and interpretive orientation of the grid’s source material “could be considered a hallucination” — a formulation that intuitively grasps the distinction between what a language model produces statistically and what a historically grounded prompt actually demands. In Gadamerian terms, the students have encountered the moment at which the simulation resists assimilation to their own horizon: The AI has rendered the past in a present-oriented image, and the review step has made that rendering visible as a construction to be corrected rather than a recovery to be accepted.

One further feature of the submission is worth noting. Despite the cannoneer designation introduced in Louis’s first appearance, he dies “sword in hand” two paragraphs later — an inconsistency the revision did not catch, and that a further iteration of the TDP cycle would need to address. This is not a failure of the method but a demonstration of one of its central claims: that a single cycle of review and revision is rarely sufficient to true a simulation fully, and that the iterative structure of TDP exists precisely to make successive incompleteness visible and correctable. The grid, simulation, and annotated review together constitute not a finished product but a documented, iterable artifact — a record not merely of what the students produced but of how far, in this iteration, they have tried it.

6. True Digital Poiesis and Event Cruncher Stylus Prototype Reference Architecture

The TDP method is currently being extended toward “fully immersive” (bonsu_etal, 2025) audio-visual simulations of premodern events using generative AI tools for audio, imagery, and video. This more ambitious simulative goal involves transforming the two-dimensional Questions Grid currently used for narrative simulations into a three-dimensional interactive digital tool called the Event Cruncher Stylus (ECS) (Figure 5). The ECS is a proposed interface implementation, currently in design development, that gives three-dimensional, embodied form to the three-step TDP method.

Evidence from the haptic feedback literature suggests that such a multidimensional interface model may offer additional cognitive and pedagogical benefits. The proposed ECS reinforces conceptual distinctions through spatial interaction by mapping questions to distinct manipulable faces of nested three-dimensional solids. This spatial separation is designed to support the development of critical thinking and skills acquisition and to improve cognitive engagement by anchoring abstract reasoning in tactile form. Haptic feedback, and eventually visuo-haptic feedback, may further enhance students’ abilities to conceptualize complex historical relationships by physically reinforcing the separations between temporal, spatial, causal, and agential dimensions of the six questions [Magana and Balachandran 2017].

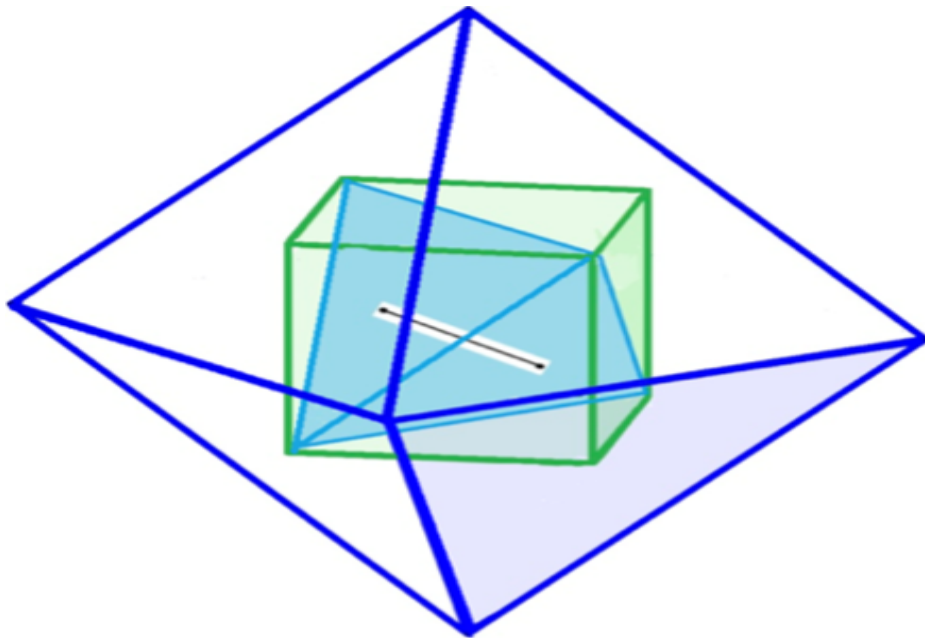


Figure 4. A Static Representation of the Event Cruncher Stylus

The ECS design makes use of Platonic solids — three-dimensional geometric forms whose faces are identical regular polygons meeting at identical angles, a property of perfect regularity that makes them uniquely symmetric among all possible polyhedra and that has made them objects of scientific and philosophical fascination from antiquity to the present day [Wilczek 2015]. The ECS uses three of the five such forms nested concentrically, mapping questions to distinct faces: The binary at its center represents the distinction between who? and what?; the tetrahedron (four faces) adds the distinctions where? and when?; the cube (six faces) adds the distinctions how? and why?; and the octahedron (eight faces) as the outermost shell serves as the user's primary interactive control surface. The choice of these forms is motivated by their mathematical regularity, which makes each face of each solid both visually distinct and geometrically equivalent.

The cube, with its six faces arranged in three pairs of opposites, is the component of the ECS that encompasses all six fundamental questions. It does so in the manner of a volumetric Semiotic Square. The latter, developed by linguist A.J. Greimas (1983), is a diagram of logical relations among concepts in which four terms are arranged to make visible three kinds of structural relationships: contradiction (A versus not-A), contrariety (A versus its structural opposite B), and complementarity (A versus what mediates between A and not-B). The diagrams in the next section are correspondingly designed to render explicit the relational architecture that any conceptual field involves but rarely states. In the three-dimensional cube of the ECS, the six questions are arranged so that they stand in analogous relationships of equal, opposite, and adjacent, extending the semiotic structure into three dimensions and giving it a spatial, manipulable form. This design choice reflects the conviction that the six fundamental questions are not merely a checklist but a structured field of relations whose logic should be visible and tangible to the student.

As with the Questions Grid, each question is associated by instructors with defining criteria to guide learners' research. Each question with its associated criteria corresponds to a face of a Platonic solid functioning as a repository into which corresponding information obtained by learners' research can be uploaded — or, consistent with the purpose of the ECS as stylus — functioning as a page on which the corresponding information obtained by learners' research can be *written*. The transparent octahedron as the outermost solid functions both 1) to serve as a combination digital writing utensil and remote control that the user "manipulates" (for accessing and editing the criteria and data within and for initiating simulations); and 2) to behave, when a simulation is initiated, like a top that wobbles corresponding to the (im)balance of the data-criteria correspondences within it (the spinning ECS will be visible in the user's digital field of vision as the simulation occurs). The latter function will allow users to gauge how much fine-tuning their simulation needs (by checking: Are all questions addressed? Has the required number of primary and secondary sources been cited? Does the information provided for each fundamental question consistently align with the question and its criteria?).

Corresponding to its balance, a given simulation will be understood to be "true" in the verbal sense of the word: "to make level, square, balanced, or concentric: bring or restore to a desired mechanical accuracy or form" [Merriam-Webster 2025]. Edits made to successive iterations of a given ECS digital composition will be tracked and made accessible to learners to be used as part of a structured critical review built into the digital user interface. One of the main purposes of work with the ECS as three-dimensional interactive prompt builder is to offset the role played by visual and audial aspects of the generative AI-based experiential learning by placing greater emphasis on the constructive role played by the tactile sense [Fulkerson 2013] [Fulkerson 2020]. In tactile-digital work with the ECS, the main focus falls on the cube which, by incorporating all six basic questions, most closely approximates the linguistic and physical spacetime humanity actually inhabits.

The True Digital Poiesis system is currently implemented as a functional prototype in which the two-dimensional Questions Grid still serves as the primary interface through which students construct their prompts. In this implementation, as we saw in the example above, students populate the grid using a web-based application built with JavaScript, Node.js, and MySQL, then manually transfer the generated prompts into commercial AI platforms such as ChatGPT, Claude, or Gemini to produce their simulations. The three-dimensional, haptic-enabled Event Cruncher Stylus described in this article is an interface design currently in development; it represents the target architecture toward which the system is progressing, not a feature of the tool as presently used in the classroom. Future deployment on the University of Florida's PubApps hosting service, with integration of AI services powered by HiPerGator and the addition of the fully interactive three-dimensional ECS, version control, multimodal output, and single sign-on authentication, is planned as the next phase of the TDP project.

7. System Configuration

Since the concepts in this paper cross into the discipline of computer science, we present in this section a potential reference implementation for the ECS. We use sequence diagrams, like flowcharts, to express interactions between TDP/ECS system components using the Unified Modeling Language (UML), which the computer science field commonly uses to convey computer-related design concepts. Two diagrams are provided: one for system configuration (Figure 6) and another for the student-facing interface (Figure 7).

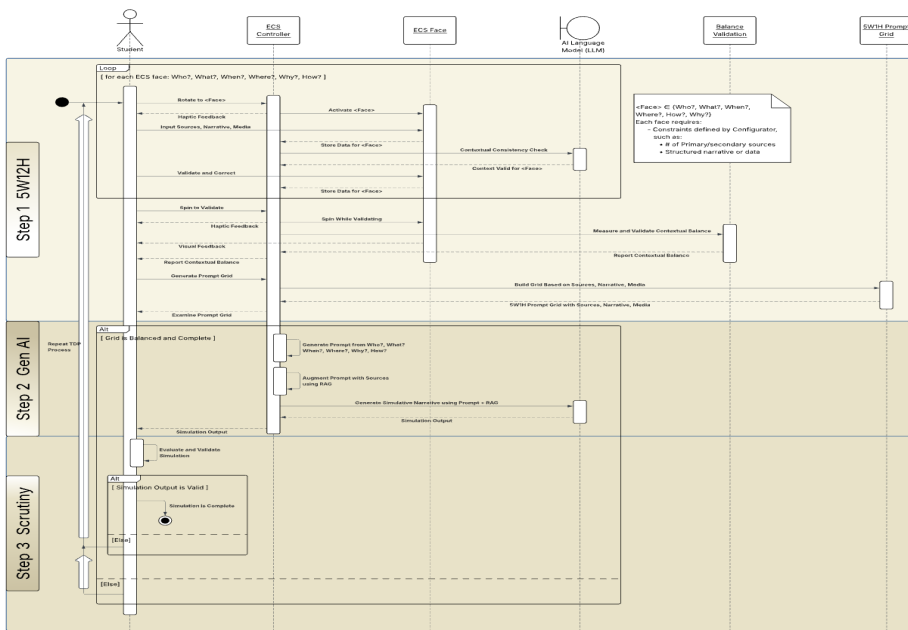


Figure 5. ECS System Configuration

Instructors, content managers, or researchers configure the questions and criteria for the six fundamental questions (5W1H) represented by the Event Cruncher Stylus (ECS). (Refer to the two-dimensional Questions Grid in Figure 2 above for examples of criteria and constraints for each question.) In the ECS configuration sequence diagram, instructors or context managers are represented by the actor called *Configurator*. To manipulate the three-dimensional ECS, the Configurator interacts with the *ECS Controller* object and *ECS Face* entities.

The ECS Controller object is responsible for manipulating, maintaining, and storing the states of ECS Face entities. ECS Face entities are constructed as the Configurator rotates the ECS choosing either the binary sides or the faces of the nested Platonic solids. These ECS Face entities represent the components of the visual instantiation of the Event Cruncher Stylus:

- **Core Binary:** The heart of the ECS is the fundamental binary distinction — typically actor/action (who/what) — that anchors the configuration logic.
- **Tetrahedron:** Surrounding the core, the tetrahedron introduces spatiotemporal context (where/when), providing spatial and temporal scaffolding for event construction.
- **Cube:** The next layer encodes causal relationships (how/why), adding mechanical and teleological reasoning to the spatiotemporal and binary actor/action contexts.
- **Octahedron:** As the external interface and control device, the octahedron enables Configurator actors to input, edit, and validate the questions, criteria, and constraints for the contexts the ECS represents.

Configurator actors can also view the ECS configuration in two dimensions for validation. When the instructor/manager is satisfied that the configuration is adequate for use by students, the configuration process ends.

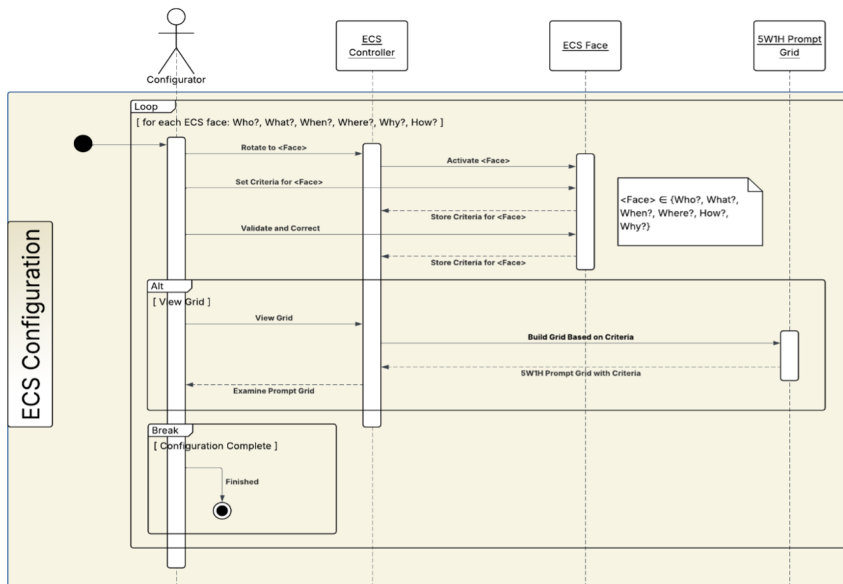


Figure 6. Student-Facing Interface

Learners add their sources, narrative, and media to the Event Cruncher Stylus (ECS) for the six fundamental questions (5W1H) in Step 1 of the TDP process. The Student-Facing Interface diagram (Figure 7) maps out the full lifecycle of student engagement, from structured inquiry through critical reflection and — read alongside the three-step TDP method described in Section 4 — enacts that method in system-design terms: The population of ECS faces corresponds to Step 1, the dispatch of prompt and RAG data to the LLM and the generation of the simulation to Step 2, and the student's review, annotation, and decision whether to iterate to Step 3. Like the process for configuration, the student actor iterates through each side and face of the ECS to input their data. Haptic feedback provides the student with forceful tactile separation between the six fundamental questions — Who?, What?, When?, Where?, Why?, How? — in this unique embodied way, consistent with the interpretive "thick description" advocated by anthropologist Clifford Geertz (1973). Note that haptic feedback can be simulated for devices that do not support true haptics. Lécuyer et al. (2009) have demonstrated that users can experience the illusion of mechanoreceptive sensory input using software that takes advantage of visual dominance in sensory conflict involving spatial properties.