

NEH Application Cover Sheet (MD-234029)

Digital Projects for the Public: Discovery Grants

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INSTITUTION

University of Southern California
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APPLICATION INFORMATION

Title: *Chrono Cards: American Revolution*

Grant period: From 2016-01-01 to 2016-12-31

Project field(s): American Literature; U.S. History

Description of project: The Game Innovation Lab at the University of Southern California requests support for the Chrono Cards: American Revolution project, a set of digital and physical card games that utilizes digital media to guide middle school students in their demonstration of historical knowledge and practice of historical thinking skills. The historical content of the games covers the causes and early events of the American Revolution. Accompanying the games are a series of curricular supports that help teachers contextualize the games and use them most effectively in a classroom environment. This prototype builds on previous work done in partnership with Microsoft Research, which resulted in a proof-of-concept for the games, Fact Fuse and Chrono Scouts.

BUDGET

Outright Request	100,000.00	Cost Sharing	37,500.00
Matching Request	0.00	Total Budget	137,500.00
Total NEH	100,000.00		

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Letters of Commitment and Resumes for Advisors:

- Peter Mancall, Professor of History and Anthropology, USC History Dept.
- William Deverell, Chair, USC History Dept.
- Nathan Perl-Rosenthal, Assistant Professor of History and Spatial Sciences, USC History Dept.
- Andy Mink, Executive Director, LEARN NC
- Robert Nelli, History Department Chair, Foshay Learning Center
- Travis Fowler, History Teacher, Larchmont School

Resumes for the Media Team:

- Tracy Fullerton, Game Director
- Elizabeth Swensen, Lead Designer
- Sean Bouchard, Lead Designer
- Luke Peterson, Art Director

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Chrono Cards: American Revolution

A. Nature of the Request

The Game Innovation Lab at the University of Southern California requests support for the *Chrono Cards: American Revolution* project, a set of digital and physical card games that utilizes digital media to guide middle school students in their demonstration of historical knowledge and practice of historical thinking skills. The historical content of the games covers the causes and early events of the American Revolution. Accompanying the games are a series of curricular supports that help teachers contextualize the games and use them most effectively in a classroom environment. This prototype builds on previous work done in partnership with Microsoft Research, which resulted in a proof-of-concept for the games, *Fact Fuse* and *Chrono Scouts*.

Fact Fuse is a web-based classroom game and *Chrono Scouts* is a card game moderated by online videos. Both games will be developed along with alternative variants for different classroom arrangements and levels of technology. Materials that will be produced include the web game, online streaming videos, MP3 audio tracks, and printable cards. Additionally, we will create a website which hosts and aggregates all the necessary digital media, teacher's guides, and curricular supports for playing the games in the classroom. For this project, we are requesting a prototyping grant of \$100,000 from the National Endowment for the Humanities, covering the major part of the project's total cost of \$137,500.

B. Humanities Content

Chrono Cards: American Revolution presents historical content from the years leading up to and the beginnings of the United States' war for independence, with a unique focus on encouraging students to practice metacognitive skills in a humanities context. *Chrono Cards* uses a combination of digital games, digital tools, and classroom game activities to teach 21st century skills aligned with Common Core history standards. Specifically, these skills include collaboration, historical thinking, deconstructing and reconstructing a historical narrative, evaluating different points of view on historical events, presenting claims about a topic or issue, and supporting claims using logical reasoning and relevant evidence (Common Core State Standards Initiative).

The games utilize active (and interactive) student interpretation to motivate content analysis through play, an engagement strategy that calls on players to enact collaborative storytelling about American heritage. The basic structure of the *Chrono Cards* games was developed in cooperation with curriculum designers, university historians, and middle school history teachers with the goal of immersing students in history and historical thinking through engaging, energetic, and challenging games. The core design for these games has already been developed and tested extensively in the initial proof-of-concept project, but the structure needs to be paired with specific and appropriate historical content relating to the American Revolutionary time period.

This grant will cover a prototyping phase focused on expanding the digital tools that were started in the proof-of-concept, as well as changing the game content to cover the building tensions that led to the start of the American Revolution. The project will consist of several interconnected interventions, including two games (*Fact Fuse* and *Chrono Scouts*), a support website, and a set of curricular aids.

Metacognitive Skills and Historical Thinking

In a digital age where information is everywhere, it is critical for students to gain the tools to evaluate that information (Wineburg, Martin). Both *Chrono Cards* games provoke students to practice passing judgment on historical claims by evaluating the information that formulates an argument and, in turn, creating historical claims in such a way that they are defensible to their peers. The games also encourage students to develop a deeper understanding of the relationships between historical figures and events and a deeper awareness of how history can be viewed from multiple perspectives. *Chrono Cards: American Revolution* acknowledges the importance of teaching secondary skills - like an understanding of time, change, empathy, and cause - as well as the key role that metacognitive approaches play in developing a sense of ownership for the students over their own learning (Ashby, Lee, Shemilt). Rather than focus on the pure accumulation of facts, *Chrono Cards* teaches to a modern understanding of historical thinking. In this approach, students must not only learn, but be able to demonstrate why they know what they know (Bain).

Themes of Modern Scholarship

Historical content within the context of the games is broken up into micro-narratives, in the case of *Chrono Scouts*, or independent phrases that suggest potential relationships, in the case of *Fact Fuse*. These narrative elements will present and draw on important events and descriptions of the social, political, and cultural climate of the 1760s and 1770s, but will also utilize the historical context of influential figures, laws, ideologies, and prior events in the Atlantic Basin that had an influence on the American Revolution.

While both of the games' content will be presented at a level appropriate for middle school students, the humanities schematics of modern American Revolution scholarship will serve as a part of the broader intellectual framework of the project in the following ways:

Gender and the American Revolution - Both games will reference the role of women and their support in domestic labor in response to boycotts, the political role of women in the spread of revolutionary ideologies, and eventually the role of women in camp, combat, and espionage as reexamined by modern scholars. Furthermore, the curricular supports that accompany the games will explore responses to early American feminism.

Race, Slavery, and the Hierarchy of Forced Labor - The games will reference the diverse racial voices and outlooks present during this period, and will specifically address issues such as the ideological distancing between equality and slavery among the colonists, the stakes for Native American tribes and the motivations that influenced their neutrality or

allegiance to the British or to the Colonists, and the role of slavery in the American Revolution.

Influence of the Atlantic Basin - Content for the games will draw on the impact of Great Britain, France, Spain, Portugal, the Netherlands, and Africa on the Colonies. Additionally, the games will deal with issues of transatlantic diplomacy, policy, and ideology, including the Enlightenment and philosophers like John Locke. This content will focus on the Revolution in the broader context of the Atlantic world, rather than reinforcing ideas of American exceptionalism or the inevitability of the revolution.

Transatlantic Economics - Both games will present content based on transatlantic trade and its economic repercussions in Great Britain and in the Colonies. Additionally, the games will deal with stressors that governed regulation, laws, and taxes on the trade relationship between these groups.

High Politics and the Theory of Revolution - Content for the games will reflect the myriad ideological influences and underpinnings of American independence and the establishment of an American republic. Specifically, the games will present Enlightenment concepts such as natural law and the right to revolution and their influence on the war. They will also present the notion of revolution in the context of national security.

The two games created during the initial proof-of-concept were each designed to reinforce curricular content at specific instructional intervention points. The first game, *Chrono Scouts*, is designed to support lessons early in the study of the American Revolution and encourages exploration of key figures, events, and underlying relationships that form micro-narratives within the conflict. Modern scholarship refers to a composite of many revolutions, rather than viewing colonists as a monolithic group (Zagarri), and *Chrono Scouts* reinforces the multi-faceted perspectives that form our modern understanding of that time. In collaboration with our expert partners, we will choose historical content that emphasizes the long-term causes and tremendous complexity of the Revolution, including narratives from diverse social, economic, and racial perspectives.

The second game, *Fact Fuse*, serves as an excellent review activity toward the end of study and focuses on competitive group assessment of historical understanding. Both games are closely linked to key concepts (such as taxation, The Enlightenment, and hierarchies of forced labor), figures (such as George Washington and Abigail Adams), and moments (such as the French and Indian War and the The Stamp Act) in history. This prototyping grant will cover the development of the specific content of the games in consultation with our content experts over the period of the grant, which will be further subject to iterative assessment and refinement. For more specific examples of preliminary content for *Fact Fuse* and *Chrono Scouts*, see the attached Design Document.

Differentiation from Existing Products

Alternative interactive products do not meet teachers' needs as well as *Chrono Cards: American Revolution* will. Competing products include simple online Flash games (such as *The Road to Revolution* and *Mr. Jefferson's Magical Maze*), quizzes and flashcards, and informational websites (such as *Museum of the American Revolution* and *History Animated*). Most of the available online games covering the American Revolution have a very limited scope of content and fail to employ historical thinking skills. These competing products enforce an old model of humanities education, focused myopically on memorization and recollection. Similarly, online quizzes and digital flashcards do not excite students' creativity or require critical thinking about history. Static websites, even if they contain rich multimedia, do not engage students interactively, reducing their ability to hold a student's attention.

Proof-of-Concept

In preparation for this project, the team has developed an exploratory proof-of-concept of both these games. This early version is focused on the causes of World War I, rather than on the American Revolution. It has been tested it with 100 middle school students in California and North Carolina as well as with current teachers and teachers-in-training, with positive reactions from students, teachers, and test coordinators during early evaluatory sessions. In these initial tests of engagement, efficacy, and classroom feasibility, students have responded to the *Chrono Cards* games with excitement, and teachers have been able to set up and run the games without outside facilitation. Teachers also reported an increase in informed discussion around the historical topics covered by the games as well as in engaged learning.

Based on the success of the format in the preliminary proof-of-concept phase, we propose to move forward with new content and curricular supports that cover the American Revolutionary period. In addition to the research and prototyping of specific and appropriate American Revolution content for the game, the work funded by this grant will also involve developing supporting materials, including a website, a teaching guide, and supplementary activities. The website will be used to organize and present all the materials needed to use the games effectively in the classroom, and to host the digital game for use in classrooms and at home. The teaching guide and supplementary activities will help teachers understand how to effectively use the games in a classroom setting, and make sure that they are able to maximize their effectiveness as metacognitive skill-building tools.

C. Project Format

Chrono Cards: American Revolution will consist of two games: a digital card game and a physical card game that is mediated by a series of online videos. We will also develop curricular supports that will help teachers situate the games in their classroom, as well as a website to distribute the games and associated materials.

Digital Game

Fact Fuse is a fast-paced, competitive classroom game about making historical claims and then justifying them to your peers. Accessible via the web, it's intended to be projected at the front of a classroom and played by the entire class. Students compete to connect subjects, verbs, and

objects into defensible claims about a historical period. The verbs (for example: “led to” or “benefited from”) are designed to suggest value-laden relationships. This tends to create claims that can be argued, rather than simple statements of fact. The only way for a player to receive credit for her claim is to justify it to the class through historical argument. The format of the game encourages players to discuss the nuances of language and word choice in a way that frequently makes them consider different historical perspectives and interpretations of events. It also provides students with an opportunity to draw connections between historical figures and events, and then construct arguments to support those connections.

This tool can also be used on personal computers by students reviewing content in small groups. The development team will use the game engine Unity3D to build the web application. For more in-depth information on the design of the game, consult the Design Document attached to this proposal.

Card Games

In addition to the digital game, the *Chrono Cards* project includes a set of physical card games that can supplement the classroom experience, or be used in classrooms with various technical constraints. The first of these is *Chrono Scouts*, a multimedia card game about cooperatively constructing historical narratives, and the second is a tabletop variant of *Fact Fuse*.

Chrono Scouts provides an opportunity for students to examine the historical context of specific important events from multiple perspectives, and to make connections between motivations, actions, causes, and effects. Students must work together in small groups and communicate their historical knowledge in order to collaboratively craft a sequence of cards that tells a story revolving around the causes and events leading up to the start of the American Revolution. This activity is moderated by a series of video narration tracks, which provide instruction, motivation, and variation to the gameplay.

The narrative of *Chrono Scouts* is conveyed through the voice-acted online videos which are played concurrent to the card game. In the videos, students are recruited by a retro-futuristic time preservation organization and charged with helping to reconstruct a historical narrative from disjointed “pieces of history.” As part of the narrative conceit, the students only have a limited time to complete this task. The voice of the commander of this organization provides specific constraints and themes that they must keep in mind while crafting their story, and instructs them to make adjustments when unexpected events affect their cards.

When time runs out, each group shares their sequence of cards with the rest of the class, and must defend why their cards tell the best story of the root causes and relationships that led to the American Revolution.

Additionally, we will develop a card-based tabletop version of *Fact Fuse* that is intended for small groups of students. Both *Chrono Scouts* and the card-based version of *Fact Fuse* are developed in an innovative format and printed back-to-back. This allows us to include two

different card games in one package. The cards will be produced digitally and distributed online via two mechanisms: build-to-order and print-and-play.

Build-to-order takes advantage of modern, digital, print-on-demand (POD) technology to produce single copies or small runs of the card games at professional quality. Using this method, teachers will be able to order copies of the game through a third-party POD service for a small fee that covers the costs of production (such as printing, assembly, and shipping). The process for purchasing build-to-order copies of the cards will be streamlined through our website.

Print-and-play refers to teachers being able to download a version of the cards that is specially formatted for personal or office printers. Teachers can print these cards conveniently, cut them out, and use them to play the games. This version of the cards will be available for free on the website, creating a zero-cost alternative to the professionally-printed cards.

Videos

Chrono Scouts is mediated by a series of online videos, each of which guides the students in their play of the game, provides different gameplay parameters, and serves as a timing mechanism for the game. From an experience standpoint, these videos create playful tension and energy in the classroom. They lead students through the experience with engaging narrative, unpredictable moments of challenge, and sudden changes in the rules of the game. We will develop several tracks of video narration, including videos that serve a more introductory purpose and familiarize players with the procedures of the game, and also a variety of videos that are intended to simply vary the gameplay over multiple instances of classroom play. The narration tracks will be available as streaming video clips. There will also be audio-only versions that can be downloaded directly from our website for teachers with limited internet access or display capabilities in the classroom.

Curricular Supports

Both the digital and tabletop games are designed principally for classroom play. They don't take a lot of time, can be scaled to groups of different sizes, and will include curricular support for teachers. The curricular supports will take the form of information that guides the teacher in how to contextualize the games as well as additional classroom activities that can further expand the impact of the games.

Curricular supports will consist of a teacher's guide and a variety of supplementary activities. The teacher's guide will introduce the games to teachers and help them understand the best way to use them in conjunction with their own lessons on the American Revolution. The supplementary activities will provide teachers with additional structured ways to discuss the content covered in the games and to engage the students with the historical thinking skills they practice through the games. The curricular supports will be created in collaboration with Andy Mink, a curriculum development expert who previously directed the development of a curriculum for *ChronoZoom* with Microsoft Research.

Website

The materials being distributed online will be aggregated on a *Chrono Cards* website, which will provide an introduction to the games and links to all relevant digital material. Some media (the web game, teacher's guide, print-and-play documents, audio tracks, curricular supports) will be hosted on the website itself, while others will be hosted on third-party services (such as The Game Crafter and YouTube) and linked externally from or embedded within the website. For classrooms who cannot access YouTube, teachers will be able to download separate audio files while will allow them to play *Chrono Scouts* in lower-technology settings.

The digital components of the games (the web game, the build-to-order and print-and-play versions of the cards, the video files and corresponding audio files) can be hosted online at relatively low cost, since they each consist of primarily static content, and will be added to the Game Innovation Lab's main website. The fact that the build-to-order physical components utilize online print-on-demand technology, as opposed to traditional production techniques, allows us to make updates to their content as needed. Future updates can include entirely new modules that build upon the existing format to explore other historical content.

Prior Art

There exist popular, mainstream commercial games that engage young people with similar mechanics to those used in *Chrono Cards*, but which do not feature historical content or encourage critical thinking skills in a historical context.

Set, a competitive shape grouping card game, tests players' visual perception as they race to identify meaningful 'sets' of shapes in a large field of information. *Set* is extremely well-regarded in gaming communities as an example of elegant design, and has won a number of prestigious game awards. In *Fact Fuse*, players also look at a shared set of information and compete to find relationships between them quickly. However, students playing *Fact Fuse* must create sentences by drawing on their knowledge of historical figures, events, and values, rather than by drawing on simple visual patterns.

Once Upon A Time, a competitive storytelling game, encourages players to collectively tell a fairy tale while they attempt to eliminate cards from their hand. To do so, they must incorporate the information on these cards into the story. In *Chrono Scouts*, players also use cards to collaboratively construct a story. Rather than narratively connecting disparate fairy tale tropes, players in *Chrono Scouts* selectively manipulate their cards to create a story about the causes of the Revolutionary War.

Star Wars: The Interactive Video Board Game is a video-mediated board game where players strive to complete goals before the video comes to an end. The game enjoys a dedicated niche following that persists more than a decade after its release. As in *Chrono Scouts*, the video also has a number of timed events that mediate or alter moments of gameplay.

Future Use of the Project

The work done to design and prototype *Chrono Cards: American Revolution* will establish a format ripe for future development and content. Future uses for this work can include the creation of new modules based on other critical areas in history instruction. The two card games can be modified to teach new content areas, and videos following the same format can be created to fit these new subjects and themes. The website can be expanded to host materials for each of these content modules and serve as an aggregator for a variety of history and historical thinking classroom activities.

D. Audience and Distribution

The primary audience for *Chrono Cards: American Revolution* is middle school history teachers and their students. The games are designed specifically for classrooms, engaging the whole class together or divided into small groups of variable size. In the digital game, *Fact Fuse*, students compete against the entire class, and must present their historical arguments to the teacher and the group together. In the tabletop variant of *Fact Fuse*, students compete directly with the other players in their group. In *Chrono Scouts*, students cooperate within their group and compete with other groups in the class. Between these games, *Chrono Cards* will engage classes with a wide range of temperaments.

The materials for playing *Chrono Cards* will be distributed in multiple formats in order to maximize the games' accessibility to teachers. The digital game can be played online in a variety of browsers or downloaded for Windows or Apple computers. Two versions of the cards will be available through the website: the build-to-order version, which will be shipped through a third-party service such as The Game Crafter; and a downloadable set of print-and-play files which will allow teachers to print and assemble the games themselves. There will be a cost associated with the build-on-demand cards to cover their production, but the print-and-play documents will be free to download. Both the versions of the cards will include full content for *Chrono Scouts* and *Fact Fuse*.

The video media that accompany *Chrono Scouts* will be made available on a third-party streaming service, such as YouTube, where they can be accessed for free. For teachers who cannot access YouTube in the classrooms or who do not have access to visual technology in the classroom, we will also provide audio-only versions of these videos for download for free from the website. The audio-only downloads can be used in classrooms that don't have internet access, that lack the bandwidth necessary to support streaming media, or that lack facilities for projecting video.

The curricular supports, including the teaching guide and supplementary activities, will be distributed through the website in formats that are appropriate for online viewing or printing.

The game will initially target school partners in California. After the prototyping grant phase, we will seek additional funding for a full production, including marketing outreach that will extend the game into other markets.

E. Project Evaluation

The design process of the *Chrono Cards* proof-of-concept was done in consultation with history teachers, curriculum designers, and middle school students to ensure the game would be accessible to instructors and children, feasible for use in a classroom setting, and engaging and fun to play.

To date, the World War I proof-of-concept version has been through six months of playtesting and feedback with teachers and students. The game has been tested in classrooms in the Los Angeles Unified School District and tested among students, teachers, and teachers-in-training by the *ChronoZoom* curriculum development team in North Carolina. The proof-of-concept phase allowed for us to bring the games to this small audience in order to ascertain basic measures of engagement, usability, and classroom feasibility. The Digital Projects for the Public prototyping grant would allow us to evaluate at a larger scale.

As we move into prototype development of the American Revolution *Chrono Cards* games, our focus will be primarily on evaluating the efficacy of the games' content through class visits and surveys. We will use qualitative evaluation techniques such as observational protocols and subject interviews with students and teachers to determine the efficacy of the content. These techniques will not be software-dependent so we do not anticipate any licensing costs or developer fees associated with this evaluation.

The production team at the Game Innovation Lab will perform development, testing, and maintenance of the web game and website. The web game will be built using a stable, well-known and cross-platform engine, minimizing many of the issues common to software development. The website will act as a simple repository for information and materials associated with the games, and will not have complicated maintenance costs. The Game Innovation Lab has an excellent track record for keeping our projects maintained and available over time, and will be able to absorb the minimal server upkeep costs this project will require by hosting it on the main Game Innovation Lab website.

We will also measure success of the prototype through reach: number of plays of the web game, number of downloads of the print-and-play card games, and number of purchases of the build-to-order card decks from the third-party publisher. We will track all activity on our website, including statistics about plays and downloads. The number of purchases will be tracked with functionality available through our third-party publisher.

F. Rights, Permissions, and Licensing

The University of Southern California will manage all rights to the *Chrono Cards* project and all distribution and publishing partnerships. We will clear permissions for any archival material for public and educational use and coordinate with our partners for proper cross-attribution between the games and the curricular supports.

G. Humanities Advisors

Our humanities advisors include content experts from History scholars at the University of Southern California, a member of the curriculum development team for the *ChronoZoom* project involved with the WWI proof-of-concept piece, and middle school teachers.

Peter C. Mancall, Ph.D., will serve as a content expert for the *Chrono Cards* games. He will review the content of prototypes to ensure their historical relevance and accuracy. He is Professor of History and Anthropology at the University of Southern California and the director of the USC-Huntington Early Modern Studies Institute. He is currently writing *American Origins*, which will be volume one of the Oxford History of the United States, and *Lord of Misrule: Thomas Morton and the Tragic Origins of New England*, which is under contract with Basic Books. In 2012 he was the Mellon Distinguished Lecturer at the University of Pennsylvania. He is an elected fellow of the Society of American Historians and an elected member of the American Antiquarian Society. His work has appeared in *The Chronicle of Higher Education*, *Bloomberg Businessweek*, and *American Heritage* and been featured on NPR's "All Things Considered" and "The Daily Show with Jon Stewart."

William Deverell, Ph.D., will contribute to the project as a historian and an expert on middle school history curriculum and historical thinking skills. He will review prototypes and playtest reports to ensure their connection to appropriate classroom standards. He is Professor of History and Chair in the history department at the University of Southern California. He received his undergraduate degree in American Studies from Stanford and his MA and PhD degrees in American history from Princeton, where he was a student of James M. McPherson. He has published numerous books and other studies of the 19th and 20th century American West, and is the co-author of an 8th grade US history text from Holt Rinehart & Winston which explores US history from the colonial period to the coming of World War I.

Nathan Perl-Rosenthal, Ph.D., will also serve as a content advisor as a specialist in the American Revolution with a particular interest in the relationships among revolutionary movements in North America, Europe, and the Caribbean, circa 1760-1815. He received his undergraduate degree from Harvard University, his maîtrise from Sorbonne-Université and his PhD from Columbia University. His first monograph, *Citizen Sailors: Becoming American in the Age of Revolution*, will be published by Belknap/Harvard University Press in October, 2015.

Andy Mink will consult on the development of curricular supports surrounding the *Chrono Cards* games, including related classroom activities and teaching guides. He was the Executive Director of LEARN NC at the University of North Carolina at Chapel Hill. Andy joined LEARN after serving as the Director of Outreach & Education for the Virginia Center for Digital History and then the Curry School of Education at the University of Virginia. His interest is in creating partnerships that provide hands-on, immersive training for K-16 educators by connecting scholarship, digital archives and projects, sites and museums, and inquiry-based fieldwork. Andy was honored with the 2003 National Educator of the Year Award by the National Society of Experiential Education (NSEE). He is currently registered as a Master Teacher with the National Council of History Education and sits on the Executive Boards of the North Carolina

Council for Social Studies and the North Carolina Outward Bound School as well as a member of the Board of Trustees for NCHE. He was recently named as a Distinguished Lecturer by the Organization of American Historians for the 2014-17 term.

Travis Fowler will serve as *Chrono Cards*' classroom evaluation coordinator for Los Angeles. He will assist the development team with focus, engagement, feasibility, and efficacy studies at Larchmont Charter School, where he is a middle school humanities teacher.

Robert Nelli, Ph.D., chair of the history department at Foshay Learning Center, will also serve as a teacher advisor to the project. Dr. Nelli has enjoyed teaching History and English Language Arts at the James A. Foshay Learning Center for 10 years. He has earned his Doctorate in Educational Leadership specializing in School Finance at the University of Southern California, and has a particular interest in the teaching of argumentation and rhetoric.

H. Production Team

Chrono Cards will be produced by the Game Innovation Lab at the University of Southern California School of Cinematic Arts. The Game Innovation Lab is a research space and think tank where new concepts in game design, play, and usability are being developed, prototyped, and play tested in an environment separate from the constraints of commercial game development. The goal of the lab is to nurture concepts that push games beyond their currently defined genres, markets, and play patterns and to make breakthroughs in these areas. The production team at the Game Innovation Lab will design, test, and produce final assets for the *Chrono Cards: American Revolution* cards, videos, and website.

Tracy Fullerton, MFA, the director of the Game Innovation Lab, will be Creative Lead on the design and development of *Chrono Cards*. She is the Electronic Arts Endowed Chair of USC's Interactive Media and Games Division, the #1 ranked games program in the US. She is an experienced game designer with over 20 years in the industry and academia. Prior to joining USC, she was president and founder to the multiplayer game developer, Spiderdance. Her textbook, *Game Design Workshop*, is used in game programs worldwide. Her long career was recently acknowledged by the IndieCade Trailblazer Award. She has a BA from University of California, Santa Cruz and an MFA from USC.

Sean Bouchard, MFA, will be one of the Lead Designers for *Chrono Cards*. He has worked as a game designer and technology lead at the Game Innovation Lab for the past four years. His work in the lab includes *Mission: Admission*, *FutureBound*, and *Graduate Strike Force*. Previously, he was a research programmer and analyst at the USC Institute for Creative Technology, where he developed educational training environments for the Department of Defense. His work has been featured at conferences and festivals, including the Independent Game Festival, the IndieCade Festival, the Meaningful Play Conference, and TEDxUSC. He has a BA in Computer Science from Pomona College and an MFA in Interactive Media from USC.

Elizabeth Swensen, MFA, will be the other Lead Designer on *Chrono Cards*. She is a game designer and writer who was named by Forbes as one of the top “30 Under 30” in Entertainment. Her previous work as a game designer at the Game Innovation Lab includes *Application Crunch*, *Mission: Admission*, *FutureBound*, and *Graduate Strike Force*. Her games have been honored and exhibited in festivals including Games for Change, IndieCade, and the Independent Game Festival. As a game designer and producer at the Game Innovation Lab, she has organized and led multidisciplinary teams of researchers, developers, students, and teachers. She has a BA from Willamette University and an MFA from USC.

Lucas Peterson will be the art director for the project. He graduated from the USC Roski School of Fine Arts in May of 2010 with a Bachelor of Fine Arts degree and an emphasis in drawing and design. Throughout his time at USC, Lucas has supported a multitude of graduate and undergraduate video game projects as a 2D and 3D all-purpose artist. His interest in video games stems from a long history of gaming and a passion for entertainment and the interactive experience. His work in the lab, as a 3D environment artist, character artist, and level designer, has included *FutureBound*, *Graduate Strike Force*, and *Walden, a game*.

I. State of the Project

Chrono Cards was initiated as a collaboration between the USC Game Innovation Lab and the *ChronoZoom* project at Microsoft Research. In support of the *ChronoZoom* project, Microsoft challenged the Game Innovation Lab to create a game that would encourage students to engage with historical content through the *ChronoZoom* tool, but which could still be used in low-technology classrooms. To meet this challenge, we developed a proof-of-concept set of card games, populated with content about World War I, that engage students with history in a unique way and encourage the practice of important, 21st century historical thinking skills.

During the prototyping phase for this proof-of-concept, the development team received frequent feedback from students, teachers, and content experts about the game. We devised two card-based games that can use digital distribution technology and online media to introduce historical thinking skills through gameplay around historical content. These games could be used independently or in conjunction with *ChronoZoom* in a variety of classroom activities.

From early playtests of *Chrono Scouts*, we discovered the positive impact that rich, character-driven companion media had on gameplay. By including audio and video that situates the game within a sci-fi narrative and introduces new twists to the rules over the course of the game, we increased the students’ energy and engagement with the activity. Early playtests of *Fact Fuse* showed us that students were much more engaged by fast-paced competition over a common set of sentence fragments, as opposed to turn-taking and secret-information mechanics. Organizing the game around a shared play space in which the students compete to form sentences quickly proved to grab and hold the players’ attention, and led to more in-depth and passionate historical argument.

The proof-of-concept serves as a model along which further content can be developed. The basic game structures have been designed and tested, and we have learned a lot about the

form that content needs to take to be effective within this context. This will guide our continued development of content for the new American Revolution prototype in collaboration with our content experts.

During the preliminary, proof-of-concept phase of the project, the production team at the Game Innovation Lab designed and tested several iterations of the games, leading up to the proof-of-concept WWI version. Our practitioner partners and curriculum design experts conducted initial usability and engagement studies in Los Angeles and North Carolina.

Since the completion of the proof-of-concept version, and in preparation for the new prototype of the digital game and new American Revolution content, we have discussed the scope and focus of the game’s new content with the historians on our humanities team. They have provided initial sources for historical content appropriate to the first iteration of an American Revolution version, which we will continue to refine and develop with the help of this grant.

J. Work Plan

Production of *Chrono Cards: American Revolution* would take place between January 2016 and December 2016. NEH funds would support activities for this year-long prototyping and initial pilot period, after which point the prototype would soft-launch December 2016 and be available to teachers before the start of the new semester.

The grant period includes these overall project activities:

Jan 2016	<ul style="list-style-type: none"> ● Meet with content advisors to set goals. ● Present work-in-progress game for review by content advisors. ● Begin prototype development.
Feb 2016	<ul style="list-style-type: none"> ● Complete first iteration prototype. ● Conduct initial playtest of prototype. ● Discuss iterative changes with content advisors. ● Begin second iteration prototype.
Mar 2016	<ul style="list-style-type: none"> ● Complete second iteration prototype. ● Test second iteration prototype with student groups. ● Discuss iterative changes with content advisors.
Apr 2016	<ul style="list-style-type: none"> ● Write script for video series. ● Review prototype game content with content advisors. ● Begin third iteration prototype. ● Continue usability, engagement, feasibility tests with teachers and students.
May 2016	<ul style="list-style-type: none"> ● Begin graphical treatment of <i>Chrono Cards</i>. ● Continue to polish prototype. ● Test video script with students. ● Conduct art focus test with students. ● Continue usability, engagement, feasibility tests with teachers and students.

Jun 2016	<ul style="list-style-type: none"> ● Continue developing art assets for <i>Chrono Cards</i>. ● Begin curricular support development. ● Iterate on video script.
Jul 2016	<ul style="list-style-type: none"> ● Discuss curricular support content with content experts. ● Begin website design. ● Continue art development for <i>Chrono Cards</i>. ● Record video script with voice actor. ● Produce visual elements for video series.
Aug 2016	<ul style="list-style-type: none"> ● Complete production on <i>Chrono Cards: American Revolution</i> prototype. ● Test curriculum tools with teachers and students. ● Continue website development.
Sep 2016	<ul style="list-style-type: none"> ● Iterate on curricular supports. ● Test website with teachers. ● Begin initial outreach effort.
Oct 2016	<ul style="list-style-type: none"> ● Iterate on curricular supports. ● Test website with teachers. ● Continue outreach effort.
Nov 2016	<ul style="list-style-type: none"> ● Complete curricular supports. ● Launch website. ● Begin social media marketing.
Dec 2016	<ul style="list-style-type: none"> ● Launch <i>Chrono Cards: American Revolution</i>.

K. Organization Profile

The Game Innovation Lab is the premiere center for experimental game design and research at USC. Founded in 2004, the lab is directed by Professor Tracy Fullerton. The mission of the lab is to pursue experimental design of games in cultural realms including art, science, politics and learning. The international success of games that have emerged from the lab, including *Cloud*, *fIOW*, *Darfur is Dying*, *The Cat and the Coup*, and *The Night Journey*, have made it a hub for indie and experimental games culture in Los Angeles. Our Playthink Salons attract speakers and participants from across the city and across disciplinary boundaries.

Associated faculty include award winning game designers Richard Lemarchand (*Uncharted* series) and Peter Brinson (*Waco*, *The Cat and the Coup*) as well as pioneering games user researcher Dennis Wixon. Research staff include up and coming game designers Elizabeth Swensen and Sean Bouchard, as well as the talented digital media artists Kurosh ValaNejad, Todd Furmanski, and Lucas Peterson. Graduate student researchers in the lab have gone on to stellar careers at Microsoft, Electronic Arts, Zynga and more.

The lab has a strong history of collaboration with cross-disciplinary experts in many fields, including education and technology. Our commitment to an iterative, participatory process brings users, stakeholders, and designers into constant dialogue. Current projects, such as the

Collegeology suite of games and *Walden, a game*, have received support from The Gates Foundation, The National Endowment for the Arts, The National Endowment for the Humanities, The Gilbert Foundation, and The Department of Education.

L. Fundraising Plan

Chrono Cards was initiated as a collaboration between the USC Game Innovation Lab and the *ChronoZoom* project at Microsoft Research. The non-digital proof-of-concept version, *Chrono Cards: WWI Edition* was funded through a gift from Microsoft Research for \$50,000. *Chrono Cards: American Revolution*, the subject of this prototyping grant, has not received funding to date. The University of Southern California School of Cinematic Arts provides facilities and use of hardware and software resources through the Game Innovation Lab. As proposed in the budget, the University of Southern California will also provide cost-sharing to support the \$37,500 that exceeds NEH support. After the proposed prototyping phase, we aim to pursue additional NEH support in the form of a production grant to expand both the scope of content covered by the *Chrono Cards* platform and to scale outreach to other states and school districts around the country.

Bibliography

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<http://www.nap.edu/openbook.php?isbn=0309089484&page=79> (retrieved, May 15th, 2015).
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- . *To Begin the World Anew: The Genius and Ambiguities of the American Founders*. New York: Vintage Books, 2004.
- Bain, Robert B. *They thought the world was flat: applying the principles of HPL in teaching high school history*. How Students Learn: History in the Classroom. (2005).
<http://books.nap.edu/openbook.php?isbn=0309089484&page=179>
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- Calloway, Colin G. *The American Revolution in Indian Country: Crisis and Diversity in Native American Communities*. Cambridge Studies in North American Indian History. Cambridge ; New York: Cambridge University Press, 1995.
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- Common Core State Standards Initiative. *English Language Arts Standards History/Social Studies Grade 6-8*. <http://www.corestandards.org/ELA-Literacy/RH/6-8/>
- Cunningham, Noble E. *Jefferson vs. Hamilton: Confrontations That Shaped a Nation*. The Bedford Series in History and Culture. Boston: Bedford/St. Martin's, 2000.
- Ellis, Joseph J. *Passionate Sage: The Character and Legacy of John Adams*. New York: Norton, 2001.
- Ellis, Joseph J. *His Excellency: George Washington*. 1st Vintage Books ed. New York: Vintage Books, 2005.
- Foner, Eric. *Tom Paine and Revolutionary America*. Updated ed. New York: Oxford University Press, 2005.
- Gipson, Lawrence Henry. *The Coming of the Revolution: 1763-1775*. New York [u.a.]: Harper & Row, 1976.
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Games Referenced

- Mr. Jefferson's Magical Maze*. The Colonial Williamsburg Foundation, 2014.
- Once Upon a Time: the Storytelling Card Game*. Atlas Games, 1993.
- Set: the Family Game of Visual Perception*. SET Enterprises, 1988.
- Star Wars: the Interactive Video Board Game*. Parker Brothers, 1996.
- The Road to Revolution*. Twin Cities Public Television, 2004.

May 6, 2015

Tracy Fullerton, Director
Game Innovation Lab
University of Southern California

Dear Professor Fullerton:

I am writing this letter in support of the University of Southern California's NEH grant proposal to develop *Chrono Cards: American Revolution*. I am eager to promote the project. The subject matter of the game falls exactly within my expertise and body of work on early America and on the origins of the American Revolution.

I believe that my training and expertise in early American history will be a benefit to the project. In addition to being the author of five books (published by Basic Books, Yale University Press, Johns Hopkins University Press, and Cornell University Press), with three more in progress, and the editor of ten others (published by Oxford University Press and for the Omohundro Institute of Early American History and Culture, among others), I also created "Origins and Ideologies of the American Revolution," which consists of 48 30-minute lectures available from The Teaching Company. I have also worked extensively with K-12 teachers of American history for over a decade.

I am delighted at the prospect of working closely with the designers from the University of Southern California's Game Innovation Lab who, as you know well, have extraordinary expertise in design for games and a track record of developing effective games for learning. Your team includes leading game designers respected in both the education and entertainment communities. Your group utilizes a highly collaborative and responsive design process which leads to engaging, effective teaching tools. *Chrono Cards* teaches historical thinking to middle school students. It is a unique intervention at a crucial age when students are forming a lifelong interest in the humanities.

I am committed to support *Chrono Cards* by lending my guidance as an advisor to the project and working with the media team to ensure that the game's content is accurate and appropriate.



PETER C. MANCALL**Revised June 3, 2014**

email: mancall@usc.edu

Tel: 213-821-2151

A.B., Oberlin, 1981; Ph.D. in history, Harvard, 1986

Current positions: Andrew W. Mellon Professor of the Humanities and Professor of History and Anthropology, University of Southern California; Linda and Harlan Martens Director of the USC-Huntington Early Modern Studies Institute; Vice Dean for Humanities, USC Dornsife; series editor, *The Early Modern Americas*, University of Pennsylvania Press.

Honors, fellowships, and grants (selected)

USC Associates Award for Creativity in Research, 2013

(University's highest research prize; only one or two awarded each year)

Chair (elected) of Council, Omohundro Institut for Early Am Hist & Cult (for 2013-2016)

Andrew W. Mellon Professor of the Humanities, USC, 2012-

Mellon Distinguished Lecturer, University of Pennsylvania, 2012

USC Mellon Mentoring Award (for mentoring post-doctoral fellows), 2012

Elected Fellow, Society of American Historians, 2010

Phi Kappa Phi prize for **HAKLUYT'S PROMISE**, 2010

Elected to Council of the Omohundro Institut. for Early Am Hist & Cult (for 2010-2013)

Elected Member, American Antiquarian Society, 2008

Raubenheimer Award for Outstanding Achievement in Social Sciences, USC College, 2008

Faculty Fellow, USC Center for Excellence in Research, 2007-2010

Research Economist, National Bureau of Economic Research, 2004-2006

NEH/Huntington Library Postdoctoral Fellowship, 2004-2005

National Science Foundation grants (with T. Weiss and J. Rosenbloom), 2004-2006, 1998-2000

Gamma Sigma Alpha, University of Southern California, Professor of the Year, 2004

National Endowment for the Humanities Research Fellowship, 2001-2002

PEAES Prize for Best Jnl. Art. in early American economic history for 1999 (with T. Weiss)

Alcohol Advisory Council of New Zealand ALAC Research Fellowship, 1998

Arts Faculty Fellowship, University College Galway (National University of Ireland), 1993

Charles Warren Center Fellowship, Harvard University, 1991-1992

Books (selected)

AMERICAN ORIGINS, volume one of the Oxford History of the United States (New York: Oxford University Press, under contract with delivery scheduled for 2016).

THE LORD OF MISRULE: THOMAS MORTON AND THE TRAGIC ORIGINS OF NEW ENGLAND (New York: Basic Books, under contract with delivery scheduled for late 2014).

NATURE AND CULTURE IN THE SIXTEENTH-CENTURY ATLANTIC WORLD (Philadelphia: University of Pennsylvania Press, under contract as the revised Mellon lectures, delivery scheduled for mid-2014.)

Books (selected, continued)

(Editor, with Carole Shammas), *GOVERNING THE SEA IN THE EARLY MODERN ERA* (San Marino, Calif., + Berkeley: Huntington Library Press/Univ. California Press, late 2014).

(Editor, with Daniela Bleichmar), *COLLECTING ACROSS CULTURES: MATERIAL EXCHANGES IN THE EARLY MODERN ATLANTIC WORLD* (Philadelphia: University of Pennsylvania Press, 2011; paperback 2013).

FATAL JOURNEY: THE FINAL EXPEDITION OF HENRY HUDSON—A TALE OF MUTINY AND MURDER IN THE ARCTIC (New York: Basic Books, 2009; pbk 2010). History Book Club Main Selection (July 2009); Military Book Club; Canadian Historical Society Book Club; QPB ed. January 2010; **“Daily Show with Jon Stewart,” July 2009.**

(Editor), *THE ATLANTIC WORLD AND VIRGINIA, 1550-1625* (Chapel Hill: University of North Carolina Press for the Omohundro Institute of Early American History and Culture, 2007).

HAKLUYT’S PROMISE: AN ELIZABETHAN’S OBSESSION FOR AN ENGLISH AMERICA (New Haven: Yale University Press, 2007; pbk 2010). BBC History Book Club; British Scholar Book of the Month (Sept 2007); Phi Kappa Phi prize.

(Editor), *TRAVEL NARRATIVES FROM THE AGE OF DISCOVERY* (New York: Oxford University Press, 2006). History Book Club; Discovery Channel Book Club.

AT THE EDGE OF EMPIRE: THE BACKCOUNTRY IN BRITISH NORTH AMERICA (with Eric Hinderaker), (Baltimore: Johns Hopkins University Press, 2003).

DEADLY MEDICINE: INDIANS AND ALCOHOL IN EARLY AMERICA (Ithaca: Cornell University Press, 1995; paperback 1997). A **“Nota Bene”** sel. of the *Chron. of Higher Education*; featured on NPR’s **“All Things Considered”**; excerpt in Mike Jay, ed., *Artificial Paradises* (Penguin, 2000).

(Editor), *ENVISIONING AMERICA: ENGLISH PLANS FOR THE COLONIZATION OF NORTH AMERICA, 1580-1640* (Boston and New York: Bedford Books of St. Martin's Press, 1995).

VALLEY OF OPPORTUNITY: ECONOMIC CULTURE ALONG THE UPPER SUSQUEHANNA, 1700-1800 (Ithaca: Cornell University Press, 1991; paperback, 2011).

Series General Editor:

Early Modern Americas, University of Pennsylvania Press, 2010-

Perspectives in American Social History, 16 vols. (Santa Barbara: ABC Clio); 2007-2013.

Encyclopedia of Native American History, 3 vols. (New York: Facts on File, 2011).

Voices of Native American History, 5 vols. (New York: Facts on File, in process).

May 6, 2015

Tracy Fullerton, Director
Game Innovation Lab
University of Southern California
3470 McClintock Avenue #301
Los Angeles, CA 900089

Dear Tracy,

I am delighted to write in support of the University of Southern California's grant proposal to develop *Chrono Cards: American Revolution*. As chair of the history department, it gives me special pleasure to offer my endorsement of this innovative project aimed at enhancing content knowledge of the keystone event of early American history. Having seen, and in some cases participated in, the work that you and your colleagues do at the very frontiers of innovation in regards to history education, I am thrilled to see you tackle this topic!

As of course you know better than I, the designers at the USC Game Innovation Lab have a track record of developing effective games for learning through a highly collaborative process in which they work closely with content experts, practitioners, and students. And it has been my pleasure to see how this all comes together in such fascinating ways. This is partly why the project is so attractive to me. The team includes leading game designers who have a proven facility for designing engaging, meaningful experiences with impact in both the education and entertainment communities. *Chrono Cards* is an exciting new project with a unique approach to teaching important – critical -- historical content and thinking skills – I'd expect it to have a real and lasting impact on students and those who teach them.

As a historian and educator, I give the proposed project my fullest support. I am committed to support *Chrono Cards* by lending my guidance as an advisor to the project, contributing my expertise on historical thinking and the teaching of history, and working with the media team to ensure that the game's approach is appropriate to the instructional environments of history education. You really are to be congratulated on the ways in which you and your colleagues imagine the past, as well as on the fascinating ways you connect past to present, melding content with student interest at every step of the way. Good luck, and call on me for any and all support.

Sincerely,

William Deverell



Abridged
November 2013
William Deverell
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University of Southern California
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1151 Oxford Road
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Education

Ph.D., Princeton University, 1989
M.A., Princeton University, 1985
A.B., Honors and Distinction, Stanford University, 1983

Academic Experience

University of Southern California
Chair, Department of History, Fall 2012 –
Director, Huntington-USC Institute on California and the West, 2004- (www.usc.edu/icw)
Professor of History, 2004-
Professor of Environmental Studies, 2012-
California Institute of Technology
Associate Professor of History, 1996-2004
Faculty Coordinator, Mellon Foundation Minority Undergraduate Fellowship Program, 1999-2003
Chair, Caltech-Huntington Library Committee for the Humanities, 1998-2004
University of California, San Diego
Adjunct Associate Professor, 1996-
Associate Professor, History and Program in Urban Studies, 1994-96
Director, California History/Social Science Project, 1993-95
Co-Director, Organized Research Project, The American Southwest, 1994-1996
Chair, Environmental Studies, 1993-95
Assistant Professor, History and Urban Studies, 1990-94
California Institute of Technology/Huntington Library
Postdoctoral Instructor in American History, 1988-90

Other Appointments

Board Member, *California History*, 2013-
Founding Director, Los Angeles Service Academy, 2011-
Board Member, California Council for the Humanities, 2011-
Founding Editor, “Western Histories,” University of California Press/Huntington Library Press, 2008-
Frederick W. Beinecke Senior Fellow, Beinecke Library and Lamar Center, Yale University, 2009-2010
Fletcher Jones Fellow, Huntington Library, 2007-2008
Board Member, National Association of Olmsted Parks, 2006-2008
Research Associate, Los Angeles County Museum of Natural History, 2004-
Chair, California Council for the Humanities, 2002-2004
Fellow, Los Angeles Institute for the Humanities, 2002-

Recent Grants and Fellowships

Discretionary Fund, History Department Chair, \$25,000, 2013
P.I., Los Angeles Aqueduct Centennial program grant, Metabolic Studios/Annenberg Fdn, \$45,000, 2013
Co-P.I., Pacific Standard Times Presents, Los Angeles Infrastructure [photo exhibit], \$100,000, 2012

P.I., Institute on California and the West K-12 programs, Rose Hills Foundation, \$200,000, 2011
Co-PI, California Literary Conferences, SF and LA, William R. Hearst III, \$75,000, 2011
P.I., Visions and Voices Program, USC; Woody Guthrie's Los Angeles, \$25,000, 2011
P.I., WHH Foundation, Los Angeles, to launch "Los Angeles Service Academy" \$300,000, 2011
Salvatori Fund, \$7500, USC, for Concept of the Frontier workshop , 2011
Salvatori Fund, \$6000, USC, for "Railroaded" Panel/Publication event, 2011
Haynes Foundation, Board Discretionary Funds, \$10,000, 2010
Beinecke Fellow/Lamar Fellow, Yale University, 2009

Books

Co-editor with Greg Hise, *The Blackwell Companion to Los Angeles*, Blackwell-Wiley, 2010.

Co-editor with David Iglar, *The Blackwell Companion to California*, Blackwell-Wiley, 2008.

Co-editor with Greg Hise, *Land of Sunshine: The Environmental History of Metropolitan Los Angeles*, University of Pittsburgh Press, 2005; paperback edition 2006.

Co-author with Deborah Gray White, *Call to Freedom* (8th grade United States history text), Holt Rinehart & Winston, 2005

Editor, *The Blackwell Companion to the American West*, Blackwell Publishers, 2004; paperback edition 2007.

Co-author with Anne Hyde, *The West in the History of the Nation*, 2 vols., Bedford/St. Martin's Press, 2000.

Series Editor: Western Histories, University of California Press and Huntington Library Press

Tamara Venit, *A Squatter's Republic: Land and the Politics of Monopoly in California, 1850-1900*, 2013

Joshua Paddison, *American Heathens: Religion, Race, and Reconstruction in California*, 2012

Volker Janssen, ed., *Where Minds and Matter Meet: Technology in California and the West*, 2012

Journal Articles/Editions

"Bricks, Seeds, Culture, and History," *California History* , v. 91, no. 1, 2014.

"California and the Coming of the Civil War," *Southern California Quarterly*, 2008

"Redemptive California?: Re-thinking the Post-Civil War," *Rethinking History*, 2007

Recent Articles in Collections

"Dreams Deferred: Parks and Open Space," forthcoming in *Overdrive: Los Angeles Constructs the Future, 1940-1990* [Los Angeles: Getty Museum, 2013].

"Congress and the American West, 1865-1900," in *The American Congress: The Building of Democracy*, Houghton Mifflin, 2003.

"Fighting Words: The Significance of the American West in United States History," in *A New Significance: Re-Envisioning the History of the American West*, Oxford University Press, 1996 and *Western Historical Quarterly*, Autumn 1994.

"Church-State Issues in the Period of the Civil War," in John F. Wilson, ed., *Church and State in America*, vol. 2 (NY, 1987), 1-32.

June 1, 2015

Tracy Fullerton, Director
Game Innovation Lab
University of Southern California

Dear Professor Fullerton:

I am writing in support of the University of Southern California's NEH grant proposal to develop *Chrono Cards: American Revolution*. I am an historian of the American Revolution with a particular interest in the relationships among revolutionary movements in North America, Europe, and the Caribbean, circa 1760-1815. My first monograph, *Citizen Sailors: Becoming American in the Age of Revolution*, will be published by Belknap/Harvard University Press in October, 2015. I am glad to have the opportunity to bring my familiarity with the period's history to bear on this exciting project.

I look forward to offering the designers from the Game Innovation Lab my advice and assistance in preparing the content for *Chrono Cards*. I am persuaded that the project's approach to the subject matter, in particular the goal of teaching students early on how to think historically, is of great value and will be an asset to any middle school classroom. I expect to work closely with the game design team to make this a teaching tool that is accurate, complete, and, above all, useful.

Please consider this letter a statement of my commitment to support *Chrono Cards* by lending my guidance as an advisor to the project, and of my enthusiasm for working with the game development team to provide oversight of the project's content development.

Sincerely,



Nathan Perl-Rosenthal
Assistant Professor of History and Spatial Sciences
perlrose@usc.edu

(b) (6)



NATHAN PERL-ROSENTHAL

University of Southern California
Department of History

perlrose@usc.edu

(b) (6)

(c)

Positions

Assistant Professor of History and Spatial Sciences, University of Southern California
Provost's Postdoctoral Fellow in the Humanities, University of Southern California, 2011-2012

Education

Columbia University (PhD in History with distinction, 2011)
Sorbonne-Université de Paris IV (*Maîtrise* in modern history, *mention très bien*, 2005)
Harvard University (A.B. in History, *magna cum laude*, 2004)

Book projects

Citizen Sailors: Becoming American in the Age of Revolution (Belknap Press of Harvard University Press, forthcoming October 2015)
Corresponding Republics: Secrecy, Epistolarity and Revolutionary Politics (mss in revisions)

Selected articles

Perl-Rosenthal, Nathan. "Generational Turns." *AHR* 117:3 (Jun., 2012): 804-813.
Perl-Rosenthal, Nathan. "Private letters and public diplomacy: the Adams family network and the Quasi-War, 1797-1798." *J. of the E. Republic* 31:2 (Summer, 2011): 283-311.
Perl-Rosenthal, Nathan. "'The divine right of republics': Hebraic Republicanism and the Debate over Kingless Government in Revolutionary America." *WMQ* 66:3 (Jul, 2009): 535-564.

Selected prizes & fellowship

USC Provost's Postdoctoral Fellowship in the Humanities (2011-2013; accepted first year only)
Richard L. Morton Prize, Omohundro Institute for Early American History and Culture (for best article by a graduate student in the *William and Mary Quarterly* in 2009) (2010)
Mellon/ACLS Dissertation Completion Fellowship (2010-2011)
Mellon Fellowship in Humanistic Studies (2005-06)
J. William Fulbright Scholarship for a year of study in France (2004-05)
Thomas T. Hoopes Prize for "outstanding scholarly work" in senior thesis (2004)

Languages

French (fluent reading, writing, speaking)
Dutch (advanced reading, writing, speaking)
Italian, Spanish, Latin, Danish (basic reading)

MINK'ED

May 14, 2015

Dear Sean and Elizabeth,

Since the first online databases were conceived nearly two decades ago, university digitization efforts have democratized teaching and learning. As these efforts advanced, schools and teachers were provided high quality, research-based resources and training in order to affect both the instruction and the culture and climate of schools. This access created a need for technology-based solutions and immersive professional development so that educators not only understand the impact of these resources, but develop a sense of collegiality and collaboration outside of their own work. I am particularly excited to enter an agreement to complete the project titled *Chrono Cards: American Revolution* as outlined in the attached proposal. This project fits both of these descriptions – and I'm extremely excited to offer our support of this statement of work.

With a strong background in history education and teacher training, I am uniquely positioned to lend my support to *Chrono Cards*. My work in teacher professional development and outreach for digital history projects supports the kind of hands-on instructional models and integration of scholarship, innovative technology, and interactive approaches to teaching and learning that is present in *Chrono Cards*. The team at the University of Southern California's Game Innovation Lab includes leading game designers respected in both the education and entertainment communities. The designers coming from the USC Game Innovation Lab are experts in experience design for games with a track record of understanding that games for learning must be designed in collaboration with and in response to the target audience in order to be effective teaching tools. *Chrono Cards* is unique as a game in that it teaches historical thinking to middle school students at an age when academic and social engagement are crucial for later interest in the humanities.

As an educator and an expert on the use of technology to innovate instruction, I can say that this proposal exemplifies the practices and qualities essential for a successful learning game. *Chrono Cards* will encourage children to think about the American Revolution in a way no other game has attempted. *Chrono Cards* provides a cost-effective and innovative humanities intervention, and does so with a superior design and education research sensibility.

Please accept my commitment the proposed project my fullest support. I am committed to support *Chrono Cards* by lending my expertise and guidance as an advisor to the project and assist with crafting curricular supports for the games.

Sincerely yours,



Andrew T. Mink (Andy)

Andrew T. Mink

profile

office CB #3500 Peabody Hall/ School of Education / University of North Carolina at Chapel Hill / Chapel Hill, NC 27599/ 919-962-9286 / mink@unc.edu

home (b) (6)

linkedin <http://www.linkedin.com/pub/andy-mink/0/424/37>

twitter <http://twitter.com/#!/andyLEARNS>

current employment

UNIVERSITY OF NORTH CAROLINA - CHAPEL HILL (2012-present)

Executive Director, LEARN NC, School of Education

Primary responsibilities include focus on the design, organization, and implementation of experiential professional development projects for K-12 and university educators with a particular emphasis on the integration humanities and STEM content with technology instruction; on leading on development efforts to raise funds to support these programs; on managing university personnel and budgets; on leveraging university faculty, resources, and existing projects to connect existing scholarship, community and academic partners.

principal investigator "Nature of History: Uniting STEM and Humanities through GIS", Battelle Foundation, \$46,000 (2012-13)

"Mini-Page Archives", Betty Debnam Foundation, \$49,000 (2013-14)

"America on the World Stage: Online Courses", Teaching with Primary Sources Eastern Region, Library of Congress, \$20,000 (2013-14)

"Teaching Historical Memory at the Meuse-Argonne American Cemetery", American Battle Monument Commission, \$385,000 (2013-14)

"Best Practices in an Interdisciplinary English Classroom", UNC School of Education Foundation, \$12,500 (2013-14)

"Bring the *Wilma Lee* Alive through Project Based Learning", Ocracoke Alive Foundation and Saltwater Foundation, \$5,000 (2013-14)

"Transatlantic Slave Trade: Geospatial Technology in the Atlantic Caribbean", University of West Indies and Virginia Geographic Alliance, \$4,000 (2013)

"Chronically America: Teaching Change over Time and Place through Newspapers", Carolina Digital Library and Archives, \$26,000 (2013-14)

"Time Travel with ChronoZoom", Microsoft: Games for Learning, \$46,500 (2013)

"Teaching Interconnectness through Family History", Ancestry.com, \$285,000 (2013-14)

"Best Practices of ESL Classroom", Durham City Schools, \$20,000 (2013-14)

additional duties	School of Education Technology Committee, University of North Carolina – Chapel Hill (2012-present)
	Research Triangle Schools Partnerships (RTSP) Seed Grant Selection Committee (fall 2012)
	Faculty Administrative Leadership Development Pilot Program, University of North Carolina – Chapel Hill (2013)
related work	Adjust Instructor, University of Virginia, School of Continuing Studies (2012-present)
	Pedagogy Consultant and Master Presenter, National Council of History Education Distinguished Speaker Program, (2011-present)
	Curriculum Consultant, “Indiana Memory”, Indiana State Library (2012-present)
	Curriculum Consultant, “Redesigning Textbooks for 'Higher-Order' Learning: A Feasibility Study of <i>The American War: Featuring Valley Sim</i> ,” IES SBIR Phase I Feasibility Grant with Hope College (2012-13)
	Curriculum Consultant, “Virtual Field Trips”, Colonial Williamsburg Foundation (2012)
proposals under consideration	“Case Study: Human and Environmental Change in the New River Valley” in partnership with the Virginia Geographic Alliance, North Carolina Geographic Alliance, West Virginia Geographic Alliance, and Washington DC Geographic Alliance, National Geographic Society Collaborative Grant, \$200,000 (2014-15)
	“Summer Literacy Best Practice Model” in partnership with the State Library of North Carolina and the School of Information and Library Sciences, UNC (2013-14)
	“Digital Stories to Build Historical Understanding” in partnership with Center for Digital Storytelling, \$25,000 (2013-14)

previous employment

UNIVERSITY OF VIRGINIA (2002-10)

Director of Outreach and Education, Virginia Center for Digital History, College of Arts and Sciences

UNIVERSITY OF VIRGINIA (2010-12)

Department of Curriculum, Instruction, and Supervision, Curry School of Education

completed projects

“Digital Resources for Teaching U.S. History SOL Guide” in partnership with Albemarle County, Scott County, and Russell County Public Schools (VA), Jessie Ball duPont Foundation (2003-2005)

Principal Investigator, “Tredegar Web-based Learning Program” in partnership with the American Civil War Museum at Historic Tredegar in Richmond, Virginia (2005-2008; revised as 18-month project in April 2006)

Project Manager, “The Foundations Project: Settlement, Change” Teaching American History Grant in partnership with the Southwest Virginia Social Studies Teachers Consortium (Bland County, Bristol City, Buchanan County, Carroll County, Dickenson County, Galax City, Grayson County, Lee County, Norton City, Russell County, Scott County, Smyth County, Tazewell County, Washington County, Wise County, and Wythe County Public Schools) (2003-2006)

Curriculum Design Coordinator, “The Legacy of Jim Crow in Virginia” Teacher Institute, Woodrow Wilson Library, Staunton, Virginia (July 2006)

College of Arts and Sciences liaison, Teacher for a New Era Induction Program, Charlottesville City Public Schools, Albemarle County Public Schools, University of Virginia (2005 – 2007)

LOS ANGELES UNIFIED SCHOOL DISTRICT
Educational Service Center West
James A. Foshay Learning Center

 An IB PYP and MYP World School
3751 South Harvard Boulevard, Los Angeles, California 90018
TELEPHONE: (323) 373-2700 FAX (323) 733-2120
Internet Address: www.foshaylc.org

Ramón C. Cortines
Interim Superintendent of Schools
Cheryl Hildreth
ESC West Instructional Superintendent
Yvonne Garrison Edwards
Principal

Tracy Fullerton, Director
Game Innovation Lab
University of Southern California
3470 McClintock Avenue #301
Los Angeles, CA 900089

May 18, 2015

Dear Associate Professor Fullerton:

As the chair of the history department at James A. Foshay Learning Center, I am pleased to work with the USC Game Innovation Lab on the *Chrono Cards: American Revolution* project. The National Endowment for the Humanities Digital Projects for the Public grant will enable the Game Innovation Lab to continue developing exciting, interactive classroom activities to teach history and 21st century historical thinking skills to middle school students.

I will lend my expertise in the field of rhetoric and argumentation and I will allow the Game Innovation Lab team to playtest *Chrono Cards: American Revolution* in classrooms at James A. Foshay Learning Center. I will help evaluate the games in terms of their feasibility in classroom implementation. I'm excited about this project's potential as a tool for teachers and believe it will be of service to middle school students.

Sincerely,

Robert Nelli, Ed. D.

Dr. Robert Nelli
History Department Chair
Foshay Learning Center



James A. Foshay Learning Center, An IB World School
3751 S. Harvard Blvd. Los Angeles, CA 90018

Curriculum Vitae

Dr. Robert A. Nelli

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Education

Doctor of Education in Educational Leadership, University of Southern California

Master of Arts in Political Science, California State University Northridge

Master of Arts in Education Administration, California Lutheran University

Master of Arts in Curriculum and Instruction, California Lutheran University

Bachelor of Arts in Social Sciences, University of Southern California

Credentials

First Tier Administrative Services Credential (Letter of Authorization)

Professional Clear Teaching Credential

Single Subject: Social Science

Supplementary Authorization: 6-9 English

CLAD Certificated

TESOL / TEFL / TESL Certificated

Professional Experience

Teacher, Los Angeles Unified School District

1998-Present

- James A. Foshay Learning Center, (inner-city)
 - Common Core State Standards History / Social Science Fellow
 - History Department Chair
 - Social Emotional Learning Middle School Lead Teacher
 - International Baccalaureate Program Teacher: English and Social Studies
 - USC Neighborhood Academic Initiative (NAI) Teacher
 - AVID Teacher
- City of Angels Virtual Academy: Pilot World History Teacher
- Valley Alternative Magnet School: Social Studies and English
 - Tobacco Use Prevention Education Coordinator

2001-Present

2010-2012

1998-2001

Adjunct Assistant Professor, Rossier School of Education, University of Southern California: *online MAT Program*

2012 -2013

- EDUC 505: Integrating Literacies in Secondary Content Instruction
- EDUC 513b: Teaching English Language Arts in Secondary Content Classrooms
- EDUC 541a: Teaching Social Studies in Secondary Content Classrooms

Education Finance Policy Post-Doctoral Researcher

Lawrence O. Picus and Associates

2005-2008

Evidence-Based Financial Adequacy: Maintenance, Operations, and Transportation (MOT) Research

- Co-developed funding formula for the State of Wyoming
- Co-developed transportation adequacy proposal for State of Arkansas

Curriculum Vitae

Dr. Robert A. Nelli

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Research & Publications

“Securing a World Class Ed is a Moral Imperative”. In *EdTech: Revolution in Education. The State of Digital and Distance Learning 2013*. (Chapter 15: 275-78). E-Book (2013) released for the US News STEMconnector Solutions Conference. ASTRA and STEMconnector. Robert Boege, Senior Editor. Retrieved from (<http://www.stemconnector.org>).

“Pupil transportation adequacy in Arkansas: A report prepared for the Adequacy Study Oversight Sub-Committee of the House and Senate Interim Committees on Education, of the Arkansas General Assembly (Working Draft)”. (Picus, L.O. & Nelli, R; July 19, 2006).

“An evidence-based approach to recalibrating Wyoming’s block grant school funding model: Final report November 30, 2005 prepared for the Wyoming Legislative Select Committee on Recalibration”. (Odden, A., Picus, L., Goetz, M., Fermanich, M., Seder, R., Glenn, W., and Nelli, R; November 30, 2005).

“Operations and maintenance adequacy in California public schools: An evidence-based approach”. A doctoral dissertation presented to the faculty of the Rossier School of Education at the University of Southern California (Nelli, R., May 2006).

Leadership Activity

- | | |
|---|--------------------|
| Developed the curriculum architecture for NGY Futures Initiative / Millennium Project as an Associate at Lowenstein and Associates. | <u>Spring 2013</u> |
| Trained and calibrated to be a California Teaching Performance Assessment (TPA) Assessor by California Lutheran University. | <u>2011-2012</u> |
| Lead and actively participated in the Annenberg School of Communication’s <i>Student Voices Project</i> through the University of Southern California <ul style="list-style-type: none">• Awarded Grant for the installation of computers and internet Connectivity in two classrooms.• Awarded a two-year curriculum stipend for two social science classes to study local election trends. | <u>2001-2003</u> |
| Appointed to the Skirball Cultural Center’s, <i>Teacher-Advisory Board</i> Skirball Cultural Center, Los Angeles, California <ul style="list-style-type: none">• Selected as a Board Member based on vision and leadership skills• Recommended and helped correlate California State Standards for Instruction with the existing instructional program | <u>1999-2002</u> |
| McDonald’s <i>School to Career</i> Curriculum Advisor while teaching at Valley Alternative Magnet School | <u>Spring 1999</u> |

Tracy Fullerton, Director
Game Innovation Lab
University of Southern California
3470 McClintock Avenue #301
Los Angeles, CA 900089

May 15, 2015

Dear Associate Professor Fullerton:

As a middle school history teacher at Larchmont Charter School, I am pleased work with the USC Game Innovation Lab on the *Chrono Cards: American Revolution* project. The National Endowment for the Humanities Digital Projects for the Public grant will enable the Game Innovation Lab to continue developing exciting, interactive classroom activities to teach history and 21st century historical thinking skills to middle school students.

Chrono Cards: American Revolution will be an excellent tool for teaching historical thinking skills in middle school classrooms like mine. It aligns with the Common Core standards and content that I cover, and will provide a useful and fun way to engage students with this content. I believe that this project could be similarly useful to middle school teachers across the country, and I'm excited to participate in its development.

I will commit to support of *Chrono Cards: American Revolution* by advising the development team about the needs and constraints of a classroom teacher, and help them identify problems and opportunities as the project proceeds. I'll allow the team to work with my students and provide a history classroom environment for playtesting the game as it is being developed. I believe this game has enormous potential as a tool for teachers and will be of service to middle school students.

Sincerely,



Travis Fowler
History Teacher
Larchmont Charter School

TRAVIS P. FOWLER

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EDUCATION

- **UNIVERSITY OF SOUTHERN CALIFORNIA**, Los Angeles, CA (*May 2012*)
Master's Degree
- **BOSTON UNIVERSITY**, Boston, MA (*Collaborative Degree Program, May 2007*)
Bachelor of Arts, Psychology/Neuroscience
Bachelor of Science, Communications/Film, TV
Minor Emphasis: History (Classics)
- **PUNAHOU SCHOOL**, Honolulu, HI (High School Diploma, June 2003)
President's Award Recipient

Credentials Held:

Single Subject Credential # 120543503 – SS EXAMINATION

(2042 including English Language Authorization)

CBEST Certified: ID #: 41451074

CSET: Social Science – Subtests, I, II, III (114, 115, 116)

WORK EXPERIENCE

7th and 8th Grade Social Studies Core Teacher – Larchmont Charter School, Los Angeles, CA Aug 2012 – Present

7th and 8th Grade Social Studies

- Delivery of differentiated, personally authored curriculum
- Implemented lessons that integrated latest technology
- Taught in culturally diverse population with more than 70% being students of color.
- Specialized lessons to Common Core Standards, California State Standards, 21st Century Thinking Skills and “Gardner’s 5 Minds” Standards.
- Team leader: Assessments, PBL, and Inquiry-based Instruction

Student Teacher – New Open World Academy, Los Angeles, CA March 2012 – May, 2012

12th Grade Economics

- Worked directly with head of Social Studies department to develop multiple project-based lessons for Senior Economics
- Implemented lessons that integrated latest technology including SMARTboard and various multimedia platforms
- Taught in culturally diverse population with more than 90% being students of color.
- Specialized lessons to Common Core Standards, California State Standards, 21st Century Thinking Skills and “Gardner’s 5 Minds” Standards.
- Received highest marks in Student Teaching class for lesson planning and lesson evaluations

Student Teacher – Daniel Webster Middle School, Los Angeles, CA Jan. 2012 – April 2012

8th Grade American History

- Received highest marks for Student Teaching lesson planning and lesson evaluations
- Raised failing student scores an average of 25% during student teaching period
- Worked directly with Master Teacher and School Principal to develop multiple lesson plans for 8th Grade American History
- Succeeded at low API ranking school with English Language Learner population.
- Taught in culturally diverse population with more than 90% being students of color.
- Specialized lessons to Common Core Standards, California State Standards, 21st Century Thinking Skills and “Gardner’s 5 Minds” Standards.

APPLICABLE SKILLS

- Extremely Computer Literate/Tech Literate (All MS apps, all MAC apps, SMARTboard training)
- Student Group/Conflict Counseling Facilitation Skills
- Community Outreach Experience
- Graphic Design, Photoshop Expertise

Tracy Fullerton, M.F.A.
Associate Professor, Interactive Media, School of Cinematic Arts, USC

Education

1991 M.F.A (Cinema-Television Production), University of Southern California, Los Angeles, CA
1988 B.A. (Theater Arts/English Literature), University of California, Santa Cruz, CA

Appointments

2009 Electronic Arts Endowed Chair in Interactive Entertainment
2008 Associate Professor, School of Cinematic Arts, Interactive Media Division
Director, USC Game Innovation Lab
2005 Assistant Professor, School of Cinematic Arts, Interactive Media Division
Co-Director, USC Game Innovation Lab
2004 Visiting Assistant Professor, School of Cinematic Arts, Interactive Media Division
Co-Director, Electronic Arts Game Innovation Lab
1999 Adjunct Professor, School of Cinematic Arts, Interactive Media Division
1998 President and Founder, Spiderdance, Los Angeles, CA
1995 Creative Director, R/GA Interactive, New York, NY
1993 Creative Director, Interfilm, Inc., New York, NY
1991 Interactive Designer, Synapse Technologies, Los Angeles, CA

Selected Publications

Fullerton, Tracy, “What Games Do Well: Mastering Concepts in Play” in Postsecondary play: The role of games and social media in higher education. Tierney, W. G., Corwin, Z. B., Ragusa, G., & Fullerton, T. (Eds.). John Hopkins Press, forthcoming
Fullerton, T. (2014) Game Design Workshop: A Playcentric Approach to Creating Innovative Games, 3rd Edition. CRC Press, February 2014.
Fullerton, T., Malamed, L., Sharkasi, N., Vigil, J. (2009) Designing History: The Path to Participation Nation. ACM SIGGRAPH Video Game Symposium, New Orleans, LA, August 2009.
Fullerton, T. Fron, J. Pearce, C. Morie, J. (2008) Getting Girls Into the Game: Towards a ‘Virtuous Cycle’ Beyond Barbie and Mortal Kombat Yasmin Kafai, Carrie Heeter, Jen Sun & Jill Denner (eds), MIT Press, September 2008, pp.137-149.
Fullerton, T. (2008) Documentary Games: Putting the Player in the Path of History Playing the Past: Nostalgia in Video Games and Electronic Literature, Zach Whalen & Laurie Taylor (eds), Vanderbilt University Press, September 2008.

Selected Professional Activities

2012 Member of White House Office of Science and Technology Consortium on Games for Impact
2010 – 2012 Advisory board for Games for Change
2010 – 2012 Advisory board for NSF-funded project “Computer Game Design: An Interdisciplinary Approach to Addressing Underrepresentation in Computing”
2007 – 2009 Advisory board for NSF-funded Values@Play research project; test site for VAP curriculum
2006 – 2007 Director of International Game Developers Association Education SIG Curriculum Committee

Selected Projects

Collegeology – suite of games to improve college knowledge in underserved youth
Participation Nation – cross-media game to teach U.S. Constitutional history
The Night Journey – art game about the spiritual journey in collaboration with Bill Viola
Cloud – experimental game focusing on meditative and non-violent play

Selected Honors

Indiecade 2012 winner: category “Impact” (Reality Ends Here)
Indiecade 2011 finalist: category “Impact” (Application Crunch)
Indiecade 2008 award winner: category “Sublime Experience” – for the most emotional or social impact and profound theme (The Night Journey)
Nominated for a Rockefeller Renew Media Arts Fellowship 2008

Best Paper, SIGGRAPH Video Game Symposium 2007 (“Journey of Discovery: The Night Journey Project as Video/Game Art”)
Slamdance Finalist (fIOW)
Slamdance Design Philosophy Award 2006 (Cloud)

Selected Lectures

“Finer Fruits: Experiments in Life and Play at Walden” Chicago Humanities Festival, November 2012.
“Walden, a game” 5D: the City and the Book at USC, Los Angeles, CA, September 2012.
“Case Study: Reality Ends Here” Games for Change, New York, NY, June 2012.
“Provocations in Play: Experimental Designs from the USC Game Innovation Lab” Clash of Realities, Koln, Germany, May 2012.
“Provocations in Play: Experimental Designs from the USC Game Innovation Lab” Sarah Lawrence College, February 2012.
“Serious Play: Meaningful Video Games” Chicago Humanities Festival, October 2011.
“Granularity, a Consideration of the Textures of Games and Cinema” UC Santa Cruz Inventing the Future of Games Symposium, April 2011.
“Reflections on The Night Journey” 3G Summit Columbia College, Chicago IL, August 2010.
“Experimental Game Design: Process, Provocation and Play” Irvine Center for Computer Games and Virtual Worlds Lecture Series, UC Irvine, June 2010.
“Documentary Games: Playing with Reality” Korea Serious Games Conference, September 2009.
“Participation Nation: Designing Games that Engage Students in History and their Own Futures” Microsoft Research, August 2009.
“How We Play: Game Innovation and the Significance of Play” Digital Humanities Lecture Series, Dartmouth, Hanover, NH, April 2009.

Elizabeth Swensen

(b) (6)

Education

- Bachelor of Arts in Classics, Willamette University 2008.
- Master of Fine Arts in Interactive Media, University of Southern California 2011

Work Experience

University of Southern California, Interactive Media Division

Research Associate/Game Designer/Producer (01/09-Present)

- *Application Crunch*: Designed and prototyped a college access card and readied it for printing. 2011 IndieCade Finalist
- *Mission: Admission*: Designed, prototyped, served as a project lead through the beta launch of a Facebook application adaptation of the card game, Application Crunch.
- *FutureBound*: Designed, prototyped, served as a project lead of a mobile/PC game prototype targeting middle school students.
- *Graduate Strike Force*: Designed, prototyped, served as a project lead of a mobile/PC game prototype targeting high school students.
- *Chrono Cards Proof of Concept*: Designed and prototyped an early proof of concept for two card games for middle school students on the causes of WWI.

Psychic Bunny, Inc.

Game Designer/Writer (06/10-8/11)

- *SimCoach*: Created narrative response structure for a virtual character designed to motivate returning veterans to seek help for PTSD and depression.

Independent Projects

- *The Witch*: Designed, wrote, and produced a mobile game about word manipulation and identity exploration. 2011 IndieCade Finalist
- *The Hatter's Table*: Designed, prototyped and produced a CD-assisted board game inspired by the logic puzzles of Lewis Carroll. 2011 IndieCade Selection

Talks and Workshops

- "College Knowledge as a Collective Endeavor." Workshop Facilitator. Games, Assessment and Learning Workshop, 2011
- "Mission: Admission." Speaker. Council on Foundations Conference, 2012
- "Divide and Conquer: Examining and Confronting the Digital Divide." Speaker and Panelist. Digital Media and Learning Conference, 2012
- "Gaming in Education," Speaker/Panelist. The Southern California Technology in Education Conference, 2012
- "Choosing Worthy Systems: Strategically Adapting Learning Content for Play." Workshop. Games, Learning and Society Education Summit, 2012
- "Collegeology Games." Speaker. Games for Change, 2012
- "Advanced Participatory Design: Conducting an Audience Design Camp." Speaker. DIGRA, 2013
- "FutureBound." Speaker. Games for Change, 2013

Sean K. Bouchard

(b) (6)

Technical Skills

- C and C++
- Java
- Javascript and CSS
- C#
- Flash / Actionscript
- OpenGL
- Unity3D
- PHP and MySQL
- Processing

Education

- BA in Computer Science from Pomona College in Claremont, CA (2005)
- MFA in Interactive Media from the University of Southern California School of Cinematic Arts in Los Angeles, CA (2011).

Work Experience

USC Game Innovation Lab

Research Associate (09/11 – Present)

Graduate Strike Force

- Co-designed this strategy-action game as part of the Collegeology Games suite. Graduate Strike Force helps high school students make good academic and financial decisions when choosing a college.
- Led the programming team to develop the game for PC, Mac, and mobile devices.

FutureBound

- Co-designed and led the programming team for this action-adventure game. FutureBound helps middle school students develop college and career aspirations.
- Presented about the game and the design process behind it at the 2013 Games for Change Festival and the 2012 Digital Media and Learning Conference.

Mission: Admission

- Co-designed and led the programming team for this strategic Facebook game. Mission: Admission is a digital adaptation of the card game Application Crunch which uses techniques from social media games to enhance the game's learning experience.
- Presented about the game at the 2012 Council on Foundations Conference.

Application Crunch

- Designed improvements for the second edition of the Application Crunch card game, and created marketing and publicity for the game.
- Worked with high school students to gain insight into the target audience and project requirements.
- Presented the game as a finalist at the 2011 Indiecade Festival.

USC Game Innovation Lab

Research Assistant (08/09 – 05/11)

- Worked with the 2D prototype designer to document systems and translate them for a 3D environment.
- Worked in Gamebryo Lightspeed to implement game systems and tools that improved the Maya pipeline.

Additional Project Experience

Spectre (03/10) – A fictional biography expressed as a platforming game. Finalist at the 2009 Indiecade Festival and 2010 IGF Student Showcase.

- Co-designed the game over multiple iterations of development and user testing.
- Developed digital prototypes for assorted mini-games designed to evoke specific emotional reactions.

Grayline (05/11) – A murder mystery game for two players, set in a unique retro-futuristic world.

- Designed, programmed, and acted as creative director for this game. Managed a large team consisting of writers, artists, and voice actors.

The Witch (05/11) – A storybook game about language and identity, created for the iPad. Finalist at the 2011 Indiecade Festival.

- Developed and programmed the game and managed the technology used.
- Worked with the game's designer to scope the project, establish a specification for the game system, and iterate on the game over time.

The Hatter's Table (10/11) – A competitive puzzle game for three players, based on the mathematical and fictional works of Lewis Carroll. Developed as a board game and also adapted to a “big” game for a party environment.

- Co-designed the game; developed the physical components and conducted playtests.
- Ran the big game version at the 2011 Indiecade Festival, and several times at Game Night on the Terrace at Westfield mall. The game has also been run at Mindshare LA.

Suits (05/10) – An asynchronous Facebook game in which small groups of players cooperate over several days to enact an evil scheme worthy of a Bond villain, while negotiating for control of shared resources.

- Developed and successfully pitched the concept to professors to be included in the 2009-2010 Advanced Game Project course.
- Designed the game over multiple iterations of paper prototyping and play testing.
- Led the engineering team to implement the game on Facebook using Flash and PHP.

Selected Speaking History

FutureBound. Games for Change, 2013. New York, NY.

Collegeology Games. Games for Change, 2012. New York, NY.

Choosing Worthy Systems: Strategically Adapting Learning Content for Play. Workshop. Games, Learning and Society Education Summit, 2012. Madison, WI.

Building College Aspirations, Building Games: A case study of a middle school game intervention. Digital Media and Learning Conference, 2012. San Francisco, CA.

Chocolate Covered Broccoli: Building Better Games. TEDxManhattanBeach: Transforming Learning, 2011. Manhattan Beach, CA.

Come Closer: What We've Learned About Creating Powerful Player Experiences. Meaningful Play Conference, 2010. Lansing, MI.

Lucas Peterson

GAME LAB ARTIST

PERSONAL SUMMARY AND GOALS

Graduated with a Bachelor's Degree from the USC Roski School of Fine Arts, with an emphasis in traditional 2D Drawing and Graphic Design. Transitioned into a 2D/3D Generalist Artist to meet the needs of projects developed by the Game Innovation Lab within the USC Interactive Media & Games Division.

Goals - Achieving a strong proficiency with the Unity game engine, improved research skills, attend academic and games industry events, expanded artistic and game design skillsets.

RESEARCH PROJECTS (March 2012-June 2014)

Game Innovation Lab, *Walden, a game (Ongoing)*

Roles - 3D Modeler, 2D Texturer, Animator, Set Dresser, Historical Researcher

Goals - Achieve an optimized, polished visual experience. Share a new type of game with the world, a virtual Walden in which one can reflect on life through the eyes of Thoreau.

FutureBound Games, *FutureBound!*

Roles - 3D Modeler, Animator

Goals - Provide a fun, learning experience for young students that can engage them with the idea of turning their passions into careers, even when faced with fears and self-doubt.

FutureBound Games, *Graduate Strike Force*

Roles - Concept Artist, 3D Modeler, 2D Texturer, Animator

Goals - Provide a fun experience for young students that can also engage them with the realities of paying for higher education and the implications of their decisions years into the future.

Microsoft Research/ChronoZoom, *Chrono Scouts (Ongoing)*

Roles - Prototyping, 2D Artist, Graphic Designer

Goals - Create a polished card game that engages players in a game of combining fragments of WWI history into a compelling story about the great war.

NASA/NSF, *Life Underground (Ongoing)*

Roles - Prototyping, Researcher

Goals - Craft a rich, compelling experience in which players explore extreme environments in search of extreme life forms, using scientific tools to make profound discoveries.

Work Sample

Chrono Cards: American Revolution

To view the work sample discussed below, please visit:
<http://www.futureboundgames.com/games>

Video overview of project:
<http://vimeo.com/57008440>



Project Description

Like a game, the college application process is a system with rules. Mastering a game takes practice, but for most people the college application process is a game we only get to play once.

The *FutureBound* game suite (formerly *Collegeology Games*) is a research-based and highly innovative effort to ensure postsecondary educational opportunities for low-income middle school and high school students. It was designed with the input of students, their teachers, and guidance counselors, who also served as the primary playtesters.

Through our work at the University of Southern California with students in a face-to-face mentoring program, we understood that many qualified students were slipping through the cracks when it came time to apply to college. These were students who had done well in school and met college requirements, but who lacked the support and knowledge – at home and/or at school – to successfully complete the college preparation and application process.

The project started at USC through a partnership between the Pullias Center for Higher Education and the Game Innovation Lab. Very soon after, we reached out to local high school students and educators as partners in our quest to design useful, effective, and fun games about college and careers.

After successfully play-testing our first prototype with over 300 high school students in Los Angeles, our intent to create one comprehensive college access game evolved into a commitment to develop a suite of games for a variety of critical moments in students' college preparation.

Initial funding for the Collegeology Games project was provided by USC's Office of the Provost, the Bill & Melinda Gates Foundation, the TG Public Benefits Program, the Rosalinde and Arthur Gilbert Foundation, and the Institute of Education Sciences (U.S. Department of Education).

Games

The *FutureBound* project is made up of four games, each targeting a different facet of college knowledge and designed to prepare students for different moments in their college trajectory. The four games are *Application Crunch*, *Mission: Admission*, *FutureBound*, and *Graduate Strike Force*.

Application Crunch



Application Crunch is a card game for high school students that creates playful ways to understand the systems essential to accessing higher education. Players take on the role of a college applicant who needs to balance academics and extracurricular activities as she applies to colleges and scholarships. To win, the player must get into college, save enough money to pay for tuition and other expenses, and build up the kind of character who can succeed in her chosen school.



Application Crunch focuses on lessons of time management and application building. To succeed, students learn strategies around meeting specific application requirements, pre-planning which scholarships and colleges to apply for, and building up strong character qualities to match their aspirations.

Mission: Admission



Mission: Admission is a strategic resource-management game with roleplaying elements for high school students. It's designed to be played on Facebook over the course of a week of real time. Players build up a character's skills and level up academic and extracurricular activities while aiming to meet college application and scholarship deadlines. Getting into colleges and winning scholarships rewards the player with Pride, which can be used to build up her high school with additional activities and gives her access to tougher applications with later characters.



Mission: Admission adapts many of the same gameplay systems found in *Application Crunch* to a digital environment, and focuses especially on the time management elements of the application process. Since the game lasts for a week, college and scholarship deadlines occur in real time on different days throughout the experience. This drives home strategies around planning, preparing early, and keeping track of time in order to meet deadlines.

FutureBound

Video trailer available: https://www.youtube.com/watch?v=MnzOM0lke_M



FutureBound is a story-driven action-adventure game for middle school students about building career ambitions, demonstrating self-advocacy, and exhibiting passion. In this desktop and mobile game, the player takes on the role of a middle school student who is confronted by monsters representing doubts and fears. By talking to other students about her passions, the

player gains career ambitions and related powers to fight against these monsters. The player explores twenty exciting career paths, collecting unique powers associated with each and using them to overcome challenges. This feature exposes the player to various careers and engages her in thinking about her future. Gameplay allows the player to explore jobs she might never have considered before, and incentivizes her to adopt a variety of different career ambitions. Through the process of exploring these aspirational paths, the player is introduced to related vocabulary like “career,” “degree,” “expertise,” and the concept of educational prerequisites for different careers.

Over the course of the game, players develop their interests into more powerful abilities and confront eight different incarnations of their self-doubt. Representing doubts as monsters acknowledges the very real anxieties that students have about their success in school and their future, while framing challenges through a fantastical lense so that these anxieties won't overwhelm them. Instead, players engage with the subject of self-doubt through allegory.



During the player's adventures, she encounters more than thirty characters with colorful backstories and a variety of different passions. Through these characters the player learns how to leverage social resources to prepare for high school and college. Eight major story lines scaffold gameplay and span the 7th, 8th, and 9th grades, offering the opportunity for players to explore ways to excel in middle school and be successful in the transition into high school. Because the game format provides an opportunity for the player to experience taking on different roles and testing a variety of strategies without being encumbered by real-world constraints, the game carves out a safe space where she can learn from her mistakes.

Graduate Strike Force

Video trailer available: <https://www.youtube.com/watch?v=u1kL1OAK2B8>



Graduate Strike Force is a strategy-based, action-filled game about choosing the right college, managing college expenses, and saving the world. It models the systems underlying college choice and demonstrates the consequences of different decisions through a compelling and cohesive experience. The game offers the player freedom to experiment with different potential college options and suggests that colleges can offer tradeoffs among academic reputation, cultural fit, and financial burden. Only by making good college choices and managing the team's student debt and budget will the player succeed.



Graduate Strike Force capitalizes on cutting-edge cross-platform technology to increase students' understanding of college choice and affordability. The player chooses among five colleges for each new recruit on her team. Each school has a set of qualities, including

academic reputation in the student's field of interest and a financial aid offer. The player must learn to evaluate these choices and understand the costs and benefits of each. The game teaches critical analytical skills at the time when it has the greatest impact on learning and retention, allowing high school students to practice, experiment, and prepare in advance for the important choice of which college to attend.

Efficacy and Outcomes

As a part of development, we completed efficacy studies on our first two college access games, the card game *Application Crunch* (used by 3,000+ schools and programs across the U.S.) and the Facebook game *Mission: Admission* (currently accessed by 2,300 players). Research on those games indicated value in using game-based approaches to stimulate college knowledge and increase college-going efficacy.

In a quasi-experimental study conducted with 467 students, findings showed that students who played *Mission: Admission* once scored 0.62 standard deviations higher on the post-test of college-going self-efficacy compared to their peers who did not play the game at all. Thematic analyses of observations of play sessions with over 350 students and longitudinal interviews with 50 students over the course of a year demonstrated that the games promoted qualities conducive to college preparation. Players exhibited an increased awareness of college admission and financial aid processes; expanded college literacy including new college vocabulary; ability to role play and draw multiple parallels between their real world lives and their fictional game "characters;" and a growth of college application strategies such as understanding the importance of paying attention to deadlines, balancing academics and extracurriculars, planning ahead when requesting letters of recommendation, and applying for financial aid while applying to college.



Budget Form

OMB No 3136-0134
Expires 7/31/2015

Applicant Institution: *USC Game Innovation Lab*

Project Director: *Tracy Fullerton*

Project Grant Period: *01/01/2016 through 12/31/2016*

[click for Budget Instructions](#)

	Computational Details/Notes	(notes)	Year 1	(notes)	Year 2	(notes)	Year 3	Project Total
			01/01/2016- 12/31/2016		01/01/2017- 12/31/2017		01/01/20__- 12/31/20__	
1. Salaries & Wages								
Sean Bouchard		25.0%	§ (b) (6)	%		%		§ (b) (6)
Elizabeth Swensen		25.0%	§ (b) (6)	%		%		§ (b) (6)
Lucas Peterson		25.0%	§ (b) (6)	%		%		§ (b) (6)
Student Worker		15.0%	§ (b) (6)	%		%		§ (b) (6)
		%		%		%		\$0
		%		%		%		\$0
2. Fringe Benefits								
		31.1%	\$16,617					\$16,617
								\$0
3. Consultant Fees								
Honorariums x 5			\$2,500					\$2,500
4. Travel								
Advisory mtg			\$0					\$0
								\$0
5. Supplies & Materials								
Website hosting			\$500					\$500
6. Services								
Andy Mink			§ (b) (6)					§ (b) (6)
7. Other Costs								
Software			\$286.50					\$287
8. Total Direct Costs								
	Per Year		\$83,333		\$0		\$0	\$83,333
9. Total Indirect Costs								
Federal Indirect Rate (cost shared)	Jan 2016 - June 2016	45.0%	\$18,750		\$0		\$0	\$18,750
Federal Indirect Rate (cost shared)	July 2016 - Dec 2016	45.0%	\$18,750	45.0%	\$0			\$18,750
Actual Indirect Cost		20.0%	\$16,667	20.0%	\$0			\$16,667
10. Total Project Costs								
(Direct and Indirect costs for entire project)								\$137,500
11. Project Funding								
			a. Requested from NEH			Outright: \$100,000		
						Federal Matching Funds: \$0		
						TOTAL REQUESTED FROM NEH: \$100,000		
			b. Cost Sharing			Applicant's Contributions: \$0		
						Cost shared indirects: \$37,500		
						Third-Party Contributions: \$0		
						Project Income: \$0		
						Other Federal Agencies: \$0		
						TOTAL COST SHARING: \$37,500		
12. Total Project Funding								
								\$137,500

Total Project Costs must be equal to Total Project Funding ----> (\$137,500 = \$137,500 ?)
 Third-Party Contributions must be greater than or equal to Requested Federal Matching Funds ----> (\$0 ≥ \$0 ?)

Design Document

Chrono Cards: American Revolution

Executive Summary

Chrono Cards: American Revolution is an innovative multiplatform suite of classroom activities focused around a set of educational games and designed to teach critical 21st century historical thinking skills to middle school students. The games and supplementary activities that surround them are aligned to Common Core standards and dovetail neatly into 7th and 8th grade lessons on the American Revolution.

The two games that comprise the set are *Fact Fuse* and *Chrono Scouts*. These games, which both include digital and tabletop components and which share a single deck of cards, take different approaches to a middle-school-level understanding of the American Revolution.



Chrono Scouts focuses on the skills of assembling narrative out of disparate events while recognizing bias and perspective. It is played in small teams of cooperating students and accompanied by online videos which play for the entire class and moderate gameplay.

Fact Fuse, on the other hand, focuses on the skills of articulating the relationships between historical actors and events, and making an argument to back up a historical claim. It is played competitively between students in groups, or with the classroom as a whole.

The goal of this project is to introduce historical thinking skills to middle school students. As a result of playing *Chrono Scouts* and *Fact Fuse*, students will practice these critical skills while studying the history of the American Revolution. By playing the games, students will: build vocabulary related to the historical period; learn to identify and distinguish between points of view; distinguish between fact, opinion, and reasoned judgement; present claims about a topic or issue; and support or refute claims using logical reasoning and relevant evidence.

Narrative Treatment

Chrono Cards: American Revolution does not contain traditional, linear historical narrative, but does include thematic elements related to early American history and the Revolutionary War. Our choice of themes is based in modern scholarship on the origins of the American republic.

These historical themes include "Gender," "Race and Slavery," "The Atlantic World," "Market Forces," and "Theory of Revolution."

Each game incorporates these main theme areas differently based on the mechanics and learning goals of the particular game. In *Fact Fuse*, these themes are expressed by the choice of words that players can combine into sentences to make and defend historical claims. The game uses cards, each of which contains one noun and one verb, which students race to put together into simple statements. (For more information on how these phrases are used in play, see the description in the User Experience section below.)

Historical Theme	Example Card Element (Fact Fuse)
Gender	"Abigail Adams," "Sybil Ludington," "Republican Motherhood"
Race and Slavery	"Atlantic Slave Trade," "Royal Proclamation of 1763," "James Armistead Lafayette"
The Atlantic World	"The French and Indian War," "The Support of Spain," "Transatlantic Trade"
Market Forces	"The Exorbitant Cost of War," "Homespun Movement," "The Stamp Act," "Taxation," "Boycott"
Theory of Revolution	"The Right to Revolution," "Thomas Hobbes," "Social Contract Theory"

In *Chrono Scouts*, these themes are represented in micro-narratives and quotations that are displayed on each card, and which form the constituent parts of the students' constructed narratives. Some of these themes are also explicitly called out in visual elements on the cards and used mechanically to organize cards during play.

Historical Theme	Example Cards (Chrono Scouts)
Gender	"'Every domestic enjoyment depends on the unimpaired possession of civil and religious liberty.' - Mercy Otis Warren"
Race and Slavery	"Lord Dunmore promised freedom to any slaves who chose to fight for Great Britain."
The Atlantic World	"The French and Indian War cost the British dearly."
Market Forces	"The Colonists began a boycott of British goods."
Theory of Revolution	"Enlightenment thinkers in Europe began questioning traditional authority."

In addition to these historical narrative themes, both games focus on 21st century historical thinking and metacognitive skills. In *Fact Fuse*, students practice rhetorical argumentation skills. In *Chrono Scouts*, students practice narrative construction, identifying historical lenses, and recognizing a multiplicity of historical perspectives.

User Experience

All of the activities in the extended *Chrono Cards: American Revolution* toolkit revolve around the two games. *Fact Fuse* will run on a variety of platforms, including Mac and PC computers, mobile devices, and on the web. The audiovisual elements of *Chrono Scouts* can likewise be accessed and presented using a variety of devices.

A key feature of both games is the shared deck of physical cards that is used to play *Chrono Cards* and to extend the utility of *Fact Fuse*. These cards contain content for each game printed on either side of each card. This creates a compact and versatile form factor that makes storing and distributing the cards easier in a classroom setting.



Fig 1. An example showing the two sides of one card in the WWI proof-of-concept edition.

The examples above show the front and back of proof-of-concept cards that were developed using WWI content in collaboration with Microsoft Research. The cards for *Chrono Cards: American Revolution* will follow the same format, with content appropriate for the new subject area. This document will refer occasionally to this proof-of-concept, when it can serve as an illustrative example. The narrative content, illustration, and overall design of *Chrono Cards: American Revolution* will ultimately reflect a unified focus on American Revolution content.

The differences between the two games appeal to different types of players, making *Chrono Cards* an adaptable classroom tool. In addition to the digital game, *Fact Fuse* includes a tabletop variant that can be played using only the deck of cards, making it an excellent option for low-technology or divided classrooms. *Chrono Scouts* uses audio and video to help engage

students, making it a more immersive experience. The two games also focus on building complementary skills.

Fact Fuse

Fact Fuse is a competitive digital card game played by groups of various sizes, from small groups of 2-5 students to teams of 2-5 students within full classrooms. It is based on an original card game and draws inspiration from tabletop games, such as *Set* and *Boggle*, which do not have a turn-taking framework. Players compete to form statements about historical relationships and events by combining the nouns and verbs presented by the game.

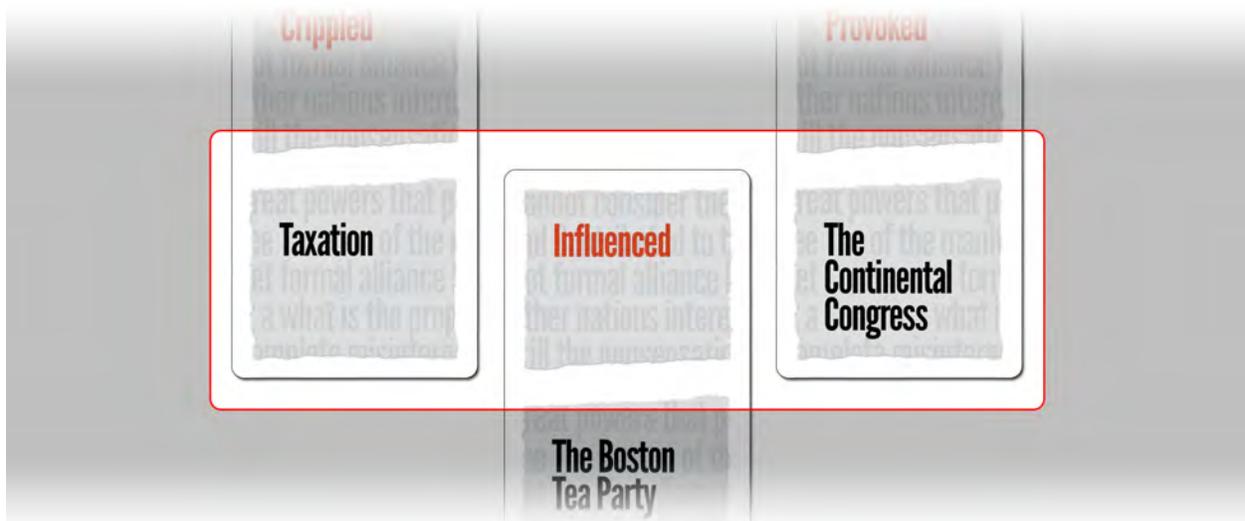


Fig 2. A diagram depicting the way three Fact Fuse cards can be combined to form a sentence.

Procedure

Fact Fuse is played with a grid of six cards. All the players look at the cards together and try to make sentences out of the words on the cards. The first person to find a sentence they think is true (or, at least, one they believe they can defend) shouts, “Fact!” and then says the sentence out loud.

The player must then convince the other players in the group that this sentence is true. She does this by making an argument for the claim, drawing on her own historical knowledge for evidence. Other players can make counter-arguments refuting the claim to convince the majority of players to reject it.

If most of the group accepts the claim, then the player who found the sentence gets a point for her team and new cards are drawn to replace the ones that were used in the sentence. After a predetermined amount of time (configurable, along with many other game parameters, by the teacher or game moderator), the team that has collected the most points over the course of the game is the winner.

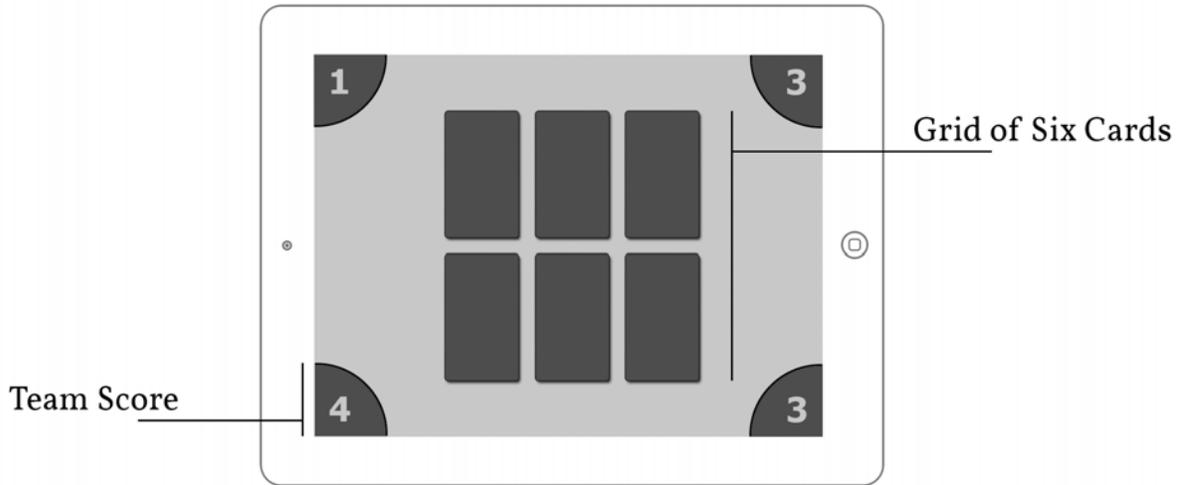


Fig 3. A diagram of Fact Fuse set up for four players or four teams, which could be run on an iPad.

Cards

Fact Fuse is based on a proof-of-concept card game that was developed in the Game Innovation Lab. The affordances of a digital game allow the gameplay to be expanded in a number of ways, such as allowing different modes for small groups, classrooms, and other configurations of game type.

The game is based on a virtual representation of a deck of cards. The *Fact Fuse* card deck consists of fifty-two cards, each of which is separated into two parts: the noun, in the top half, and the verb, in the bottom half.



Fig 4. A diagram of a Fact Fuse card from the proof-of-concept.

The nouns refer to significant people, organizations, events, and overarching attitudes from the American Revolution. These nouns can serve as either the subject or object in a three-card statement.



Fig 5. Examples of nouns on Fact Fuse cards.

The verbs suggest actions and relationships between people, organizations, events, and overarching attitudes. The verbs are designed so that the resulting sentences are likely to be disputable historical claims, rather than straightforward facts. Verbs like “influenced” suggest a relationship between historical actors or events that might be argued one way or the other.



Fig 6. Examples of verbs on Fact Fuse cards.

Some claims will be harder to defend than others. Players can find success either by picking sentences that will be easy to defend, in which case they must spot them quicker than the other

players, or by coming up with compelling arguments for claims that are less obvious to the rest of the group.

There is some repetition among both the nouns and verbs, although none of the specific combinations of noun and verb on the same card are repeated. This repetition focuses the game on a smaller set of historical figures and events, increasing players' ability to find interesting sentences about their relationships. In the proof-of-concept, a total of 36 nouns and 22 verbs were used. A similar balance will be employed for the American Revolution version of *Fact Fuse*.

Sentences are created out of three cards. The noun on the first card acts as the subject of the sentence, followed by the verb on the second card, and the noun on the third card as the object of the sentence.

The final nouns and verbs will be determined through consultation with content experts and the results of iterative playtesting with middle school students.

Tabletop Variant

In addition to the digital version of *Fact Fuse*, this grant will cover the production of a physical card game edition for classrooms with limited access to computers.

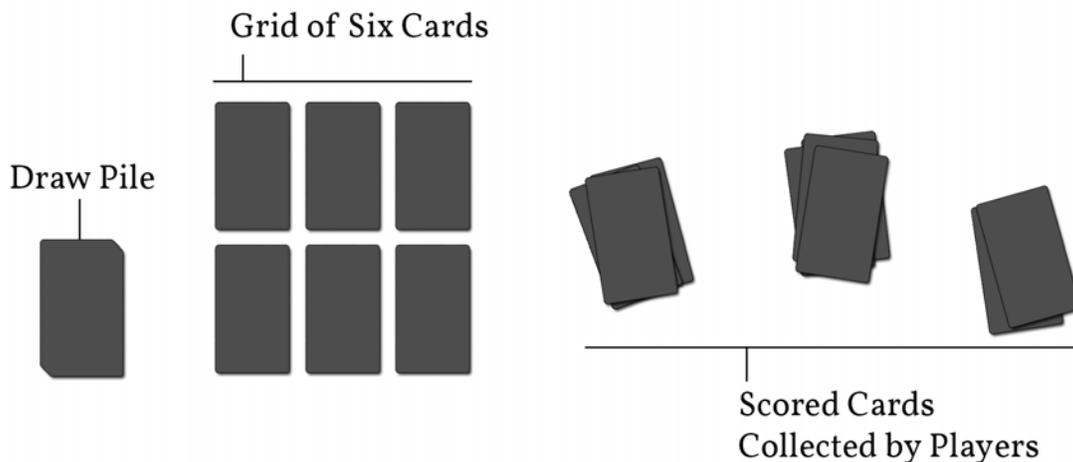


Fig 7. A diagram of how the proof-of-concept card game version of Fact Fuse is laid out during play, to demonstrate the elements involved.

Chrono Scouts

Chrono Scouts is a cooperative, multimedia game played with teams of 2-5 students. Students are guided by a narrated video to create the best story sequence in the class before time runs out. These story sequences are created by selecting and arranging five cards from a deck of fifty-two physical cards, each of which contains a fragment of text. During play, students take turns to add and rearrange these cards and also work to fulfill randomly generated 'missions'

that provide constraints on the stories. When a set period of time (usually ten minutes) has passed, the teams share their constructed narratives with the class and justify why their five-card story is the best representation of the causes of the American Revolution.

Procedure

Each player has a hand of three cards, and all players in a group share access to the five-card story sequence and a draw deck of additional cards. The game begins when the narration track is started, and the players take turns using cards from their own hands to replace cards in the story sequence. Players are encouraged to play open-handed, as sharing the information on the cards frequently helps the group come to agreement about the direction they should take their story sequence.

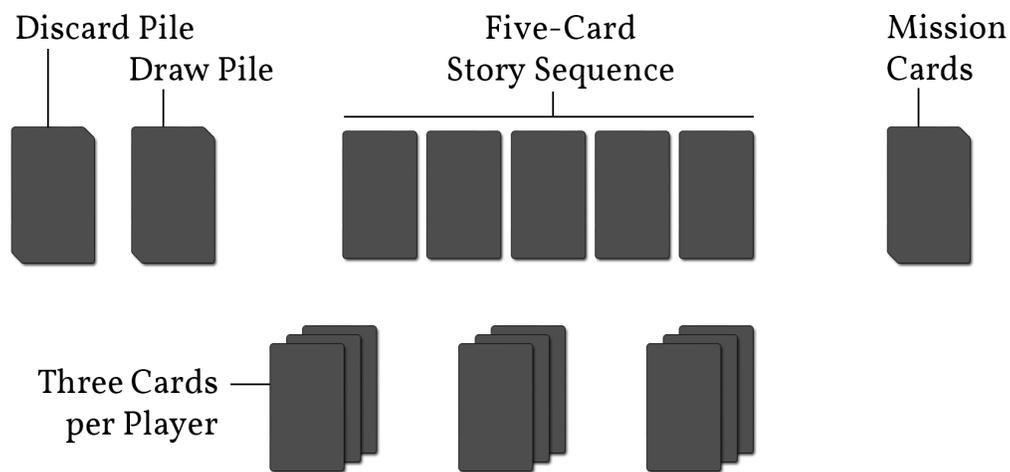


Fig 8. A diagram of how Chrono Scouts is laid out during play.

On her turn, a player takes one of three possible actions: play, rearrange, or discard. If she chooses to play, she replaces one of the cards in the story sequence with a card from her hand. The card that was replaced is then discarded, and the player draws a new card into her hand. If she decides to rearrange, she can freely change the order of the five cards that make up the story sequence. This can be used to put events in chronological order or any other sequence that makes sense. If she chooses to discard, she places all three of the cards in her hand into the discard pile and draws three new cards to replace them.

On the video narration track, the voice of a Commander of a sci-fi time preservation organization instructs the players to begin taking turns and to stop playing at the appropriate times. In between, he issues periodic reminders and introduces additional constraints on the groups' story sequences. These constraints fall into two categories: missions and disaster events. Missions are given during the first segment of play time, giving the groups plenty of time to craft their story sequences according to the missions' parameters. Disaster events happen in the latter segment of play time, forcing players to react quickly before time runs out.

Generally, these narrative fragments demonstrate a particular historical point of view or authorial purpose. There may be multiple cards concerned with the same event or relationship, but portraying it from different perspectives.

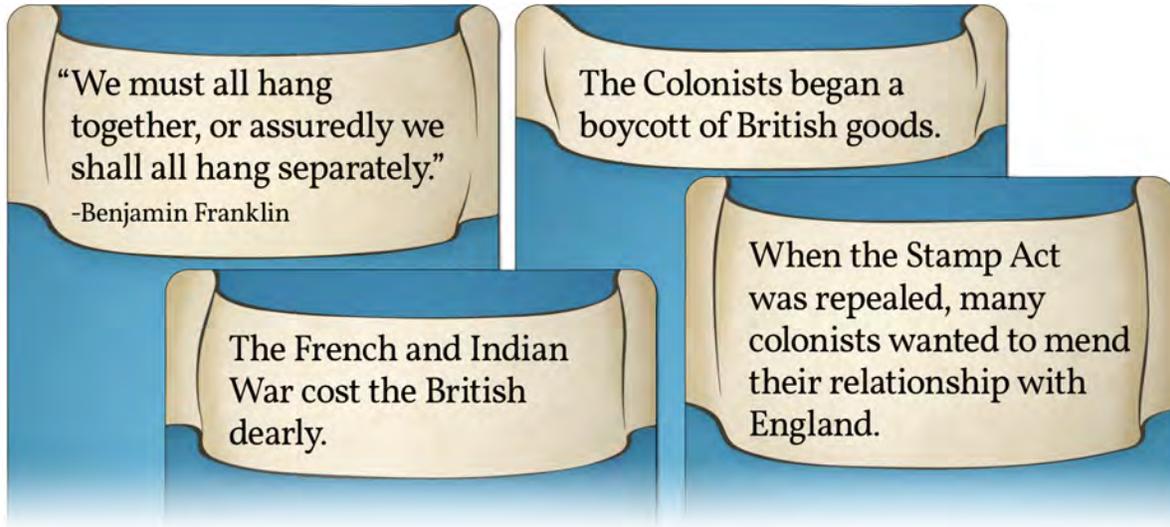


Fig 11. Examples of narrative fragments on Chrono Scouts cards.

The narrative fragments are designed to be semi-recombinant. That is, each individual fragment will make sense when paired before or after several other fragments, but some pairings will make less sense. The overlapping content of the cards means that there are frequently many available cards that deal with the same subject, although often they demonstrate different perspectives on this subject. Because of this, there will be many different reasonable possibilities for choosing which cards belong together in the story sequence, but some combinations will work better than others.



Fig 12. An example, from the Chrono Scouts WWI proof-of-concept, of a five-card sequence of Chrono Scouts cards that present a narrative.

The illustrations on each *Chrono Scouts* card depict the contents of the narrative fragment visually. The illustrations are designed to be approachable, entertaining, memorable, and character-focused.



Fig 13. Examples of illustrations from the Chrono Scouts WWI proof-of-concept that demonstrate using entertaining characters to make cards memorable.

The mission icons on each fragment card are used when the video narration presents the players with a new mission. These icons (see next figure) represent broad, intersecting themes that are appropriate for the middle school level while acknowledging the complexity of this historical period. Each fragment card has two mission icons which represent themes corresponding to the card, based on its text. These icons are used to introduce additional constraints on the players' story sequence, either by constraining the number of icons that can be present or by enforcing a variety of icons. There are a total of eight different icons, represented across the fragment cards with approximate uniformity.

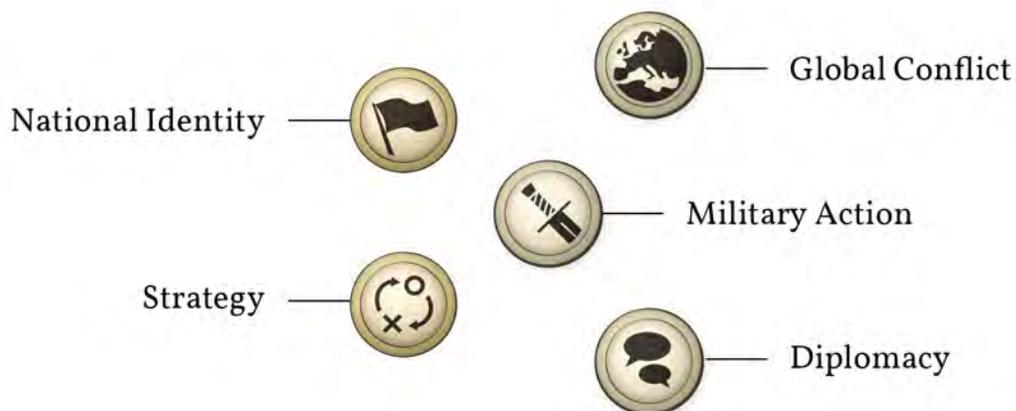


Fig 14. Examples of mission icons taken from the Chrono Scouts WWI proof-of-concept.

These examples are taken from the proof-of-concept and are part of a design targeted at WWI content. For *Chrono Cards: American Revolution*, specific themes and their icons will be based on the narrative fragments as they are further developed and undergo iterative revision in collaboration with the history team. Some example categories may include: Ideology, Crisis Point, Laws and Taxes, Atlantic World, Military Action, Economic Factors, Social Unrest.

The mission icons are used in conjunction with eight mission cards which form their own small deck. Mission cards have uniform backs, and each presents one mission icon on the front. Each of the eight mission cards depicts one of the eight icons.



Fig 15. The front and back sides of a mission card from the Chrono Scouts WWI proof-of-concept.

Periodically, the Commander on the video narration track will ask students to draw a number of cards from the mission deck, and use these cards to form a constraint on their story sequence. For example, the Commander might tell each group to draw two mission cards. One group might draw the Ideology and Social Unrest mission cards. The Commander would then instruct the players that the mission icons on their cards must be represented at least once in their five-card story sequence. Groups whose stories do not contain cards with those icons would have to replace cards with ones that do. The example group above would have to work to fit at least one card with an Ideology icon and one card with a Social Unrest icon into their story. Each group in the class draws their own mission icons, so each team works within a separate set constraints. Missions cause students to reshape their stories and think about framing historical narratives around themes, and are also a tool for teachers to demonstrate the diversity of lenses through which history can be viewed.

After time has run out, groups take turns sharing their final five-card stories with the class. They must defend why their group's story is the most significant narrative about the events leading up to the Revolutionary War. Students are encouraged to backup their claims by drawing on relevant sources or prior knowledge. In addition to practicing historical argumentation, this

phase of play allows students to see the diversity of stories and perspectives that can be constructed about the same set of historical events.

Video Narration Tracks

The video narration is a key component of *Chrono Scouts* and serves three principal purposes. First, it acts as a timer. Second, it introduces variety to the game experience by adding constraints mid-game. Third, it establishes a narrative framework within which the game is played. This narrative provides students with a suitable distance from the subject matter, giving them a sense of permission to deconstruct and reassemble the historical narratives they're familiar with.

There is a selection of video narration tracks, each of which contains a variation on the events of the game. The first video is designed as an introductory experience: it contains more explanation of what actions the players should be taking, and doesn't contain any advanced-game complications. The other videos follow a pattern and are interchangeable. They can be played in sequence or a video can be chosen at random.

Example Sequence #1

T-0:00 Greeting
T-1:00 Start Turn-Taking
T-2:30 Mission
T-6:30 Disaster Event (Gravity Well)
T-10:00 One-Minute Warning
T-11:00 Time Up

Example Sequence #2

T-0:00 Greeting
T-1:00 Start Turn-Taking
T-2:00 Mission
T-3:30 Second Mission
T-7:30 Disaster Event (Rift)
T-10:00 One-Minute Warning
T-11:00 Time Up

Fig 16. Examples of sequence scripts for two tracks of Chrono Scouts video narration.

The videos are visually simple, consisting of simple motion-graphics elements supporting the voice of the Commander, an unnamed authority figure who is in charge of the scouts. Early explorations only included an audio track, but teacher and student playtesters requested a visual element as well to serve as a secondary reference in noisy play environments. The style of the visuals was designed to be easily readable in a variety of classroom sizes and screen configurations.

The Commander briefs the players on the general outline of the activity: they will have a certain amount of time to work together to construct a story sequence out of the narrative fragments on

the cards. The Commander then starts a countdown timer that is displayed for the duration of the game.



Fig 17. A frame from a video narration track that accompanies Chrono Scouts, instructing players to begin taking turns.

In the second part of the narration, the Commander sets up a mission by instructing the players to flip over one or more mission cards. The Commander then introduces a constraint on the story sequences based on the mission symbols that have been revealed. In each video, the number of cards and how they are used in the constraint varies. Additional variety is introduced by the mission cards themselves since they randomly determine the specifics of the constraint for each team. This creates variation not just game-to-game, but also group-to-group within a classroom where several groups are following along to the video together.

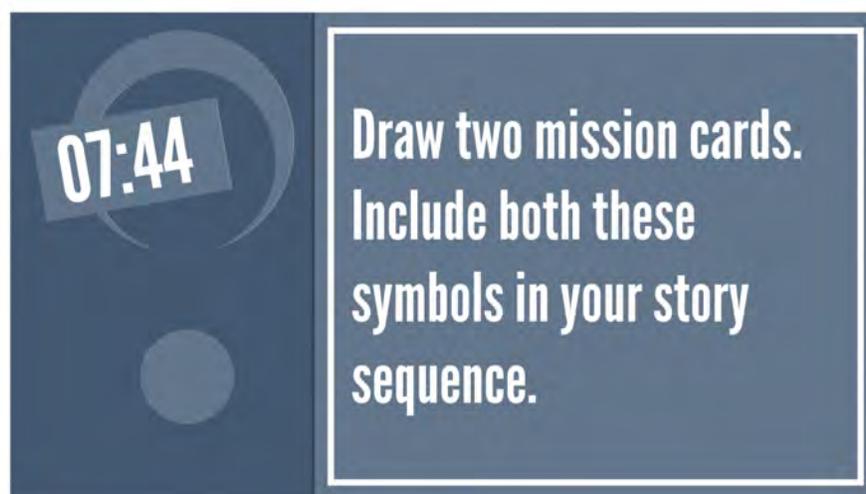


Fig 18. A frame from a Chrono Scouts video narration track presenting the players with a new mission constraint.

In some videos, the Commander may introduce a second mission, adding an additional constraint. These are balanced so that, in this case, each of the individual missions is less challenging (meaning it introduces less constraint on play) than is typically the case.

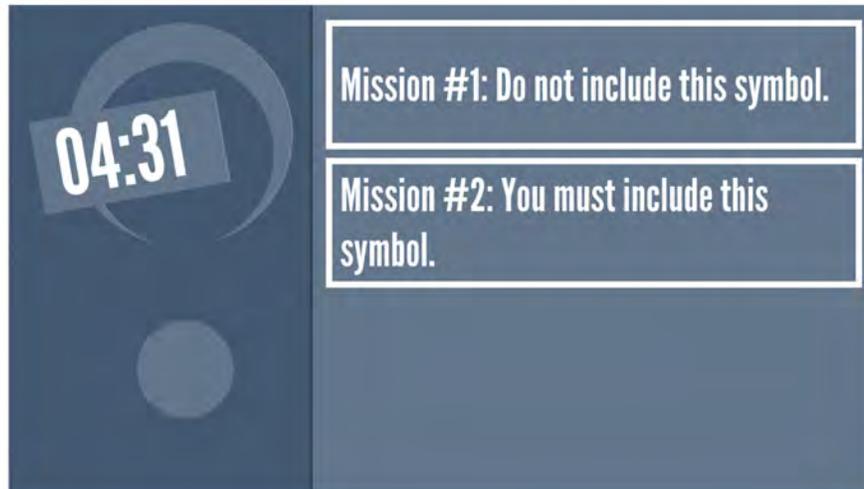


Fig 19. A frame from a Chrono Scouts video narration track demonstrating how multiple constraints are tracked.

The third part of the narration video contains one or two disaster events, which introduce a further constraint even as time is running out. There are two possible disaster events: a rift in space time and a gravity well.

The rift in space time, as the Commander explains, causes the group to lose one of the cards in its story sequence. The Commander will indicate which card is lost, and instructs the group to draw a new card to replace it.

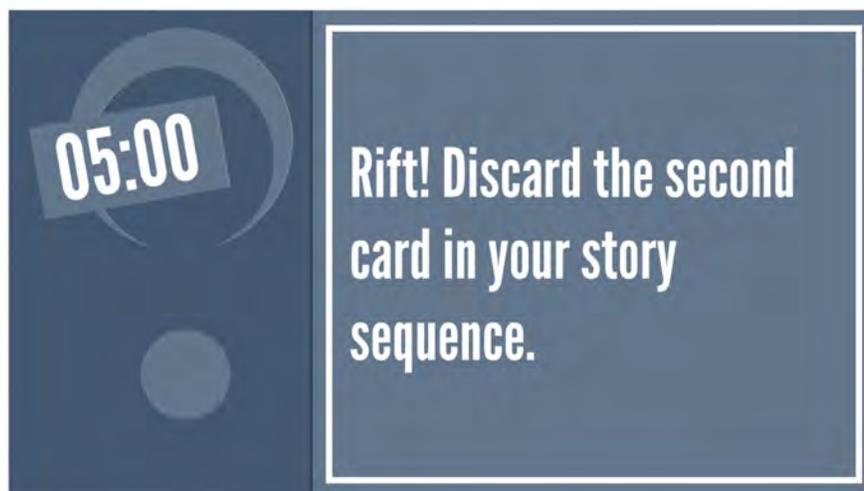


Fig 20. A frame from a Chrono Scouts video narration track that presents a rift disaster event.

The gravity well causes one of the cards in the group's story sequence to become stuck in place. That card is required to remain in its position in the story sequence until the end of the game, meaning that the group's story must be built around it. The Commander instructs the group to turn the card sideways in the timeline to indicate that it can't be moved.

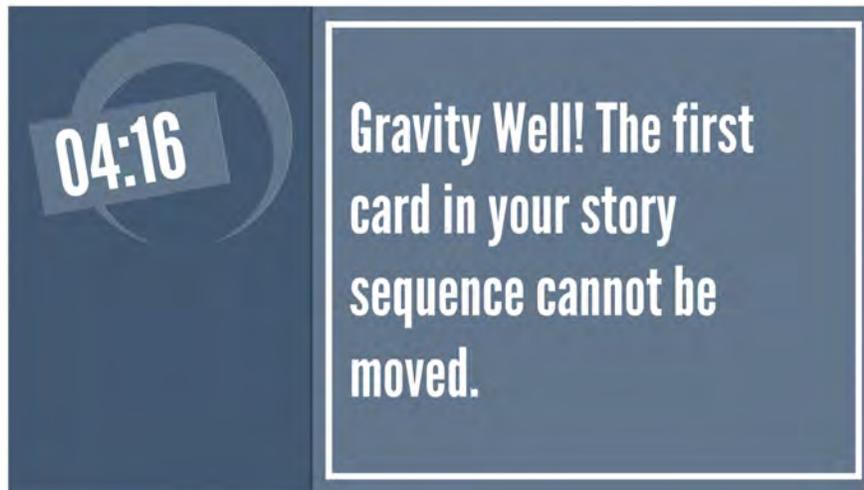


Fig 21. A frame from a Chrono Scouts video narration track that presents a gravity well disaster event.

The graphics in the video help organize the information that players need to keep track of. Specifically, the visible timer helps the players plan and manage their strategy as a team, improving the quality of their final story sequence and their confidence in it. The large text messages and persistent reminders help students understand what is being said and ensure they do not neglect missions or disaster effects.

However, it is possible to play the game only with the audio portion of the narration track. For classrooms that do not have access to streaming video or cannot project the video for the entire class to see, audio-only downloadable versions of the narration track will be available. These tracks will feature the same content as their video counterparts, but without the graphical niceties.

Curricular Supports

The curricular supports will take the form of documents to aid teachers in contextualizing the games within the classroom, positioning them for feasibility within the environment as well as connecting them to the curriculum directly. The supports will also include additional classroom activities that can further expand the impact of the games.

The teacher's guide will introduce the games to teachers and help them understand the best way to use them in conjunction with their own lessons on the American Revolution. The guide will outline ways to play both *Chrono Scouts* and *Fact Fuse* in schools with different levels of

technology, as well as give suggestions for different gameplay variants in order to account for different teaching styles and time limitations. The teacher's guide will not only instruct how to play and run play of the games, it will also help teachers strategize the best way to use the games given their specific context.

The supplementary activities will provide teachers with additional structured ways to discuss the content covered in the games and to engage the students with the historical thinking skills they practice through the games. These additional activities will draw on elements and themes presented in the games. For example, one activity may focus on the theme categories presented in *Chrono Scouts* as a lens to view the American Revolution. An activity sheet will ask students to record example primary source documents, events, or figures that might contribute to a categorization of information under each of the themes. A following activity would present a writing prompt that allows students to pick one of those themes and develop a short essay on how that particular theme shaped the American Revolution using the evidence they have collected. These activities would be a combination of writing exercises, discussion topics, and roleplaying opportunities.

The curricular supports will be created in collaboration with Andy Mink, a curriculum development expert who previously directed the development of a curriculum for *ChronoZoom* with Microsoft Research and worked with the production team on the original proof-of-concept card games. The supports would be provided for download on the Chrono Cards website.

Technical Specifications

The Game Innovation Lab hosts several ongoing projects using a combination of local servers (operated through the University of Southern California) and offsite servers operated by various commercial hosting providers. For this project, we would build onto the existing infrastructure of the lab's web architecture. This includes hosting for the web-accessible and downloadable digital *Fact Fuse* game, and the centralized *Chrono Cards* website, which will host text, images, downloadable documents, and audio tracks. For the prototype, we expect to be able to easily absorb the additional traffic generated by our testing partners. Other elements that require more robust infrastructure, such as streaming videos, will be hosted by third party services.

The website will serve as a portal to the games and associated materials. It will use a simple underlying content management system, such as Wordpress, that can be easily kept up to date. If necessary, the content can easily be moved to a more robust server or a dedicated server on a larger hosting service, such as Amazon Web Services.

However, we do not anticipate that the website will be overwhelmed by concurrent users during this phase of the project. Videos that appear on the website will merely be embedded there and hosted elsewhere. A simple database may be required by the site's underlying content management system, but the website will not include features (such as a user account system or user-generated content) that would normally cause excessive database traffic.

The website will include the following features:

- a link to the playable *Fact Fuse* web game
- links to downloadable stand-alone versions of the *Fact Fuse* digital game
- an introduction to the games
- instructions for playing the games individually
- an explanation of the goals and learning content of the games
- videos demonstrating gameplay
- downloadable documents containing the print-and-play cards
- a link to the build-to-order printing service and explanation of the build-to-order option
- links to streaming versions of the *Chrono Scouts* videos, hosted on a third-party streaming site like YouTube
- downloadable audio alternatives to the *Chrono Scouts* videos
- the teaching guide, which explains how to situate the games relative to lessons on the American Revolution and provides tips for playing the games in the classroom
- downloadable documents containing supplementary activities to help integrate game playing with curriculum

YouTube (www.youtube.com) will be used to host the video narration tracks used in *Chrono Scouts*. YouTube is the world's premiere streaming video host.

The Game Crafter (www.thegamecrafter.com) will be used to host the build-to-order version of the combined *Chrono Scouts* and *Fact Fuse* physical cards. The Game Crafter is a professional printing service and storefront that specializes in printed game materials.

Unity 3D will be the game engine used to develop the *Fact Fuse* web application. The Game Innovation Lab development team uses Unity as their primary game engine software and have extensive experience using it to create their most recent projects.

Sustainability Plan

Once launched, *Chrono Cards: American Revolution* will be made publicly available online as a set of activities, tools, and supplementary materials. The online game, downloadable materials, and website will be hosted on a shared server, and costs associated with maintaining it will be marginal for the number of users we expect to attract during this prototyping phase. Those materials hosted locally in connection to the website, such as the print-and-play cards, teacher support materials, and downloadable narration tracks, will remain available for the foreseeable future.

Card assets for the build-to-order version of the game will be maintained through The Game Crafter (which does not charge a subscription cost for its storefront service) or one of the competing print-on-demand services. The video narration tracks will be hosted on YouTube at no continuing cost. Once *Chrono Cards: American Revolution* is launched, it can continue to exist at marginal costs to the the Game Innovation Lab. The Game Innovation Lab has a long history of releasing independent games and is fully ready to support the game post-launch with

patches and updates as required. Updating for currency is a normal part of a digital project's lifecycle and we will continue to do so as long as there is interest in the games.

Once we have completed this prototyping phase, we expect to have a package that could be used productively in middle school classrooms across the country. This package will be publicly available, and ready for marketing and more expansive distribution plan. Additionally, because the games are designed to be modular with respect to content, we will be in a position to broaden the impact of *Chrono Cards* by developing new modules covering content such as the Civil War, the Civil Rights Movement, and European Colonialism. Additionally, the framework surrounding the games and associated activities could be adapted to be appropriate for high school history classes, at which point further content modules could be developed for those classes.