Preparing the eLuna Visual Language for Human-AI Co-Specification and Code Automation

Fredrik Breien[1] and Francine Janneke Schevenhoven[2]
[1]The Centre for the Science of Learning and Technology, Faculty of Psychology, University of Bergen, Norway
[2]Geophysical Institute, Faculty of Science and Technology, University of Bergen, Norway

fredrik.breien@uib.no
francine.schevenhoven@uib.no

Abstract: This paper presents the application and refinement of the eLuna Framework. The framework includes a two-phase collaborative method for designing and specifying narrative game-based learning (GBL) systems using a visual language. Researchers tested the framework through a real-world project that developed the Super Climate Model Game, a mobile game that explores learning objectives in climate science. Participatory action research and heuristic usability inspection methods were used to evaluate the eLuna Visual Language. The goal was to determine whether it could create unambiguous and expressively complete blueprints for narrative GBL development, and subsequently to rectify uncovered ambiguities and expressive shortcomings to enable future AI agent collaboration and code automation in development of narrative GBL using eLuna. Confirming previous research, the eLuna co-design phase was found to be highly usable. It effectively structured narrative GBL elements, supported collaboration between educators and developers, and ensured compliance with characteristics enforcing positive learning outcomes. However, the visual language lacked the expressive completeness and unambiguity required for AI agent collaboration and automated code generation. Seven modifications were proposed to address these issues while preserving the framework's empowering co-design properties alongside its originally targeted characteristics that are associated with positive effects on engagement, motivation, and learning. These seven changes improve human readability and computational parsing. They also bring the visual language closer to supporting automated coding processes. The Super Climate Model Game was developed using a hybrid approach that combined eLuna and SCRUM. This approach was necessary due to real-world constraints. The project demonstrated the flexibility of the eLuna Method and its relevance in practical development scenarios. This research moves the eLuna Visual Language closer to enabling multiagent human-AI collaboration and automated code generation. Future work will focus on creating an online visual editor for collaboration between human and AI agents. A semantic parser will also be developed to translate eLuna blueprints into structured data formats for automated code generation. These advancements will support scalable and effective narrative GBL development, delivering positive learning outcomes to diverse learner demographics.

Keywords: Narrative game-based learning, Human-AI collaboration, Code automation, Visual design languages, Modular development methodologies, Climate science

1. Introduction and Background

While previous research (e.g., Novak, 2015; Clark, et al., 2016) has reported narrative Game-Based Learning (GBL) to have the potential to enforce positive learning effects, the findings in these reports have been mixed and contradictory. Questions have been posed about what a narrative is in a game (Aarseth 2012), and about whether learning effects attributed to them comes from the narratives at all (Armstrong & Landers, 2017). Following up on Aarseth's (2012) work, defining video games as a dominant narrative media that requires its own models for analysis and design, Breien and Wasson (2021) presented the extended Ludo Narrative Variable Model (eLNVM), an ontological model to describe all games as narratives. Categorizing 15 narrative GBL on the eLNVM and sorting them by their self-reported effects, Breien and Wasson (2021) revealed a set of characteristics that are associated with positive effects on engagement, motivation, and learning. Answering calls to contribute collaborative design methods that empowers both educators and developers in the creation of effective narrative GBL, Breien and Wasson (2022) applied the positive effects characteristics and contributed the eLuna Framework. The eLuna Framework comprise four phases, accompanied by a visual language that is initially used flexibly to generate a game design from a synopsis, and later strictly, to transform this game design to a technical blueprint for narrative GBL that can be developed and deployed to learners. Figure 1 shows the eLuna Framework's four phases, and the application of the visual language in the co-design and co-specification phases. These two phases are together referred to as the eLuna Method.

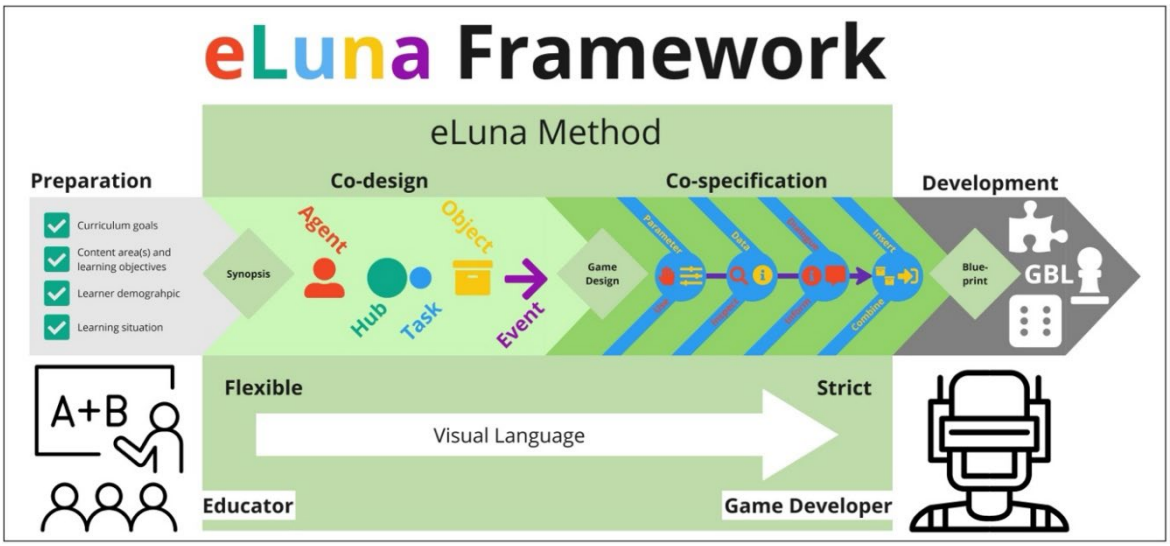

Figure 1: The eLuna Framework (adapted from Breien and Wasson, 2022). During the co-design phase the visual language is used flexibly to arrive at a game design supporting the goals defined by educators in the preparation phase. During the co-specification phase, the visual language is used strictly to arrive at a narrative GBL blueprint that can be developed in the development phase. Please refer to the original research (Breien and Wasson, 2022) for detailed descriptions and visualizations of the visual language elements and the blueprints that can be specified using them

Multiagent hybrid intelligence systems have been explored for human-AI collaborative creation of narratives (Li, et al., 2024), game mechanics (Yang, et al., 2024), and programming code (Pu, et al., 2025). Moreover, recent advances in the field of generative AI support the introduction of AI agents that can assist humans in the collaborative design of all types of games, including narrative GBL (Alvarez, 2022). Furthermore, Cheng et al., (2024) demonstrates that recent advances in AI assisted software development facilitate automated code generation based on visual schematics. The eLuna Method uses a formal visual language to specify blueprints for narrative GBL development through collaborative design and specification conducted by human agents. Therefore, it has the potential to capitalize on both AI assisted narrative and game mechanical design, as well as automated code generation. The advantages of adding these AI augmentations to eLuna are many:

- It allows for semantic AI assistance during design and specification, to ensure character consistency, aid dialogue development and editing, upkeep learning objective terminology compliance, track learning objective focus, integrate learning analytics, ensure sequencing of narrative learning content based on learning theories, and more.
- It offloads code work through AI construction and instantiating of programming classes and algorithmic structures based on blueprints, leaving human agents to focus time and resources on content.
- It affords pre-development debugging, and syntactic and semantic parsing of blueprints to generate pre-coding warnings, detect errors, and propose optimizations via language models trained on the GBL subject matter and game mechanical constraints and logic.
- It enables online and co-located narrative GBL design and specification to be conducted synchronously and asynchronously among human agents through implementation of AI guided online collaborative tools.

These improvements require visual language iconographic notations that are semantically unambiguous, and that can semantically express the characteristics targeted by eLuna. The visual language must also remain usable for human stakeholders, to conserve the original affordances of the eLuna Framework; empowering stakeholders in collaborative design processes. During the development of the eLuna Framework, only one narrative GBL was specified into an eLuna blueprint. This was the Idun's Apples prototype that was developed to evaluate the eLuna Method and to describe its visual language iconographies (Breien and Wasson, 2022). The eLuna Method has yet to be utilised in a real-world scenario, and several issues and shortcomings are expected to present themselves when applying the theoretical design framework in a real-world setting.

This paper presents a full eLuna project from preparation to development. Educators and game developers worked together using action research methods, to create a feature complete narrative GBL. This research focuses on presenting how the eLuna Method was practically applied in a real-world project, and more particularly exploring to what extent the visual language iconographies are useable for unambiguously expressing the characteristics of eLuna narrative GBL. This research presents clarifications to the eLuna Visual Language that enables unambiguous and expressive feature compliance when specifying eLuna blueprints.

2. Research Questions

This paper aims to test and then extend the visual language used in eLuna for the specification of blueprint deliverables, adhering to the demand that the syntax of iconographies, as well as the semantics that can be read from them, is unambiguous. The visual language must enable expression of all narrative and game mechanical features defined in the eLuna Method target characteristics. Furthermore, the visual language must comply with the design deliverables from the eLuna design phase and remain easy to read for both human and machine agents working with them. Two research questions (RQs) guide the work:

RQ1: How usable is the current eLuna Visual Language in practitioner specification work to create an unambiguous blueprint of a narrative GBL?

RQ2: How can ambiguities and expressive shortcomings found when applying the eLuna Visual Language to a real-world GBL development project be rectified while retaining its existing characteristics and co-design properties?

The resulting visual language will serve two purposes in future research: 1) It will lay basis for an online visual editor in which human and AI agents can work in collaborative and cross disciplinary teams to create eLuna specifications, and 2) It will lay basis for a semantic parser, that can interpret the specification blueprints into (semi) structured data (e.g. JSON, XML or SQL), and thereby enable automated code generation of narrative and game mechanical elements.

3. Methods

This research applied mixed methods. RQ1 was examined using participatory action research conducted using the practical guidelines set forth by Kemmis (2013). That is, the researchers were active participants in a real-world development project targeted at delivering a feature complete narrative GBL with learning goals set by a climate science context. Author 1 served as lead game designer and producer for the development project and moderated the eLuna design phase according to the eLuna Method, before introducing the collaborative team to the eLuna specification phase, inspecting its usefulness to produce a blueprint useable for the developers' creation of the game. Author 2 served as an educator with domain knowledge about climate science through the eLuna design and specification phases, and aided author 1 in documenting the process, including participating in evaluations. Two developers and five educators participated in the design phase, a number that was reduced to two developers and two educators in the specification phase. The development phase was conducted by the game developers alone, consulting author 1 to clarify the eLuna blueprint semantics when needed. Presented results focus on the authors' observations after working with the practitioners during the specification phase and are based on reflections put forth through mainly verbal communication in work settings. These included workshops, work sessions (usually one half to one day long), and status meetings of varying frequency from biweekly to every day, depending on project phases, over a 12-month period.

RQ2 was explored using iterations of Design-Based Research (DBR) as specified by Nieveen and Folmer (2013). The eLuna Visual Language was taken as the artifact in an Information System Research Framework (Hevner, et al., 2004) to inspect it for compliance, and to propose alterations that would mitigate identified shortcomings while remaining true to previously set requirements. To inspect compliance, the finished narrative GBL was reengineered back to eLuna Visual Language iconographies. This step was completed after going through expert usability inspection using Heuristic Usability Inspection Methods (Nielsen, 1994).

Ambiguities and expressive shortcomings were identified, before solutions were proposed that adhered to the principles of the eLuna Method.

4. Results

The Super Climate Model Game was developed and used as the testbed to explore the two RQs. The game teaches research topics in climate modelling. In the Super Climate Model Game, a feral spacefaring alien species has wreaked havoc upon a peaceful solar system, leaving myriads of animals stranded on planets incapable of

sustaining them. As part of the BAO (Benign Alien Overlord) Emergency Response Team, the player uncovers the animals' sustainability bounds, then perform climate model predictions to pair animals with planets that can sustain them before transporting the animals to safety. The goal of the game is to use as little energy as possible. Figure 2 shows selected screenshots from the developed game.

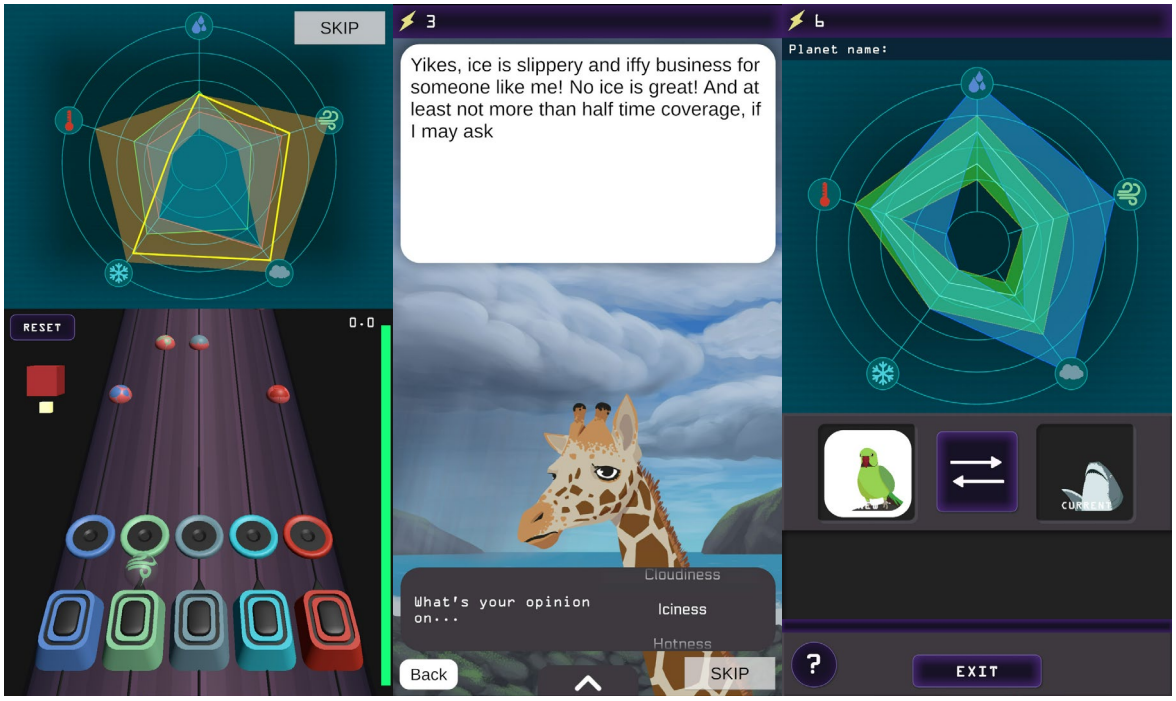

Figure 2: Screenshots from the Super Climate Model Game, climate prediction is done as a reaction game, based on time and climate models' parameters (left), animals' sustainability bounds are discovered though communication (centre), and animals are paired with habitable planets through model comparison (right)

4.1 Answering RQ1: The eLuna Visual Language could not unambiguously express elements

As expected by the researchers, the eLuna Visual Language failed when scrutinized for its ability to specify unambiguous narrative GBL blueprints. The practitioners confirmed previous results showing that eLuna is a usable and effective method to collaboratively design narrative GBL. They also added that the eLuna blueprints, when ignoring their lack of accuracy, are good references in practical development and as communication tools between educators and developers. However, the answer to RQ1 is that the eLuna Visual Language is unable to present unambiguous blueprints of narrative GBL that can be semantically parsed and coded without frequent clarifications about elements that are inexpressible or ambiguous when using the eLuna Visual Language.

Since this was a real-world project with budgets and milestone constraints, the practitioners abandoned attempts to specify the game fully using eLuna. They reverted to a known SCRUM development process as described by e.g., Schwaber (1997), using the eLuna design deliverables and the partial blueprints as useful references throughout the development.

While the narrative GBL was developed using SCRUM, it still resulted in a game that employed all elements that were defined in the eLuna co-design phase without adding anything new. This resulted in a game that is compliant to the initial eLuna vision and demonstrates that the eLuna co-design phase holds relevance even when resorting to specification using another method. Thus, incomplete eLuna blueprints can be used as guiding and communication tools in a mixed method development process that still results in eLuna games that target positive learning outcomes. However, eLuna is insufficient for use in both AI agent systems, and for code generation, since these both require unambiguous and completely expressive iconographies. Seeing the Super Climate Model Game in an eLuna categorical perspective reveals the following:

- **The agents** are the BAO, the feral aliens, and the animals (in the first version a Giraffe, a Shark, and a Parrot).
- **The hubs** are the planets' orbits and the planets' surfaces.

- **The objects** are the climate models (sustainability bounds (for animals), and sustainability models (for planets)), the energy reserve, the spaceship, and the space transport elevator.
- **The events** are the catastrophic event caused by the feral aliens, the making of climate models for planets and with animals, the comparison of climate models, and the transporting of animals and BAO representatives between the spaceship and the planets' surfaces, all of which consume energy when initiated.

4.1.1 Inspecting the Super Climate Model Game – second iteration design

The Super Climate Model Game was usability inspected after the first development iteration. This inspection was not directed at inspecting the eLuna Visual Language, however, the results of the inspection – the changes proposed by the inspectors for the next development iteration – are still considered when working towards answering RQ2 and are therefore reported here in brief.

The game was inspected by six experts, all having experience with games and interactive media to entertain, teach, or inform. The experts held the following positions: 1) Senior researcher in Human-Computer Interaction, 2) Pedagogue at a natural scientific museum, 3) Postdoctoral fellow in technology and learning sciences, 4) Lead game designer in a game development company, 5) Climate physics engineer at an energy company, and 6) Communications coordinator at a media and communications higher education unit. All inspectors were given an identical 20-minute introduction to the game, including a fully guided walkthrough of all its features. They were then given 40 minutes to play the game and were encouraged to articulate every time they were uncertain about anything: what they believed something meant; where they expected actions to lead them; what they thought the consequences of actions would be; and so on. Together with the researchers, they formulated each identified issue as a usability problem, which was recorded after the expert agreed that it reflected the issue completely and correctly. Experts were also given the opportunity to formulate possible solutions to the issue, if they could think of any. Finally, they consulted a list of 10 heuristic usability principles and related the issue to one or more of those, before ranking the issue on a severity scale from 0 (not a problem) to 3 (a system breaking problem).

The inspection resulted in 22 unique usability issues with proposed solutions, clustered together from 53 individual reports. The issues were inspected for their compliance to the eLuna target characteristics, to ensure that rectifying them would not alter the eLNVM category to one that is not associated with positive learning effects. This was done by inspecting each cluster's solution to determine whether any alterations it made to an agent, hub, object, or event complied to the target characteristic. There were three alterations: 1) Events could be looped based on object and/or agent parameters; 2) Objects' states could be stored or not stored based on status; and 3) Hubs could be clustered based on classes. These are all related to behaviours and manipulations of elements and comply with the eLuna target characteristics. However, they represent expressive requirements that should be available in the eLuna Visual Language and are thus of high relevance for answering RQ2.

4.2 Answering RQ2: Enhancements to eLuna

The final narrative GBL and the alterations introduced through the usability inspection, were reverse engineered back into eLuna specification format to identify ways in which it could be enhanced. The result was presented to the game developers participating in the project who then reconsidered the game flow and identified any remaining issues of ambiguity or expression. The group then used their experience and knowledge to propose a revised eLuna Visual Language, applying the same empowering co-design principles that is the foundation of the eLuna Framework. A total of 7 modifications were made to the eLuna Visual Language iconographies. These were organized as either ambiguity (Amb) or expressive (Exp) modifications and are summarized in table 1.

Table 1: Ambiguity and expressive modifications to the eLuna Visual Language that was originally presented in Breien and Wasson (2022)

Mod #	Type	Short name	Description
1	Amb	Connecting a quest to a hub does not constitute an event.	Quests are originally attached to hubs using purple event lines. However, starting a quest does not initiate an event before the first quest task is completed. Since the hub is green, and the line is there to indicate which hub the quest is attached to, using green lines from hub to quest is recommended.

Mod #	Type	Short name	Description
2	Exp	Hubs and the events that their quests' tasks trigger can be identical, only replacing or altering parameters belonging to it.	World hubs may exist in multiple instances, only changing the ID of the hub, and either replacing or altering the agents and objects involved in tasks, like moving from one planet orbit to another, to find a new planet with a new name and a climate model with individual parameters describing it. In the Super Climate Model Game, 42 planets are envisioned. Drawing all these on a blueprint would take a lot of time and moreover would leave the specification cluttered and illegible at least for human agents. It is therefore proposed to enable nesting of hubs visualized as intersecting dotted line hubs and several instances.
3	Amb	No distinction of quests availability qualifiers.	The original visual language attach quests to hubs using purple lines, which #1 alters to green. The semantics of eLuna however also states that quests belonging to hubs may have qualifiers that must be completed as tasks in other quests before they are enabled. A solid line makes it seems like all quests are always available to players. It is possible to traverse quest tasks in a hub to find out, but that is not technically efficient, nor simple for humans. Distinguishing quests that have external qualifiers using dotted lines is recommended to improve computational parsing and human overview.
4	Exp	Events can loop back repetitively to the same hub quest task.	It should be possible to show repeatable tasks, and the repetitions should be in types of being repeatable until reaching a condition, like matching up two climate models that overlap to some criteria or matching a set number of overlaps between climate models over time. This can be visualized by an event line looping back to the task, using finite number repetitions or an infinity marker, depending on game semantics.
5	Exp	Repetitive event loops can be forced based on task outcome assessment.	Some quests' tasks' may be assessed towards a criterion, such as presenting a correct climate model to an animal after a conversation. Successful assessment incurs an event that moves the game narrative onward, in this example allowing for the transfer of the animal to the spaceship using the space lift after verifying storage capacity. Unsuccessful assessment incurs a reinitiation of the quest from the start or from a previous task. This is visualized by using dotted event lines that fork out from the assessed task, with a simple Boolean expression added to the event lines, 1 for successful and 0 for unsuccessful assessment.
6	Amb	CRUD (Create, Read, Update, Delete) procedures that occur after the last task in a quest cannot be attached to event lines.	CRUD procedures are attached to events that precede a task that has instigated a change to the game. However, tasks that constitute the end of a quest, and that does not initiate any other quests will not have such event lines following them, leaving no place to visualize the CRUD procedure. CRUD procedures should therefore be attached to the task that instigates the change, and not the event following it, since CRUD procedures always follow the completion of the related task.
7	Exp	Some CRUD procedures are only triggered if the task result is within parameters	Following game mechanical logic, CRUD procedures are sometimes dependant on task results being within certain parameters or criteria, like when showing a sustainability climate model to an animal for assessment and only saving it if the model conforms to the animal's sustainability bounds. To distinguish between CRUD procedures that always happen and ones that have dependencies, a dotted line is used for the latter, and a solid line is kept for the former.

Figure 3 shows the resulting modified iconographies listed in table 1, using the Super Climate Model Game eLuna blueprint as example.

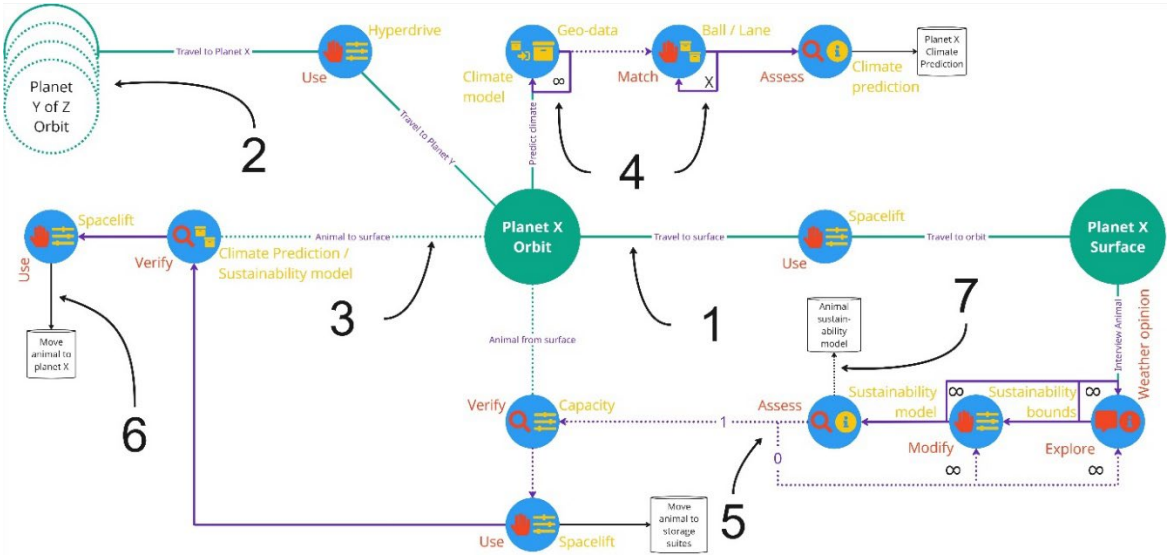

Figure 3: The Super Climate Model Game eLuna specification blueprint, numbers on blueprint references modifications as described in Table 1

5. Discussion

Our results demonstrate that the eLuna Visual Language is currently not usable to unambiguously express all relevant elements of a narrative GBL. This means that it is currently impossible to use it to either implement AI agent assistants, or to parse it into code based on its blueprints. Despite these shortcomings, we have reconfirmed previous results showing that the eLuna co-design phase is highly useable for human stakeholders. Programmers working on this project also found the blueprints to be highly relevant and useful tools for communication, and useable as programming references, even with their shortcomings in expressivity and ambiguity. While the eLuna specification phase was quickly abandoned given the temporal constraints associated with delivering a real-world and functional game, our results still show that the game remained faithful to the detailed elements that were identified during co-design and adhered to the characteristics targeted by the eLuna Framework as a whole. The Super Climate Model Game was designed using eLuna, and completed using SCRUM with eLuna assets to guide the development, something which shows the eLuna Method to be a flexible and modularizable one. As such, the co-design phase has merit on its own, to generate ideas, structure game elements and their foundational relationships to one another, create game narratives, and to tie them together in a narrative GBL whole. The designs can later be realized using other, more traditional development methods, still ensuring compliance with the characteristics that are associated with positive learning effects. This can be seen as a strength of eLuna, meaning that it can be used to guide the development of effective narrative GBL. Importantly, in moving from the laboratory domain to a practical one, eLuna has been confirmed as having sufficient flexibility to be employed alongside established development methods. This is a significant benefit as such hybrid approaches are often likely to be required for business reasons.

The research presented here has taken significant steps towards making the eLuna Visual Language expressively complete and unambiguous. Future work towards implementing a human-AI editor system and an automated code parser should continue in full. However, we have shown that there is also room for further research on using eLuna co-design as a modular phase. We envisage that this program of work could include tying eLuna to other development methods such as SCRUM; making it relevant to use in real-world narrative GBL projects; adhering to methods that are already at the core of development organizations pipelines. Of course, this work should still ensure that the updated eLuna complies with its targeted characteristics. In future work, several narrative GBL could be co-designed using eLuna, and the output from those processes used both to further advance the eLuna specifications towards hybrid intelligence multiagent systems with code automation, and to test compliance with industry standard development methods. This would result in the delivery of actual learning games that support various learner demographics.

The Super Climate Model Game provides a solid example that this is possible, since it has been delivered in feature complete status while still adhering to the positive learning effects characteristics and the deliverables from the original co-design phase. At time of writing the Super Climate Model Game is being budgeted for content completion, with a business plan provided in cooperation with the UiB technology transfer organization

(TTO) VIS. With a real-world distribution partner, it will be possible to deliver more narrative GBL, and indeed feature rich complete learning games, that support positive learning outcomes.

6. Conclusion

While this research has found that the eLuna Visual Language is not currently complete enough to support human-AI agent co-design and the automatic generation of code from blueprints, it has shown that the eLuna Method is highly useful and flexible in real-world settings. It has been used to deliver a narrative GBL with positive learning effects in a real-world setting, and a scientific consideration of the process used has brought the eLuna Visual Language closer to completeness. Avenues for further research have been identified, and a proposal for the modularization of eLuna for use alongside industry standard development methods has been made that would help to support the at scale development of effective narrative GBL that can reach real learners in educational settings. Finally, the Super Climate Model Game is being prepared for real-world distribution to learners, and the methods deployed in delivering it will form the basis for future real-world game development scenarios. Our approach shows great promise for developing games that have a real impact on learners by inducing positive learning effects for well-defined learner demographics.

Acknowledgements

The authors would like to thank:

- The UiB Idéa Program and The Research Council of Norway “Increasing the impact of supermodelling climate research in Norway” (Project number: 310098) for their invaluable funding of the development of The Super Climate Model Game
- The co-designers and evaluators for contributing their expertise to developing the game
- VIS (Vestlandets Innovasjonsselskap AS) for believing in the game, and promoting it for future completion and distribution to schools

Ethics declaration: Ethical review and approval were not required for the study on human participants in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. None of the animals in The Super Climate Model Game were harmed during its design, specification, development, and evaluation.

AI declaration: A long version of the abstract was provided to the UiB AI (chat.uib.no) for synthesising, before it was revisited and completed by the authors.

References

Aarseth, E. (2012). A narrative theory of games. Proceedings of the international conference on the foundations of digital games.

Alvarez, A. (2022). *Exploring game design through human-ai collaboration* Malmö universitet.

Armstrong, M. B., & Landers, R. N. (2017). An evaluation of gamified training: Using narrative to improve reactions and learning. *Simulation & Gaming*, *48*(4), 513–538.

Breien, F., & Wasson, B. (2022). eLuna: A Co-design framework for narrative digital game-based learning that support steam. Frontiers in Education.

Breien, F. S., & Wasson, B. (2021). Narrative categorization in digital game-based learning: Engagement, motivation & learning. *British Journal of Educational Technology*, *52*(1), 91–111.

Cheng, Y., Chen, J., Huang, Q., Xing, Z., Xu, X., & Lu, Q. (2024). Prompt sapper: a LLM-empowered production tool for building AI chains. *ACM Transactions on Software Engineering and Methodology*, *33*(5), 1–24.

Clark, D. B., Tanner-Smith, E. E., & Killingsworth, S. S. (2016). Digital games, design, and learning: A systematic review and meta-analysis. *Review of educational research*, *86*(1), 79–122.

Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design science in information systems research. *MIS quarterly*, 75–105.

Kemmis, S., McTaggart, R., & Nixon, R. (2013). *The action research planner: Doing critical participatory action research*. Springer Science & Business Media.

Li, H., Wang, Y., & Qu, H. (2024). Where are we so far? understanding data storytelling tools from the perspective of human-ai collaboration. Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems.

Nielsen, J. (1994). Usability inspection methods. Conference companion on Human factors in computing systems.

Nieveen, N., & Folmer, E. (2013). Formative evaluation in educational design research. *Design Research*, *153*(1), 152–169.

Novak, E. (2015). A critical review of digital storyline-enhanced learning. *Educational Technology Research and Development*, *63*(3), 431–453.

Pu, K., Lazaro, D., Arawjo, I., Xia, H., Xiao, Z., Grossman, T., & Chen, Y. (2025). Assistance or disruption? exploring and evaluating the design and trade-offs of proactive ai programming support. Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems.

Schwaber, K. (1997). Scrum development process. Business object design and implementation: OOPSLA'95 workshop proceedings 16 October 1995, Austin, Texas.

Yang, D., Kleinman, E., & Harteveld, C. (2024). GPT for games: A scoping review (2020-2023). 2024 IEEE Conference on Games (CoG).