

**The Golden Fleece and the Golden Code
Proposal for a Digital Humanities Start-up Grant**

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List of Participants

Gabriel Baker - UCSB, Department of Education

Benjamin Chang - UCSB, College of Creative Studies

Aubrie Adams - UCSB, Department of Communication

Nick Laionica - Performant Software

Bart Denny - Eegeo

George Bletsis - Freelance Artist

Advisory Board

Dorothy Chun, UCSB - Department of Education

Philip Conrad, UCSB - Department of Computer Science

Alan Liu, UCSB - Department of English

Abstract

This grant would cover the early stages of development for two digital, narrative-centered learning environments (NLEs) for mobile devices and eventually PCs. One of them, the Golden Fleece, will scaffold the learning of introductory Latin, and the other, the Golden Code, does the same for HTML. These tools are intended to be engaging, from-scratch learning tools for independent learners, but they can readily be supplements or review opportunities for existing classrooms. These introductory chapters provide playful, user-centered learning environments with broad pedagogical goals. The learner is protagonist and co-creator of an unfolding story embedded on 3D maps of Rome or San Francisco. Within the stories, which we hope to be compelling fictions on their own, are contexts for realistically situated opportunities for users to practice their skills, encouraging an appreciation of their studies and its real world applicability. While one outcome will be a free, public release of the apps, a research plan conducted on select control groups will contribute to the growing body of work on narrative-centered learning environments and how to evaluate their efficacy. Versions of these NLEs will also provide the infrastructure for embedding a human instructor as a character in the story, a fun model for human-to-human tutoring that maintains immersion in the narrative.

Statement of Innovation

This project is an early attempt to integrate interactive fiction and disciplinary content within the bounds of a digital, 3D story-world. Narratives, especially those co-created by readers, can promote interdisciplinary learning experiences addressing a broad array of pedagogical goals at once. One iteration of our apps will enable instructors to participate in a learner's story world as a non-player character within the game. Beyond providing personalized, formative assessment, instructor/characters will have a role in shaping different narratives, playing an authoring role for a subplot of their own invention.

Humanities significance:

These projects explore the role that narratives, a core element of the humanities, play in shaping motivational learning experiences. Regarding the Golden Fleece, the centrality of Latin to the Western world cannot be exaggerated, and while worth pursuing for its own sake, it also opens doors to other humanities. The Golden Fleece seeks to usher Latin learning confidently into the 21st century. The Golden Code aims to raise digital competencies, important for thoughtful citizens living in an increasingly technological world. A story-based setting for STEM learning will be an attractive option for learners attracted to the humanities but not STEM.

Proposal Narrative

As digital devices proliferate in schools and homes, their potential promise for learners

lies not in taking existing curricula paperless, but in providing different kinds of learning experiences. The Golden Fleece NLE is a virtual robbery mystery set in Rome. As the story advances, the protagonist learns to read basic Latin and translates sections of Latin manuscripts and inscriptions. The experience weaves language learning with history, monumental architecture, philosophy, and storytelling. The story involves two groups with competing ideas about the purpose of learning. The reader aligns with one group or the other, and in doing so influences the progression and resolution of the plot. The Golden Code NLE is a story that unfolds in San Francisco, where an organization seeks to manipulate the internet for its own self-serving purposes. The user can choose to help or hinder this group, making friends and enemies along the way, but in either case the story provides contexts where learners demonstrate their developing HTML skills in realistic contexts. For instance, one scenario involves the user coding the basics of a webpage for a business, and another has the user coding a webpage in promotion of an event.

Enhancing the Humanities Through Innovation

There aren't many middle/high school computer science programs that teach programming, and although Latin has shown relative strength this past decade, it's position in the middle/high school curriculum could hardly be described as prominent or secure, especially in public schools. Our NLEs aim to encourage new learners of Latin or HTML without intimidating them. While our approach takes into consideration test-based learning outcomes, it's also aimed squarely at supporting long-term student motivation and short-term playfulness. Motivation here is not eagerness to complete the stories but to continue learning the subjects presented therein. We think this approach encourages the mentality of lifelong learning and reading, rather than a preoccupation with short-term assessments. As such, an outcome we hope to see is increased interest in Latin and HTML amongst middle and high school learners, especially those that don't have access to classes in Latin or Coding at school. We see this as better for the health of these disciplines in the long term. Latin is a foundational humanities discipline at risk in the modern world, and basic web development skills support digital literacy and creative expression in an increasingly technological world.

Another outcome of this project will be a research plan that will nuance current debates about gauging the success of NLEs. Research on NLEs should be a piece of the puzzle involved in their creation, and we hope this research will improve our own but also help inform new NLEs. In terms of evaluating the efficacy of these tools, it is our belief that disciplinary post-test results provide a very narrow definition of success and only gauge one of the few kinds of learning our apps seeks to foster, which include reflection on ethical questions raised by the story itself. We advocate specifically for an NLE that involves the user's co-creation of the narrative as a protagonist who chooses certain paths over others in ways that dramatically affect the outcome of the story, thus cultivating a sense of authorship in users that has little to do with disciplinary content material. Recent research on a few online learning environments shows that the presence of text that wasn't directly related to the curricular goals at hand made it less likely that users would try to go through the story without learning anything. Another study concludes that boredom is the psychological state that most often leads to this behavior, hence our emphasis on an enjoyable yet challenging experience and the centrality of an stimulating narrative.

Environmental Scan:

There are a number of NLEs that have demonstrated different kinds of efficacy across a

broad swath of parameters. The most researched of these is Crystal Island, an NLE created for microbiology learning. Our approach is different in that while the narrative seems to play a subordinate role to the learning content in Crystal Island, our NLEs take seriously the challenge of placing the priorities of an exciting narrative at the center of the experience. Our NLEs also deal with different disciplines than microbiology. Also, whereas the Crystal Island experience inevitably ends with essentially the same narrative conclusion, the Golden Code and the Golden Fleece embrace branching narratives that give users agency in their conclusions. With respect to Latin learning, there are currently a number of applications for mobile devices, but few of them try to scaffold a learning experience differently than a conventional textbook (read curricular content, answer questions about the content). One of the more comprehensive apps available (SPQR), for example, presents a 20th century Latin textbook, grammar quizzes, primary sources, and mini-games. These are good reference tools for the experienced Latinist, but this cannot scaffold learning for most middle schoolers, especially those that want to try something new. There is one NLE for Latin, Operation Lapis, and the Golden Fleece shares a lot of its goals and philosophies while being different in execution. In the Golden Fleece, user movement takes place on a 3D map, not set illustrated scenes. The story also takes place in modernity, not antiquity. While one iteration of our NLEs includes, like Operation Lapis, typical game-mechanics (points, badges, leveling up), another version will not. This is for the sake of researching their effects, effects which we are not yet convinced are requisite or desirable in an NLE. There is a common course of Latin textbooks, the Cambridge Series, that consists of stories surrounding fictional characters, but there is only user consumption, not creation, and the narratives, though charming, are rarely described as stimulating. There are currently no applications that deal with inscriptions or manuscripts as language learning tools.

For getting an introduction to coding, Code Academy is a popular, web-based solution. Although it provides an easy coding interface and scaffolds learning nicely, there is no narrative driving the experience. Code Racer is a coding game for young learners with a semblance of a story, but it has the user quickly typing in code to defeat other users, and again there is no real plot progression. One project in development at UCSD, Code Spells, is an NLE for coding but it takes place in a fantastical world where coding is equivalent to magic, which is different from our real-world approach.

History and Duration of the Project

This project was conceived by Gabe while he taught Latin at the Pacific Hills School in 2011. The school was introducing an iPad program and Gabe saw a need for a new kind of learning tool. He created the content and tried to fund the development of the Golden Fleece with his own money, but this proved unsustainable when he made plans to attend graduate school. When Gabe began doctoral work at UCSB in 2013, he began forming a team of support around the project from within the university and among industry professionals. At present, the branching narratives of these stories are mostly developed and a few important art assets have been commissioned and acquired. The grant period will oversee development and launch. After launch, research conducted on the first iterations will inform future versions and new content, and we hope for this to be the start of a suite of learning tools for beginner to advanced learners of a variety of languages beyond Latin and HTML, with immediate targets being Spanish, English, and Javascript. We plan for the Golden Code and Golden Fleece to be released in early 2015, with new chapters in these stories and beginning chapters in others by mid 2016. We hope to secure additional funding for this project via grants from the Entertainment Software Association

and Instructure.

Work Plan and Staff

During the grant period, we will gather all of the artistic assets, design the user interface, and build the technical backend in preparation for an early 2015 launch . Gabe Baker is the project director and will oversee all aspects of its creation, synthesizing the work of the collaborators. In collaboration with Performant Software, Benjamin Chang will be coding the application. Philip Conrad, beyond providing help programming the applications, will oversee the curricular flow of the HTML learning in the Golden Code. Gabe Baker will do the same for the Latin curriculum in the Golden Fleece. Dorothy Chun will also provide counsel on the language-learning goals of the Golden Fleece and how it can be informed by research on language acquisition strategies. Although the core of these narratives is already developed, Gabe will also be fine-tuning them as necessary to create a richer user experience and better story.

One early step is the design and creation of a set of three-dimensional art assets such as avatars, posters, and other objects scattered on the map. The assets which move around the map throughout the story will be rigged for animation. To complete this task, our developer Benjamin will work with a team of graphic designers helmed by George Bletsis, a freelance artist who has already demonstrated his ability to produce high quality art for the beginning of the Golden Fleece. The developmental team at Egeeo will collaborate with Ben through the implementation of the Recce maps platform, and the team at Performant Software will provide developmental guidance on all technical aspects of this application from beginning to end. The primary programming languages used for development are C++ and Java.

Final Product and Dissemination

The standard versions of the Golden Code and the Golden Fleece will be free for download on iOS and Google Play, while the versions that link learners with human experts will have a pay structure that supports their sustainability. We will promote the apps by reaching out to the Latin and Computer Science teacher communities throughout the country, as well as schools where students are equipped with mobile devices but which don't have Latin or Computer Science classes. We will develop a promotional webpage that attractively highlights the features of the apps that we think set them apart. As we acquire positive reviews from users and teachers, we will also feature them on the page.

Budget

Data Storage and Hosting	Art Assets and Voice Actors	App Dev	Website	Trip to Washington	Total

\$1500	\$8000	\$19000	\$1000	\$500	\$30000
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