AHCI Phase I Meta-Evaluation Report

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I. Introduction

Executive Summary

Projects created during Phase I of the American History and Civics Initiative (AHCI) represented a variety of models (both pedagogically and technologically), addressed a range of topics, and targeted different user populations. All projects used some type of new media such as video games, social networking environments, or online simulations, with several projects combining these technologies in unique ways. Nearly all Phase I projects chose to focus on either history *or* civics and not both subjects combined. While all projects were to be created for classroom use, it is clear that there existed various interpretations of just how classroom integration or "adoption" by schools and teachers would occur. Reviewing data across all of the Phase I projects, the meta-evaluator finds that, in fact, no project fully demonstrated any of the six Initiative-wide evaluation criteria as established in the rubric. Nevertheless, the projects all made varying degrees of progress in demonstrating different approaches to integrating American History or civics content into a range of new media-based student activities.

AHCI is clearly a work in progress. As such, there is as much to be learned formatively about how each project team worked to create its project as there is to be reported summatively on how any particular project "turned out." The meta-evaluator anticipates that this will be as true for Phase II as it was for Phase I. That is, the Initiative's ultimate success will need to be measured simultaneously on a range of criteria and not simply on whether a project is financially viable or "moved the needle" on student learning. At this time, there appears to be no one perfect model for impacting student learning outcomes in history and/or civics via a commercial product. Rather, it may be necessary to consider multiple approaches (as in Phase I) with future products drawing on the successes and failures of each. It is with this process in mind that the meta-evaluator offers the Phase I summary report and its recommendations.

The meta-evaluator recommends that Phase II projects be engaged in a three-pronged strategic framework for project planning and evaluation. At its highest level, this framework calls for projects to establish clear educational goals and objectives that are linked to the categorical areas of impact identified by the Initiative. Secondly, project teams should create logic models that articulate their hypothetical models of action for how they will meet the educational objectives they have set. This would include the articulation of indicators related to the objectives. Finally, all of the funded projects' claims of outcomes should be evaluated by an Initiative-wide evaluator utilizing a set of evaluation indicators/measures developed independent of the individual projects' indicators. Application of this framework would help create the best possible case for communicating the Initiative's successes and therefore offer the best chance of the Initiative's success in classrooms and the education market.

AHCI Background

The Corporation for Public Broadcasting's (CPB) American History and Civics Initiative (AHCI) is an effort to fund the development of new media resources that support the teaching of American history and civics. . Phase I (R&D) awarded seven grantees funds in the Fall of 2007. These projects each worked throughout 2008 to create proof-of-concept pilots, field test these pilots, and ultimately develop a proposal for bringing the project to market. Each proposal included an assessment of the pilot project's outcomes and a business plan for its full implementation. In Phase II, successful grantees will be awarded production funds.

Each Phase I project team included a diverse group of partners such as content developers, curriculum experts, game designers, and public media. Each project also retained the services of an external evaluator who monitored their progress towards meeting their proposal's objectives. Different evaluators took different approaches to the amount of formative assistance offered to their projects. At the end of Phase I, each evaluator delivered a Phase I summative evaluation report.

Phase I projects received on-going logistical assistance and oversight from the project manager, WGBH Interactive. WGBH in turn hired a meta-evaluator, Sun Associates, to monitor and assist each project's external evaluator.

The Role of the Meta-Evaluator

Early in Phase I, the meta-evaluator worked with CPB and WGBH to design a set of project evaluation criteria or categories for all the projects to address. These six "AHCI Evaluation Criteria" (attached in the Appendix of this report) were intended to focus project evaluators on an examination of each project's performance in meeting objectives related to content focus, student/user skill acquisition, and teacher/district adoptability.

In order to support and monitor the progress of individual project evaluations, the meta-evaluator regularly communicated with project evaluators during Phase I. Discussions were held (individually as well as in groups) to review preliminary findings and reports, and to address issues related to measuring progress in the evaluation criteria. These discussions formed the summative findings that are the basis for the balance of this report.

Organization of This Report

This report provides an overview of each Phase I project (Part II) as well as an aggregated discussion of how the six AHCI evaluation criteria were met by the pilot projects (Part III). Beyond this, the report discusses overall findings that have emerged from observing the efforts of the Phase I projects to address the criteria and a set of recommendations for how CPB can best position project evaluation within Phase II (Part IV).

II. Overview of Phase I Projects

In the following sections, the meta-evaluator offers brief summaries of each of the seven AHCI projects. These summaries are based on review and analysis of the project evaluation reports by the meta-evaluator at the end of each project's Phase I.

A reading of these summaries quickly indicates that not every project evaluation addressed all of the AHCI evaluation criteria (see Appendix) equally. In fact, no project addressed all of the criteria and most projects tended to focus on one criterion over all others. While all of the projects were given the full list of criteria, they tended to select a subset of criteria to address. For example, no project really addressed both history *and* civics, choosing to focus on one or the other instead. In most cases, the meta-evaluator interprets this focus as a function of emerging project design rather than as a shortcoming on the part of the project evaluators. As will be discussed in Parts III and IV of this report, a common characteristic of the research and design phase is the evolutionary process by which teams developed their products year. Regardless, no project addressed more than a few of the evaluation criteria in the final account.

The meta-evaluator found that the final review panel presentations of Phase I projects (in October and December 2008 meetings at CPB headquarters) tended to focus on what projects *hoped to create* for Phase II rather than what they *had created* in Phase I. The effect of this approach led to an emphasis on proposed project features and orientation rather than on those features actually developed and piloted. Nevertheless, as an evaluation report, the meta-evaluator's report can only discuss those project elements which were actually created and tested.

American Dynasties

American Dynasties presents a highly "personalized" narrative that aims to develop reasoning and critical thinking skills related to social, economic and labor issues in a fictional historical context. The emphasis of the evaluation was on the degree to which students were able to utilize the game to become familiar with the dynamics of late 19th and early 20th century life in an industrial setting. Students demonstrated their acquired knowledge through performance on a variety of evaluator-provided assessments of reasoning and recollection. While the game does not focus on the acquisition of knowledge related to historical fact, it does appear to engage students as an activity and develops certain skills that could be valuable in learning history.

Flashback

Flashback is a social networking site-based product that engages students in the creation and posting of projects of local interest. The activity does not focus on any particular historical content or time period but instead seeks to impact the civic engagement of student players. As the central feature of the game, students choose projects (called "missions") and serve to critique peers' projects. Students in the pilot were found to be so highly engaged in accumulating points for creating missions that the quality of their work seemed in some cases to be compromised. Nevertheless, the project presents evidence that Flashback was an extraordinarily engaging activity for the pilot student participants. What is less clear is the extent to which skills and attitudes developed in Flashback "missions" will translate to activities outside of the game environment.

Mission America

Mission America is a simulation that immerses students in life in pre-Revolutionary Boston and uses the "personal" connection that students develop through the narrative as a way of developing an appreciation for multiple viewpoints and perspective in history. The pilot project evaluation provides evidence that the game was engaging to students and was effective in helping students develop critical thinking skills, historical thinking skills, and knowledge of specific historical fact related to Colonial America.

Oceana (Virtual Congress)

At the end of Phase I, Oceana (a re-naming and re-conceptualization of the original Virtual Congress proposal) does not exist as a developed project. The project's evaluators conducted and reported the results of their research on the feasibility of designing, producing, and implementing a technology-based game for civics/government education. Several draft game scenarios have been developed and descriptions of proposed games were provided to test populations of students and teachers who were then polled for their reactions to the descriptions. The project evaluation provides few conclusions as to future directions for this project.

Participation Nation (Liberty Under the Law)

The Participation Nation team has conducted a range of formative evaluation or market research related to the development of an interactive game designed to teach American history. It has also established an evaluation framework for assessing the learning outcomes of an actual game (now slated to be developed in Phase II). Therefore, no actual learning outcomes are reported at this date. What is reported is that teachers and students are positively inclined to use – and perhaps learn from – such an activity once it is developed. Product development is contingent upon Phase II funding.

HD: Lab (Young History Detectives)

HD:Lab is an activity aimed at developing students' research and inquiry skills through the investigation of objects and artifacts that students collect. The project is essentially an extension of the very popular public television program "History Detectives," recast as a partially web-based activity for students (children). In Phase I the project developed one component of this extension – a project website for collecting and organizing student ideas for artifact research. In this component, students are encouraged to access web resources as they search for information pertaining to their object. Ultimately, students create websites featuring their research work. The learning associated with HD: Lab is skills-based and is not focused on any particular historical period. The evaluation indicates that the existing website component is just part of a much more complex set of interwoven activities to be developed. The likelihood of the educational success of this more-complete project could not be assessed due to the fact that learning would come from interaction with all of the components/activities, and these simply do not exist at this time.

Young American Heroes

Young American Heroes seeks to develop historical empathy and awareness of issues of equality, education, and literacy. Using source documents for reference, students create graphic novels to depict how they think issues will be resolved in the lives of characters viewed on video. The project spent considerable resources to produce a high-production-value film of the childhood of Frederick Douglass. This episode was meant to stand as an example of what the project would hope to produce on a wide range of topics, if funded for continuation. Evaluation findings show that the game was engaging to students and teachers and has strong promise for achieving its learning goals, although the current version of the prototype does not fully achieve the goals.

III. Phase I Findings by AHCI Criteria

AHCI is a work in progress. As such, there is as much to be learned formatively about each project and how it worked as there is summatively when considering how a project "turned out." The meta-evaluator anticipates that this will be as true for Phase II as it was for Phase I. The Initiative's ultimate success will need to be measured simultaneously on a range of criteria and not simply on whether a project is a financial success or solely if it is somehow able to "move the needle" on student learning. There is no one perfect model for changing student learning outcomes in history and/or civics via a commercially successful product. Rather, different approaches will need to be considered and future products will need to draw from the successes – and failures – of those approaches attempted. With that in mind, the meta-evaluators have analyzed all seven Phase I project evaluations against the six AHCI Evaluation Criteria so as to develop an understanding of how Phase I projects <u>as a group</u> fulfilled the initiative's criteria. Project-specific findings are not presented here as such, but can found in the Appendix.

Critical Thinking Skills

Among researchers in the field of new media and learning, there is considerable discussion of the use of virtual environments to provide increased opportunities for students to develop and practice critical thinking skills. According to Professor Jim Gee (2003) computer games are well suited for new forms of learning in which virtual interactions and the effects of decisions can be understood without actual consequence. Games are thought to be able to amplify, simplify, or contextualize problems to be solved, and can provide both the encouragement and the practice space necessary for the development of critical thinking skills.

Consideration of critical thinking skills varied significantly from one project to another in Phase I. In some cases, developers sought to present situations and scenarios within their programs requiring players to critically evaluate information for the purposes of strategic decision making, similar to those environments discussed by Gee. On follow-up classroom activities, students showed increases in their ability to think critically while analyzing primary source documents, yet additional evidence would need to be gathered to definitively tie these increases to the use of a particular game.

Other projects sought to engage students in looking critically at things in their environment for the purpose conducting research. In the latter case, based on follow up activities, there was evidence to suggest that students' research skills improved through the use of the program. Still other programs chose not to incorporate the development of critical thinking skills in the design of their games.

Historical Thinking and Understanding Skills

Among Phase I projects, those attempting – or demonstrating --impact on students' historical thinking skills and historical understanding are in the minority. More commonly, historical thinking was either equated with critical thinking or was not specifically addressed at all as a project objective. In one instance, the critical thinking skills developed were thought to be transferrable to thinking in an historical context as well.

In one project (Mission America), the designers and evaluators created a thorough mapping of several American history curriculum framework content strands related to the American Revolution onto specific aspects of the game narrative. Further, this project also identified several historical thinking skills and mapped those onto game play and anticipated user outcomes. This was indeed the only project where specific historical content was linked to use of product. Other projects took a much more general approach to content or did not specifically identify historical content as linked to actual curriculum frameworks. Where historical understanding represents an important component of the overall program experience, however, project evaluations documented gains in players' ability to understand historical context and chronology.

Part of the issue related to how projects addressed historical content (understanding) lies in the fact that even those projects that did focus on content tended to address that content as simply "representative" of the type of content that the game platform could/would address over time in a sort of serialized fashion. Several projects presented just one sample episode of what they hoped would be many future episodes. In this manner, each episode took a very deep approach to a narrow historical topic, making it difficult for projects to address broad periods and episodes in American history. Connecting these products with school curricula and standard student assessments was difficult, therefore, due to the broad and thematic knowledge requirements of American history frameworks. The implications for both teacher and district adoption are obvious, and supported by several teachers who reported that they would not be able to devote the necessary class time to the use of one of these programs.

Student Interest

As is commonly reported in the research on games and learning, students participating in Phase I pilot tests generally found the simulations, games, and networking sites to provide interesting, engaging ways to approach history education. In some cases, Phase I projects were found to hold student interest more effectively than more traditional means of instruction, and to motivate further exploration of related topics. In particular, those students testing projects in which they interacted with or "got to know" story characters showed increased interest in the context and general ideas presented in the program narrative. Although these interests were shown to carry over to similar classroom activities outside the game, the degree of transfer was not assessed in the Phase I evaluation. Similarly, through their participation in a social networking activity (Flashback), many students showed great interest in completing the program's community-based activities in order to accumulate points according to the program's peer scoring system. Interest in community issues as whole, stemming from game participation however, was not explored. In fact, it appeared that students may have been more motivated by the competitive nature of the point accumulation process than by the learning itself, as evidenced by the great number of missions which appeared to favor expedience over quality.

An important aspect of student interest that was not addressed by projects in Phase I relates to the development of interest in history *per se*, outside the game environment. Few projects were able to provide evidence that participation in their program generated interest among students in the study of American history or civics. This relates to the issue of transferability which, as will be discussed in the next chapter, has not been demonstrated in any of the Phase I pilots.

Civic Engagement

Digital media technologies are said by many (Jenkins, 2006, Thomas & Brown, 2007) to offer young people unprecedented opportunities to engage with public life. Games that offer students exposure to and "first hand experience" with the political process are thought to heighten players' awareness and involvement with social issues. Likewise, research into the use of social networking sites suggests that students engaged in debate and action on line may develop transferable skills and dispositions, should they become involved in the actual political and social world around them. Still unknown, however, is the extent to which any such game or experience can reliably foster any true sense of civic involvement among players in real life.

Civic engagement as a criterion listed in the AHCI rubric was not addressed by the majority of the projects. Although Liberty Under the Law (Participation Nation) and Oceana (Virtual Congress) are both in fact meant to be *about* civic engagement and government, in neither case does an actual game exist to test. It was thus not possible to assess the degree to which these games would impact student behavior in relation to indicators of civic engagement. In one case, the evaluators did test student attitudes as to the "importance" of various aspects of civic participation. Here it was found that most students thought that civic participation was important, yet this opinion was not associated in any way with an actual program that students could see.

One project team (HD: Lab) seemed to equate civic engagement with "leadership". The program was said to increase students' likelihood to engage in school and community activities or to take a "leadership position at school or in community". Few real indicators exist, however, to describe how leadership behaviors relate to civic engagement. Similarly, the evaluation report of a social networking program (Flashback) claims that the project inspired civic engagement, yet it is not entirely clear just how the game defines "civic engagement". Players certainly *do* demonstrate interest in aspects of their community as they pursue missions, but no evidence exists to suggest that they will become more involved in their local communities through activities such as volunteering or voting.

Teacher Attitudes Toward Usability and Adoptability

Whether or not games have the potential to be "educational" with regards to helping children learn content and to develop skills and dispositions (the point behind AHCI criteria related to history content/thinking skills, civic engagement and critical thinking skills), the fact remains that if such games are not "adopted" by teachers and schools as educational materials, then the games will not have their desired impact with students. Teachers must allow games into their classrooms just as they allow books and increasingly open the door to on-line courses and network-based information sources. The problem of course is that games represent in many cases additional expense and carry overhead related to time within the curriculum, the development of teacher comfort, and the overcoming of cultural resistance to the notion that games have a place in a traditional educational environment. As with any innovation, the pathway to adoption is one where the benefits of an innovation outweigh its costs. In the case of games, if teachers can be convinced that the educational benefits of the games outweigh the associated costs (chief among these are time and expense related to the technology necessary to use the games) then they are more likely to open their classrooms to the use of the products developed by AHCI. Therefore, "adoptability" is one criterion around which AHCI projects must be assessed.

With respect to the general adoptability of AHCI projects for classroom use, some evaluators provided positive findings. Teachers testing these programs generally reported being inclined to incorporate games and other technology-based activities into their classroom, provided that they were properly trained and allowed to customize games as needed.

There was significant variation among projects in the way in which each is designed to be used by teachers and students. Nonetheless, those games positioned for use *within* the curriculum (and within specific curriculum frameworks) were regarded favorably by teachers when the belief was that the program connected well with frameworks and assessments. In other cases, it was somewhat unclear to teachers just how the programs were intended to support student learning.

Another common characteristic of the AHCI pilots was that very little data was collected from teachers testing the intervention. Evaluations, therefore, were rather limited in their ability to report on teacher usability or district adoptability. In most cases, pilots were conducted with just two or three "classes," with a very limited number of teachers participating. While most (but not all) projects engaged teachers in the task of designing their games, few projects piloted their products with more than a handful of classroom teachers.

With relatively little teacher data to work with, projects were generally unable to make convincing arguments as to how *teachers* judged the projects in terms of the likelihood of their educational success. The meta-evaluator finds that typically, teacher voices (data) go a long way in terms of painting a convincing picture of the effectiveness of any particular educational resource. Teachers can speak to whether or not an intervention is likely to help students learn, the specific method of action by which that learning occurs (in real-life classrooms), and the nature of the barriers that might present to hinder the use of a resource. Most of this voice was absent in Phase I evaluations or was so muted as to be easily missed.

The meta-evaluator believes that this absence of teacher data was driven partly by the short duration and small scope of most of the pilot tests; but equally important was the fact that classroom teachers – or really any sort of school or district staff - were not particularly well represented on the project development teams. In some cases, teachers played only marginal roles in the ongoing development work that tended to focus on more technical activities such as game design, programming, and the production of audio-visual resources. In other cases, teachers were only early-stage advisors or late-state (pilot) participants, with the bulk of the development work occurring without their input. If teachers had been more integral to the development work, then their voices would be more reflected in the final project and the discussion of project outcomes. This would be advantageous to the projects.

District Attitudes Toward Usability and Adoptability

The issues related to whether or not a project is adopted by districts are the same as those identified for teacher adoption. This likely explains why in general Phase I projects were not evaluated on their adoptability within school districts. Nevertheless, while in some cases it may be reasonable to assume that teacher adoptability may suffice as a measure of district adoptability, but further evaluation is necessary to determine whether this is the case for curricular applications as well as those programs intended for use as enrichment outside the classroom.

Adoptability is based on expectations of use. Teachers (and districts) need to have expectations as to what a project (game) is about and how it fits into their established curriculum if they are to "adopt" the

game for use. While at one level establishing and communicating a project's specific goals could be considered an aspect of the product's marketing strategy in that it requires game producers to provide an adequate and compelling picture of "what the game is about" to potential users, it is in fact much more. Understanding both the content of what is to be communicated and the way that that information must be presented requires an understanding of how teachers and schools choose resources and teach established curriculum. In general, teachers look for resources that supplement existing instruction. For a game to be a resource in this way, it must carefully describe its content/skills focus, pedagogical method, and the amount of resources (time, material, technology, etc.) it requires for implementation. Further, to do this, the producer of the resource must have a sharp focus in all of these categories so that the "usability" can be quickly and readily understood by potential adopters.

Overall, the meta-evaluator finds that most projects were rather vague – at least initially – with respect to their focus. This admittedly is a natural side effect of the exploratory process by which most Phase I teams developed their products. Selection of strong criteria at the outset of project design (as would be desirable in Phase II, see below) would, of course, help to sharpen and narrow a project's skill/content/knowledge focus. As it is, it seems that no single AHCI Phase I project addressed learning skills, historical content, *and* civic awareness/development despite the seeming interest that many teams had in addressing all of these. As a result, most projects were not able to present a very concise picture of just what they "did" curriculum-wise; and therefore assessment of adoptability was not truly possible.

IV. Recommendations

In considering the evaluation findings and project outcomes for Phase I, the meta-evaluator offers several recommendations for AHCI as it moves into Phase II. Broadly, these recommendations relate to how the Initiative can structure the expectations it places upon Phase II projects to insure the best and most reliable outcomes possible; and then to establish an evaluation structure that will help insure that Initiative outcomes are reliably and persuasively assessed and documented.

The meta-evaluator presents the following recommendations as a three-pronged approach to the planning, implementation, and effective evaluation of projects continuing into Phase II. Primary among these approaches is the selection by each project of a specific set of objectives connected to the six initiative objectives currently in place to guide projects toward addressing AHCI program priorities. Once chosen – and each project could choose its own objectives provided that they connect to some number of the overall Initiative areas of impact - projects would shape individual designs through developing a project logic model. Through the creation of these models, each team would communicate to the funder the connection between its specific design/features and its intended outcomes. For example, a project that believes that it can impact civic engagement will need to show the connection between its social networking design and expected changes in players/students' civic engagement. The essence here is that projects need to explain *strategically* how they are going to achieve their goals and then how they will know that their goals have been achieved. Finally, at the level of Initiative outcomes, the meta-evaluator recommends that the Initiative undertake and disseminate its own independent assessment of learning outcomes achieved by the individual projects. An Initiative-wide evaluation of this type, which uses clear measures, applied to all projects, and produces an objective assessment of the efficacy of each individual project is described in further detail below.

Setting Clear Project Objectives

As noted previously, most AHCI projects ultimately focused on one of three basic objectives: the development of skills such as historical research; the teaching of specific history content; or the engagement of students in civic activity. Evaluation criteria as well was widely varied and tended to evolve along with each project's focus. While certainly an understandable aspect of the creative and exploratory process that characterized Phase 1, the evolutionary nature of project designs and objectives presented significant challenges to effective evaluation. In many cases, in fact, objectives evolved in response to project design rather than serving to keep the projects focused on established criteria.

Going forward, it is recommended that Phase II projects be oriented toward the selection of explicitly stated project objectives informed by the findings surfaced in the available evaluations. For example, it would seem reasonable to recognize that no one project will likely deal with skills, history content, *and* civics. In the next phase, a project might focus on a subset of these, clearly identified. The selection and refinement of this subset would be a key project decision point at the outset of the next phase.

The meta-evaluator recommends that the six Phase I objectives (also known as "evaluation criteria") be reorganized by the Initiative to encourage projects to focus on a "content" goal – which would relate to Civic Engagement and/or Historical Understanding/Historical Thinking – a "student interest" goal, a "critical thinking skills" goal, and finally a "teacher/district adoption" goal. The logic here is that projects need to define their content goals and then articulate how the project addresses the crosscutting

goals related to interest, critical thinking, and the educational elements of adoption. In this latter objective, adoption is concerned with how teachers and school districts weigh the educational benefit of a project against its various "costs" such as time and resources required.

For example, here is a somewhat simplified and sorted matrix of Initiative objectives which will allow each project to identify its own goals for what it wants to achieve in each category:

Content	Student Interest	Critical Thinking Skills	Teacher/District Adoption
Civic Engagement *How will the game inspire civic engagement among its student users?*	*How will the game engage student users?*	*How will the game help students develop critical thinking and problem-solving skills?*	*How will the project convince teachers and districts that the educational benefits accruing from using the game outweigh the costs involved in using the game?*
Historical Understanding and Thinking Skills *How will the game help students develop skills in historical understanding (content) and thinking?*			

The meta-evaluator believes that projects should be required to identify their goals and to then articulate *how* they achieve these goals. This explanation of "how" should be supported by contentions of why the project believes that it's plan for achieving the goal is realistic, achievable, and how achievement will be demonstrated. Explaining this will be the function of the project logic model.

Project Logic Models

Insofar as possible given the current state of knowledge about the educational potential of new media, it's recommended that Phase II projects work to clarify what they hope to achieve, aligning product mechanisms with intended outcomes. Conventionally, in project management and design, this occurs through the creation of a model for action or project logic model. A logic model is a clear graphical representation of a project's hypothesis for *how* its goals are linked to the actions it takes to achieve these goals to the intended outcomes from its actions. A project's hypothesis is usually based on an innovative design, prior research, and/or "best practice." Regardless of which, a plan needs to be based in something that somehow predicts particular results for particular actions and inputs.

As noted above, AHCI projects generally haven't developed or articulated in any detail the mechanisms by which they intend to achieve the educational objectives with respect to content. It was not really possible, therefore, to assess the efficacy of a project's *intended* action, and projects were instead left to simply state what did or did not happen educationally. Such an outcomes-only (versus process as well as outcomes) evaluation significantly compromises the potential contributions to the field of research that an initiative such as AHCI stands to offer by cutting short the *explanation* of how outcomes

occurred. The logic model explicates the research hypothesis and thereby makes clear the connection between what did happen (outcomes) and why it happened (the hypothesis).

The meta-evaluators recommend that projects funded under AHCI be required to create logic models/maps. An additional benefit of such a model is that through the description of the hypothetical mechanism of action, each plan would lay the groundwork for understanding the actual measures intended for gauging the efficacy of the model. This would make evaluation clearer and more integral to Phase II projects.

A Role for Initiative-Wide Evaluation

Attention in Phase II should also be paid to the process of project evaluation. In Phase I, project teams were found to struggle with their understanding and acceptance of the role the evaluator, not sharing essential information nor considering evaluator feedback in the creation of design decisions or implementation strategies. Without this type of critical evaluator involvement, the objectivity and effectiveness of some evaluations in Phase I were compromised. As Phase II projects progress toward clearly documented goals/objectives, performance criteria and learning objectives must play an integral role in shaping product development. To this end a single Initiative-wide evaluator, able to apply objective evaluation measures to the assessment of project findings, could prove beneficial to the projects individually, and to the initiative as a whole as the next phase unfolds.

One specific place where an initiative-wide external evaluator could add value to the efforts of Phase II projects is in the creation of reliable, objective measures for content knowledge, acquired skills, and transferability. As has been discussed, these are all areas where AHCI projects seemingly must "make a difference", yet few measures have been created to demonstrate project impact in these areas. The creation of such measures really goes beyond the work of a formative evaluator who needs to be concerned as much with monitoring the process of *creating* the project as with summatively measuring project success against objective measures. Therefore, it is highly recommended that the work of developing Initiative-wide measures and applying them be assigned to an Initiative-wide evaluator working outside of the funded projects.

Dissemination

A final task for the Initiative-wide evaluator would be dissemination of Phase II and Initiative findings. This work should focus on sharing findings and observations based on the on-going development of the Phase II projects. This is a standard model within the educational field as related to the development of such projects as is evidenced by the on-going academic research on River City and Quest Atlantis, as well as that related to a number of commercially-based games/products such as reading and math interventions (see the Appendix for a brief summary of some of this current research). Phase II is conceptualized as being a multi-year endeavor and during that time it will become practically mandatory for CPB and the project developers to share the results of their on-going development work. If not simply for reasons of accountability and publicity (for CPB), then such sharing will be important so as to garner a lively discussion in the field about new and developing ideas for creating and implementing new-media educational solutions. AHCI has thus far been the beneficiary of such research data and discussion; the knowledge in the field about River City, Quest Atlantis, etc. has helped inform the developers of AHCI projects. There is therefore every reason for the field to expect AHCI Phase II to make equally relevant contributions back to the collective knowledge/research base.

In order for such contributions to be most effective and persuasively communicated, the standard practice should be followed of engaging the work of an outside researcher/evaluation team to evaluate the Initiative. This evaluator would be hired by the funding authority to work with, yet be independent of, the project developers. Such an arrangement would be similar to that established for Phase I meta-evaluation, although the focus of the work would be actual evaluation of Phase II work and not meta-evaluation of various internal evaluators' work.   In short, concerning Phase II, the meta-evaluators recommend that AHCI Phase II establish an Initiative-wide evaluation and dissemination function that reports to the Initiative and not to the project(s) directly.

Appendix

Evaluation Criteria Rubric for AHCI Phase I Projects

This rubric is intended to help developers and their evaluators devise meaningful measures of the effectiveness of American History and Civics Initiative projects in improving student achievement and aligning with existing educational priorities. Consider this more of a guide than a prescription; any team that would like to evaluate more than the criteria indicated below or add indicators or data sources is welcome to do so, but this document represents agreed-upon evaluation target areas. Further, developers and evaluators should make every effort to assess their prototypes' effectiveness in schools and students that represent the diversity of the American school population.

Criteria	Indicator for Project Evaluation	Possible Data Sources or Data Collection Strategies
Student Interest	The evaluation will assess the degree to which students find the intervention engaging, stimulating, and interesting, including: • Student directed time on task. • Comparative response to intervention against conventional pedagogy • Comparative response to intervention against similar commercial products • The degree to which students feel that the intervention has enabled them to learn historical content and develop historical thinking skills.	• Student focus groups, interviews • Review of student work • Surveys • Classroom observations • Teacher focus groups, interviews
Civic Engagement	The evaluation develops clear criteria for assessing the degree to which the intervention supports students in the development of particular skills and dispositions relevant civic engagement. Examples of such skills would be: • Understanding of how public debate by whatever means contribute to the health of a community • Understanding of how one might engage in such public debates through political structures, blogs, discussions, and private actions that serve a cause • Undertaking actions that apply these skills to their role as participants in American civic life through behaviors such as speaking out, volunteering, voting and organizing Further, the evaluation will establish criteria for determining the degree to which test bed students have achieved a deeper appreciation of the public roles and responsibilities of individuals in democratic societies.	• Student interviews • Teacher focus groups, interviews • Review of student work • Classroom observations

(continued)

Criteria	Indicator for Project Evaluation	Possible Data Sources or Data Collection Strategies
Critical Thinking Skills	The evaluation develops clear criteria assessing the degree to which the intervention addresses the development of critical and higher order thinking skills among test bed students. Examples of such skills would be: • An understanding of bias and points of view • The ability to formulate relevant questions through inquiry and to determine the importance of those questions • The capacity to view the past through the values of that time	• Review of teacher lesson/work plans that incorporate the intervention • Review of resulting student work • Teacher/student interviews and focus groups • Classroom observations
Historical Understanding and Historical Thinking Skills	The evaluation develops criteria for interventions to assess positive growth in test bed students' historical understanding and historical thinking skills relevant to the particular curricular objectives of the intervention. Examples of such skills would be: • The ability to accurately identify primary and secondary sources • The ability to interpret documents and other historical materials • The ability to discern historical cause and effect • The ability to grasp the nature of conflicts from the distant past and to describe how the resolution of those conflicts contributes to our contemporary world • An appreciation of historical debate, historiography, and historical controversy • An understanding of the interrelationship among themes, regions, and periodization	• Pre- and post-assessments of student knowledge • Review of teacher lesson/work plans that incorporate the intervention • Review of resulting student work • Teacher/student interviews and focus groups • Classroom observations

(continued)

Criteria	Indicator for Project Evaluation	Possible Data Sources or Data Collection Strategies
Teacher Attitudes toward Usability and Adoptability	The evaluation measures the degree to which test bed teachers possess the skills and interest necessary to utilize the intervention and the degree to which the intervention addresses the identified/targeted learning needs of test bed students, including • The extent that teachers need new or additional skills • The extent and effectiveness of professional development/training efforts targeted at developing these skills. • Teacher attitudes toward the use of the intervention as a tool for teaching and learning. • The suitability of the intervention with course syllabi and the relevant curriculum standards. • The costs in time, training and resources of using the intervention relative to its perceived benefits in improved student learning and engagement.	• Teacher surveys • Teacher focus groups • Observations of teacher professional development • Interviews with trainers and developers • Classroom observations
District Attitudes toward Usability and Adoptability	The evaluation measures the suitability of the intervention to district and school initiatives and it alignment with curriculum frameworks, including: • District or school support of professional development/training efforts • Existing physical and technological infrastructure. • District and school attitudes toward digital learning products, including games. • The alignment of the intervention with relevant curriculum standards. • The costs in time, training and resources of using the intervention relative to its perceived benefits in improved student learning and engagement.	• Administrator focus groups and interviews • Observations of teacher professional development • Interviews with trainers and developers • Review of projects against curriculum frameworks and classroom learning objectives • Classroom observations

Meta-Evaluator's Summary of Evaluation Findings from Each Phase I Project

AHCI Criteria	Indicator for Project Evaluation	Brief Findings from Projects	
Student Interest	The evaluation will assess the degree to which students find the intervention engaging, stimulating, and interesting, including: • Student directed time on task. • Comparative response to intervention against conventional pedagogy • Comparative response to intervention against similar commercial products The degree to which students feel that the intervention has enabled them to learn historical content and develop historical thinking skills.	**American Dynasties**	The evaluation reports that students found the game engaging, and particularly enjoyed the loom game and carrying out shopping tasks to provide a family meal. Students easily followed the nature of the economic quest, and the conversational flow between different scenes as they moved from talking with one character to another. Students demonstrated engagement with the program and with peers in their working groups, encouraging careful consideration of finances and prudent decision-making.
		Flashback	The evaluation finds that Flashback had a strong connection to increasing student interest in the project/game itself as measured by several targeted tools and methods. One way this interest was evidenced was in an unanticipated number of students who were interested in participating in quests during the pilot phase.
		HD Labs	The evaluation finds increases in students' general post-participation interest (as measured by a survey) in history. Students were also found to report a greater likelihood to chose to read "potentially history-related" materials as defined by the evaluators
		Liberty Under the Law	The evaluators tested a sample/prototype game with three classes in two large school districts. Students in the pilot expressed "positive attitudes" toward the prototype content and technology.
		Mission America	The evaluators report that students demonstrated that the narrative world of Mission America was deeply compelling to them in a host of ways – for example, in their talk during the game, in interviews, in class discussions, and in their imaginative writing.
		Virtual Congress - Oceana	The Virtual Congress/Oceania evaluation does not reference an actually produced project. In discussions with students shown various versions of a prototype activity, students expressed interest in playing a congressional/government simulation game similar to what Virtual Congress/Oceana might be.
		Young American Heroes	Evaluator data suggests that interest and engagement are high among test populations. Compared to control students, YAH students showed substantially greater interest after the pilot in creating stories about the past and in analyzing primary documents.

Civic Engagement	The evaluation develops clear criteria for assessing the degree to which the intervention supports students in the development of particular skills and dispositions relevant civic engagement. Examples of such skills would be: • Understanding of how public debate by whatever means contribute to the health of a community • Understanding of how one might engage in such public debates through political structures, blogs, discussions, and private actions that serve a cause • Undertaking actions that apply these skills to their role as participants in American civic life through behaviors such as speaking out, volunteering, voting and organizing Further, the evaluation will establish criteria for determining the degree to which test bed students have achieved a deeper appreciation of the public roles and responsibilities of individuals in democratic societies.	American Dynasties	The project evaluation does not address this indicator or component of project impact.
		Flashback	The evaluation presents a strong argument that the project inspires civic engagement, but it is not entirely clear just how the game defines "Civic Engagement". If the intention is for students to be "more interested" in their communities, then indeed there is evidence of this among Flashback players. If instead the object is to inspire action – such as voting, volunteering, and organizing - as a result of this interest, it's not at all clear that the project had that sort of impact. There are questions in the evaluators' data collection instruments to probe for specific actions related to Civic Engagement; but the evaluators do not seem to find specific measureable impact.
		HD Labs	Evaluators found increases in students' post-participation likelihood (as measured by a survey) to engage in school and community activities, to take a "leadership position at school or in community". The project evaluators equate "leadership" with civic engagement. No specific investigation of indicators related to civic engagement is made.
		Liberty Under the Law	The project evaluation does not address this indicator or the game's impact on civic engagement.
		Mission America	The project evaluation – and indeed the project/game itself – does not address civic engagement (focusing instead on mastery of a variety of aspects of a specific period in history).
		Virtual Congress - Oceana	The Virtual Congress/Oceana game is actually *about* civic engagement and government, yet since no actual game was produced or tested it is not possible for the evaluators to assess the degree to which the game impacted student behavior in relation to indicators of civic engagement. The evaluators did test student attitudes as to the "importance" of various aspects of civic participation. Here it was found that most students thought that civic participation was important, but this has nothing in particular to do with use of the game (which students did not actually use, since it does not exist).
		Young American Heroes	The evaluators determined that in issues of civics, YAH demonstrates greater impacts on student awareness of ideas of equality, education, and literacy than does traditional instruction. Through the activities associated with YAH, students engage with the life of Frederick Douglass in ways that help them examine the importance of equal rights for all people, and the value of education in the struggle to overcome oppression. Active participation in community life is not explored in the evaluation.

Critical Thinking Skills	The evaluation develops clear criteria assessing the degree to which the intervention addresses the development of critical and higher order thinking skills among test bed students. Examples of such skills would be: • An understanding of bias and points of view • The ability to formulate relevant questions through inquiry and to determine the importance of those questions • The capacity to view the past through the values of that time	**American Dynasties**	The evaluators have no criteria for critical thinking, but they do build a case that the game builds student skills in reasoning. On assessment tasks students demonstrate the ability to transfer skills developed in the game to the analysis of historical documents.
		Flashback	The report examines game impact on critical thinking as part of its examination of historical understanding and historical thinking – i.e., the evaluators do not specifically address critical thinking skills as a separate dimension. The evaluators note that they initially believed that critical thinking would be an area of significant change following use of the Flashback game. However, as the game evolved, students adopted the practice of working quickly through their missions to gain the greatest number of points, rather than engaging in in-depth thinking.
		HD Labs	According to the evaluation, the quality of students' research questions improved through their work on line with HD Labs, becoming "more useful and relevant" to their investigations of historical artifacts.
		Liberty Under the Law	The project evaluation does not address critical thinking skills, as the pilot test did not test a prototype game with actual content. Instead, the evaluation presented pilot participants with a prototype that they could react to but not actually use for the development of skills or knowledge.
		Mission America	The evaluators found that Mission America supported the development of critical thinking skills. After playing the Boston Massacre scenario in Mission America and discussing the print in class, students were far more likely to examine Paul Revere's print critically and demonstrate understanding of bias and point of view as related to the historical record.
		Virtual Congress - Oceana	The evaluators did not test an actual game, instead presenting pilot participants with various described games to which they offer their reactions. Since no actual game was tested, there was no assessment of acquired/developed skills.
		Young American Heroes	Although the evaluators tested for the development of critical thinking skills through game play, the evaluators did not find that YAH generated evidence of increases in critical thinking skills.

Historical Understanding and Historical Thinking Skills	The evaluation develops criteria for interventions to assess positive growth in test bed students' historical understanding and historical thinking skills relevant to the particular curricular objectives of the intervention. Examples of such skills would be: • The ability to accurately identify primary and secondary sources • The ability to interpret documents and other historical materials • The ability to discern historical cause and effect • The ability to grasp the nature of conflicts from the distant past and to describe how the resolution of those conflicts contributes to our contemporary world • An appreciation of historical debate, historiography, and historical controversy • An understanding of the interrelationship among themes, regions, and periodization	**American Dynasties**	The evaluators present information suggesting that the game impacted student understanding of the past. However, the game presents a fictionalized historical setting, making it difficult to judge the value of the actual historical understanding developed. The game did demonstrate that players improved their skills in deductive reasoning as well as cause and effect. These skills could be transferred to historical thinking. The evaluators provide some evidence that this occurs among some players with the right prompts and curricular supports (that are in fact external to the game itself).
		Flashback	The report examines game impact on Historical Understanding and Critical/Historical Thinking together using pre and post-intervention surveys that borrow questions from the Partnership for 21st Century Skills and the NAEP. Analysis of the pre/post survey data showed that the use of *Flashback* accounted for little measurable difference in student learning as related to these 21st century skills or American History.
		HD Labs	While these criteria are not directly addressed by the HD Labs evaluation, it is clear that research skills are the desired objective of HD Labs use. As for evidence that these skills were indeed developed, the evaluators note that student performance, as measured by the quality of the questions asked of peers and teachers during their online work, became "more useful and relevant" as their time working with HD Lab increased. Likewise, small (by the HD Lab evaluators' definition) gains were seen in students' likelihood to "ask someone" and to use "archives" as resources for historical resource.
		Liberty Under the Law	The evaluators are careful to note that success in meeting this AHCI objective would be a measureable increase in the "transfer" of knowledge or skills developed in the game to situations requiring those skills. Since this project did not evaluate a game with actual (versus "representative") content, no measures of transfer were made. Therefore, the evaluation offers no assessment of the impact the game has on historical understanding or historical thinking skills.
		Mission America	The evaluators find that students in all piloting schools performed better on a test of knowledge related to colonial history after the Mission America unit, compared to before. While performance gains were not overwhelming, they

			were consistent. Students also improved substantially on questions pertaining to the chronology of the American Revolution. While this was not an explicit focus of the game or the teaching, game players apparently inferred it from game events.
		Virtual Congress - Oceana	The Oceana game was demonstrated to a class of students who were pre and post tested on various "facts" related to which levels of government handle certain issues. In post-demonstration tests, there was mixed data as to whether students answered more fact-based questions correctly than in pre-demonstration tests.
		Young American Heroes	Gains in student historical knowledge were measured utilizing straightforward pre and post-tests linked to concrete learning goals. Gains in historical thinking skills were noted via analysis of qualitative data arising from student observations and interviews. The evaluators found that variation exists by income level of the YAH intervention schools, with the greatest positive impact in interest and history content learning shown in the lowest income schools. Students in mixed-income schools showed moderate gains, while those attending well-funded schools showed only modest improvements in these areas while using YAH.

Teacher Attitudes toward Usability and Adoptability	The evaluation measures the degree to which test bed teachers possess the skills and interest necessary to utilize the intervention and the degree to which the intervention addresses the identified/targeted learning needs of test bed students, including • The extent that teachers need new or additional skills • The extent and effectiveness of professional development/training efforts targeted at developing these skills. • Teacher attitudes toward the use of the intervention as a tool for teaching and learning. • The suitability of the intervention with course syllabi and the relevant curriculum standards. • The costs in time, training and resources of using the intervention relative to its perceived benefits in improved student learning and engagement.	American Dynasties	The evaluators do not discuss these criteria other than through the implication that teachers (in the pilot) were expected to integrate the game into a rich and detailed unit on labor history and/or immigration. This occurred in two of the three test sites. Where such integration did not occur, the pilot was not considered successful. Therefore, this implies that teacher behavior has a significant impact on the successful use of the game.
		Flashback	The evaluators build a strong case that the game is something that could be readily adopted in many classrooms. Information is provided in the report as to the profile of teachers/classes most likely to adopt the game as a component of their curriculum.
		HD Labs	No data is presented on these criteria and the evaluators do not directly discuss teacher behavior in relation to using or adopting HD Labs.
		Liberty Under the Law	The evaluators focused their work on these criteria (and the equivalent ones for district use/adoption). The evaluators find that teachers are "very willing, and in some cases, enthusiastic, to implement and utilize the program." Teachers reported that the program had "good alignment" with district curriculum frameworks and texts.
		Mission America	The evaluators found that Mission America is an activity that teachers are willing to "customize" to suit their own and their students needs. The fact that the game is perceived of as a way of improving vocabulary acquisition (in addition to history knowledge) is given as another reason why the game is likely to be readily adopted by teachers.
		Virtual Congress – Oceana	The evaluators found that teachers are generally interested in using technology-based tools to teach civics and government. Nevertheless, many are not familiar with just how to do this. When asked to comment on their brief encounter with the description of Oceana, teachers were generally positive about the likelihood that this game would engage students and that if they as teachers had the opportunity to use the product, they would.
		Young American Heroes	YAH solicited feedback from teachers on various dimensions of YAH, including materials, activities, and pedagogy. Overall, the product was well received, though pilot teachers were somewhat unsure of the program's exact goals. Ambiguity in the design of some of the objectives and activities led teachers to require assistance from the project, and inspired discussion about ways to improve student use of documents in the Graphic Novel and Court of History components of the program.

District Attitudes toward Usability and Adoptability	The evaluation measures the suitability of the intervention to district and school initiatives and it alignment with curriculum frameworks, including: • District or school support of professional development/training efforts • Existing physical and technological infrastructure. • District and school attitudes toward digital learning products, including games. • The alignment of the intervention with relevant curriculum standards. • The costs in time, training and resources of using the intervention relative to its perceived benefits in improved student learning and engagement.	American Dynasties	The evaluators did not specifically investigate district use and adoptability. Data collected from the pilot sites demonstrated that if the game was not situated in a classroom environment that could use its approach to using a historical simulation to enrich existing curriculum, it was difficult to find an opportunity to use the game.
		Flashback	The evaluators' findings are extensions of the Teacher Adoptability findings. Full districts were not involved in the testing.
		HD Labs	No data is presented on these criteria.
		Liberty Under the Law	The evaluators focused their work on these criteria (and the equivalent ones for teacher use/adoption). The evaluators found that teachers are "very willing, and in some cases, enthusiastic, to implement and utilize the program." Teachers reported that the program had "good alignment" with district curriculum frameworks and texts.
		Mission America	The evaluators did not specifically investigate district attitudes, although it is inferred that since teachers would use the game it could be adopted by districts.
		Virtual Congress - Oceana	The evaluators surveyed teachers about the likelihood that various groups in their districts would approve of the use of a game such as Oceana. In general, it was found that teachers offered positive assessments on the likelihood of district adoptability.
		Young American Heroes	The evaluators did not explore issues of teacher/district perceptions of the costs and benefits of YAH use (these are identified as indicators in the teacher/district usability and adoptability sections of the AHCI evaluation rubric). Some aspects of this can be inferred from the evaluation findings – namely that YAH does demand teacher time and access to technology, two resources in short supply in many schools.

Research Summary on New Media and Multi-Media Learning Games

The following is a brief summary of the background and current research related to new media and games for learning.

Background Research on the Prevalence of Gaming and the Potential of Gaming as an Environment for Learning

There is consensus that the prevalence of gaming among the tween/teen population is high and is growing. Publications by Pew and the MacArthur foundation provide the context/background for research into the application of games to learning:

- http://www.pewtrusts.org/our_work_detail.aspx?id=68
- http://digitallearning.macfound.org

While the MacArthur Foundation's work on the Internet and American life helps establish the basic perimeters of the impact of Internet and technology-based activities have on children's lives, some MacArthur-funded work has dug deeper into the connection between game-playing (and other technology-mediated) activity and specific dispositions. In particular, civic activity:

- http://www.civicsurvey.org/

The Pew and MacArthur work is largely survey-based research and in some ways is responsive to broader work on games, gaming, and learning. Recent and influential work has come from the University of Wisconsin's James Paul Gee. In his work, Gee discusses "good" video games and their relationship to learning, literacy and identity:

- http://gameslearningsociety.org/people_geej.php
- http://www.edutopia.org/james-gee-games-learning-video

Gee's work, along with that of his colleague Constance Steinkuehler (see below), helps chart a direction for what researchers could anticipate as potential connections between multimedia games ("video games") and learning.

Current Research into Specifically How Gaming Environments Support Learning

Flowing from the background research on the prevalence of gaming and its broadly categorical (and some may say optimistic) applications to learning, other researchers are looking at how games that have been specifically designed as learning activities have impact on users. These games (MUVEs, MMO etc) have been designed as specifically *social environments* in which students are immersed in real-world type settings. These environments are intended to engage students in simulations of socially complex problems wherein a successful outcome is the result of acquiring and using certain knowledge and skills within the game context. Again, a major feature of these produced environments is that much of the creation of knowledge in these settings and use of skills developed there is highly social in nature. River City MUVE and Quest Atlantis are both initiatives funded largely by the National Science Foundation as test beds for this type of research.

The River City MUVE is created specifically to teach science content and the scientific method within a structured school setting:

- http://muve.gse.harvard.edu/rivercityproject/
- http://muve.gse.harvard.edu/rivercityproject/research-publications.htm

Quest Atlantis engages students in educational tasks and social interactions, supported within the classroom or other educational setting:

- http://atlantis.crlt.indiana.edu/
- http://atlantis.crlt.indiana.edu/site/view/Researchers#56

These games are based on theories of situated cognition and the social construction/distributed cognition. It is still unknown as to the degree to which gaming experiences can be transferred to the real world. Findings from River City research have centered around the degree to which participation in the environment increases a player's "self-efficacy" in science. The research has also discussed the conditions under which learning can best occur in these environments – and specifically the role of "expert guidance" within the learning environment. Research from Quest Atlantis has emphasized that learning outcomes are very much connected to the environment in which play occurs. That is, the fact that participation in the virtual environment is not an activity devoid of social context. Quests in this game all occur integrated within a "real world" social context.

Both River City and Quest Atlantis ostensibly focus on how students solve problems in created environment with the strongly implied intention of producing learning outcomes that have impact on "real world" behavior (and there in lies one of the areas where the research is incomplete, in that the connections to the real world have not yet been established). It is important to note that there are other researchers who have somewhat different argument for ultimate outcomes from the game-produced experience, and that is to suggest that perhaps learning that occurs in games can have benefit even if it is not applied to a truly "real world" context. For example, there is discussion of social and civic engagement within "third space" online environments, exploring the extent to which an on-line environment can function as the social setting in which civic engagement is demonstrated. Connie Steinkuehler explores MMOs as form of social engagement within an online context:

- http://jcmc.indiana.edu/vol11/issue4/steinkuehler.html
- http://website.education.wisc.edu/steinkuehler/

In a similar vein, Henry Jenkins suggests that civic skills developed in the virtual world positively disposes people to civic actions in the real world, yet there has been very little empirical evidence to support this.

- http://web.mit.edu/cms/People/henry3/publications.html

Some of these threads are tied into the Pew-funded Civic Engagement Research Group (CERG) study at Mills College (cited in the previous section).

A review of the current research on outcomes from specifically created learning games highlights several caveats to understanding this research (some of which point to further research directions for AHCI, see below). These are:

- Studies of learning outcomes related to science may not necessarily applicable to other content areas, such as social studies/history
- The environments studied are situated in "real world" classrooms and groupings of students. It is not clear that similar outcomes would result from informal learning communities that do not have classroom-based supports.
- There has been very little "empirical" research into the actual outcomes – related to content learning or civics - from participation in virtual environments.

Implications for AHCI Projects – Directions for Future Research

Picking up from where existing research leaves off, a challenge for AHCI projects is to investigate the issues of transferability of learning that occurs in the virtual world to real world contexts. Civic engagement is one such area. Do dispositions to civic action that occur in the virtual world (as discussed by CERG, Jenkins, Steinkuehler, etc.) translate into students acting in their own, non-virtual, communities? This is unknown and not entirely predictable based on the research.

The research has shown that scientific inquiry can be developed through participation in a virtual world (River City and Quest Atlantis), but does scientific inquiry translate to development of historical thinking skills? This would seem a reasonable supposition, but it is not something that has been verified through research.

Existing research has highlighted the development of learning skills (inquiry, etc.) through participation in virtual worlds. ACHI projects have a strong orientation to teaching thinking skills *along with* specific content. It is therefore unknown if AHCI projects are suited to current real-world school environments – with their limitations on time and structures set by content-orient curriculum frameworks. There is no existing research basis for predicting this, and therefore this would be a significant area for examination in any AHCI project evaluation.