

## **Portable Wordplay**

Final report to the Bill and Melinda Gates Foundation  
Education Development Center, Inc./Center for Children and Technology  
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### **I. Executive Summary**

This project supported the conceptualization, design, development and field-testing of two digital games and related curricular materials for middle grade classrooms. These materials were designed to support the growth of students' knowledge of multiple meaning, high frequency academic vocabulary. The goal of this project was to demonstrate how digital games can create opportunities for students who are struggling academically to interact as peers with their higher-achieving classmates, while all students are building and refining building core literacy skills.

The games and related classroom activities were developed and piloted through an iterative process, in collaboration with our development partner, 1<sup>st</sup> Playable. A field test of these materials focused on testing:

1. The feasibility of the implementation model,
2. Students' ability to engage with the core pedagogical goals of the games,
3. Teachers' ability to lead and build on students' game play, and
4. The impact of game play on several measures related to academic word knowledge and student attitudes about language and reading.

The field test involved five teachers and approximately 300 seventh grade students in three middle schools. Findings from the field test are very positive, including enthusiastic responses from teachers and students, robust student engagement with the core tasks of the games, success in game play for students with a very wide range of academic and literacy achievement, and a positive impact on student familiarity with the target words.

This project achieved its goals, and has produced high-quality games and related curricular materials that we are now expanding and refining through grant funding from the Next Generation Learning Challenges, Wave 2. This project benefited from a sustained period of conceptual design and development, a close and successful collaboration with our development partner, 1st Playable, and enthusiastic and dedicated support from our teacher-collaborators in schools in New York and California. We look forward to building on this project through additional development efforts and new lines of research into innovative approaches to supporting and assessing middle grade students' academic word knowledge.

### **II. Progress on Outcomes and Milestones**

See Appendix A, attached.

### **III. Implementation Successes**

#### Development process

During this project we moved through an iterative and highly collaborative development process to produce the *Portable Wordplay* games and materials. This process allowed us to create games that are appealing and entertaining for students, while their mechanics focus tightly and concretely on activities that have very specific pedagogical value. An example of our successful development process relates Milestone 1-h, the creation of the second of our two games. Having extensively tested our first game, *Cipher Force*, we realized that to help students reach the goals we were interested in, they would need a prequel experience, rather than a sequel as we had originally planned. One of our principal goals for *Cipher Force* was that it would be a word game that allowed strong and struggling readers to play together without privileging higher-performing students. But struggling readers were likely to be less

familiar with the words in *Cipher Force* than their peers with strong reading skills. A prequel game could expose them to the words and definitions they would later see in *Cipher Force*. While the prequel didn't need to push them to memorize or master those words and definitions, if they were more familiar with them going into *Cipher Force*, then less of their cognitive effort could be spent simply decoding the words, and more could be used on the clue making and guessing aspects of the game that we believed had pedagogical value. To meet this need, we worked with 1st Playable to develop *Code Invaders*, an arcade-style digging game that fits with the narrative framework of *Cipher Force*, and contains vocabulary puzzles using the words from *Code Invaders*.

### Formative testing

Throughout the development of both *Cipher Force* and *Code Invaders*, formative testing (milestone 1-i) played an integral role in the evolution of both games. Testing took place at after-school programs and libraries in New York City, and at a summer school program in upstate New York. Initial formative work helped us understand how students understood the target vocabulary and the practices they relied on when encountering unknown words in texts. We observed that many students did not conceive of words as having discrete definitions. Rather, they most often understood word meanings as flexible conglomerations of usage examples. For example, when asked to explain the meaning of a multiple meaning word, a student might group together multiple definitions and example sentences, treating them as a single definition. As we began to understand where the strengths and weaknesses of the students' understanding lay, we used formative testing sessions to develop activities that could prompt the kinds of thinking students needed to learn to do as they read academic texts. Once we had decided on the core educational activity of *Cipher Force*, formative testing allowed us to refine the game to make it as simple and comprehensible as possible while also fostering the kind of word work students needed.

Though pilot testing, we also learned that struggling readers needed a vocabulary game to prepare them for *Cipher Force*. Formative testing was then used in the development of this game. While we conducted some appeal and user testing to refine the playability, fun, and challenge of the arcade portion of *Code Invaders*, most of our effort was focused on the core literacy puzzle. The puzzles needed to be sufficiently scaffolded that they could be solved by struggling readers without prior knowledge of the vocabulary, but also needed to ensure that players had to pay attention to the different meanings of the vocabulary words. The final revision to the puzzle came after our field test in the fall, which demonstrated that while some students paid close attention to the words, others were able to use trial and error to solve the puzzle without attending to the vocabulary. This final revision to the structure of the puzzle is undergoing formative testing now, through our Next Generation Learning Challenges project.

### Field test

One of our greatest successes this year was the field test of Games 1 and 2 and surrounding materials (Milestone 2-f). During October-December of 2011 we conducted a field test of the complete set of *Portable Wordplay* materials (*Code Invaders*, *Cipher Force*, and the extension activities) in three schools on two coasts with five teachers. The teachers implemented the games and materials with multiple class periods, allowing us to observe roughly 300 students using the materials and reflect with the teachers on a variety of experiences with different groups of students. Key findings from this field test include the following:

1. *Students, including many with very low literacy levels, were able to play the games and interact with their peers about the challenges posed by the games. Creating games that stimulated discussion and debate about words and that could be played in heterogeneous groups of struggling and fluent readers was a core goal of this project. We repeatedly observed students exploring and understanding how to play the games themselves; focusing on and working through the core word meaning challenges at the heart of the games; and engaging in substantive, creative debate and discussion with one another during Cipher Force.*

2. *All participating teachers expressed satisfaction with and excitement about the Portable Wordplay materials.* All participating teachers asserted that the games addressed important academic goals that their students needed help with, and believed that the games met their need for more activities and experiences about using multiple meaning words in their classrooms. Teachers felt their students enjoyed participating in the field test and learned valuable skills during their participation.
3. *Teachers were able to implement the Portable Wordplay materials primarily on their own.* The most requested assistance came on the first day students were using *Cipher Force*, when teachers asked for our help explaining the goals of the game, organizing students into groups, and walking them through initial set up of the game. Otherwise, teachers were able to manage the introduction of the DSi machines, explain and supervise *Code Invaders*, and lead the extension activities on their own. Teachers did have mixed reactions to the management challenges posed by having large groups of students playing the games simultaneously. We believe this partly reflects teachers' very different comfort levels with managing small group activities in the classroom, and partly suggests that station-based or pull-out play may be another promising implementation model for the games, which do not necessarily require that a whole class of students play simultaneously.

#### **IV. Implementation Challenges and Risks**

##### Unmet outcomes

At the conclusion of the project we have two unmet goals, as identified by the original proposal: presenting project research as three conferences, and submitting two articles about the project to peer-reviewed journals. Our plans for meeting these goals are explained in section XII, below. We are delayed in meeting these goals because dissemination has been largely dependent on having full-fledged versions of the game to demo at conferences, and on producing field test findings that would be appropriate for dissemination in journal articles. Both of these project outcomes have now been achieved, and we are pursuing these goals.

##### Project risks

In the proposal for this project we identified three risks to project implementation that we might encounter: difficulties in retaining school collaborators, instability in our relationship with our development partner, or shifts in the appeal and market dominance of our target game platform, the Nintendo DSi.

We did encounter some initial difficulty in recruiting school collaborators, because we sought to work with schools affiliated with Foundation-funded projects. When those efforts were not successful, we moved on to our own networks of practitioners. We secured commitments from six schools on two coasts where we were able to pilot- and field-test the *Portable Wordplay* materials. Our experiences with these schools were mutually positive – so much so that several of these sites submitted Memorandums of Understanding for our successful application for a Next Generation Learning Challenges (Wave 2) proposal.

Our relationship with 1<sup>st</sup> Playable remains strong and they will again be partnering with us on the Next Generation Learning Challenges project.

During this project, teachers and students were highly receptive to the Nintendo DSi and expressed interest in our continuing development for this platform, which teachers viewed as portable, accessible, and classroom friendly. This was particularly true in schools with minimal access to computers and the Internet for day-to-day use. However, in the broader marketplace the Nintendo DSi is being steadily supplanted in popularity by mobile phones and tablets. Although the DSi continues to sell well, it is primarily used by younger game players, and tablets and smart phones are becoming increasingly

prevalent for casual game play for all age groups. We now view this continued evolution of the market as an opportunity for our project, as the games we are developing are highly flexible and can be ported to other platforms as needed. While we continued to work with the DSi throughout this project, we are moving the *Portable Wordplay* games online through our Next Generation Learning Challenges project.

## **V. Strategic Lessons Learned**

### Lessons learned about formative testing and development

The development process is inherently iterative, and thus there are constant opportunities to adjust one's approach as new lessons are learned. Throughout this project, we have made minor refinements to our collaboration with our development partners to improve our development and formative research processes.

One of the most important lessons was the need to arrange access to students for frequent formative testing. Initially, we scheduled research sessions as the need arose. When a specific question would arise about a design decision, we would arrange to meet with students in an after-school program. However, this often meant we would not be able to schedule a meeting for one or even two weeks, which would delay the production process. During Winter 2011 we arranged for regular weekly meetings with students at two different locations to ensure that we could respond without delays when research needs to be done to inform critical development issues.

Our partnership with a summer school program in an upstate school district was also very valuable. For one month in the summers of 2010 and 2011 we spent two days every week working with students attending summer school. In 2010 this gave us the chance to have a sustained focus on the instructional design of *Cipher Force* and quickly iterate prototypes. In 2011 we did the same with *Code Invaders*. Having one intense block of time where we regularly worked with a large number of students allowed us to quickly make significant advancements in our design. Once the instructional activity was well polished, we could then work closely with 1st Playable to integrate the activity into a game.

### Lessons learned about supporting implementation

Findings from the fall 2011 field test were consistent with much of the initial feedback we received during pilot testing of *Cipher Force* the previous spring. Taken together, both pilot and field testing suggests that our development efforts were largely successful – that the games are inherently interesting and motivating to students, the topic of multiple meaning words is relevant to middle grade literacy instruction, the mechanic of *Cipher Force* (using pictures) is both challenging and rewarding to students, and teachers find real value and face validity in both the games and the extension activities, especially the 'picture walk' activity. See Section VI, below, for more detail.

Pilot and field tests did help us to identify areas for improvement. Teachers needed a clearer, more detailed 'wrapper' for the entire set of materials, particularly to help them introduce and set up students' expectations for the challenge of *Cipher Force*. Students needed a clearer, more structured introduction to the games to lessen the learning curve and minimize the trial and error phase as they learned different functions of the games. We discovered that while having a full classroom of students playing at once is productive in some cases, it can be overwhelming in others, especially when teachers are not used to managing small-group activities. Being able to observe multiple classrooms implementing various portions of the materials provided us with ideas and suggestions to address some of these challenges that we will consider as we move the work forward in the Next Generation Learning Challenges project.

The *Portable Wordplay* materials are intended to be more than a "one shot deal" in classrooms. They are designed so that teachers can use them repeatedly over weeks or months, and build connections between them and other word study and literacy activities. The field test suggests that teachers did recognize the relevance of the games to their teaching, and did not view them as a disjointed add-on to their teaching. However, we also found that teachers needed more help than we had anticipated in exploring the games

themselves – although most students picked up the games quickly, most of the teachers we worked with were hesitant to learn the games themselves. This led some teachers to feel unsure about how to introduce the games, and limited their ability to work with students during game play.

Despite teachers' enthusiasm for the materials, they are not entirely "drop it" ready. Teachers need to be invited into exploring the games and planning connections to other literacy activities, and some teachers need additional support as they plan for supporting small group work among their students. In future work we hope to draw on what we have learned from this project to create materials and supports that could help teachers who are new to gaming in the classroom as they consider how to build bridges between game play and other forms of instruction and discussion.

## **VI. Evaluation**

From its inception, this project has focused on the challenge of helping middle grade students still struggling with reading comprehension to build their awareness that common academic vocabulary words often have multiple meanings. The games were designed to help students rehearse the processes of discriminating among possible meanings of high-frequency academic vocabulary words, and of interpreting the particular meaning of a word from a set of context clues. The games emphasize both independent work and discussion among peers – both important dimensions of the incremental process of building academic word knowledge.

Pilot testing provided us with anecdotal evidence that the games could stimulate substantive conversations about word meaning teachers could mine in their traditional classroom practices. We learned that students' play in *Cipher Force* often evolved over three days of play: students' clue making strategies shifted, moving away from an attempt to illustrate the word explicitly and toward using the relationships among the three images to communicate a synthetic, or cumulative, idea. We found that students used the editing tools extensively, and increasingly focused on directing other players' attention to specific elements of individual pictures. We also found that students quickly embraced the notion that *Cipher Force* had "no right answer," and were generally willing and able to debate multiple possible interpretations of a given clue pack. Most importantly, we established that students with widely divergent literacy levels could all play *Code Invaders* and *Cipher Force* fluently, and that heterogeneous groups could play *Cipher Force* together successfully.

The primary goal of the fall 2011 field test was to test the functionality of both of the games in a full-class setting, to test the feasibility of a specific implementation model that included both games and some supplemental activities, and to learn more about what supports teachers and students would need to use the games effectively. In the course of this work, we collected a range of data that do help us to reflect on the potential effectiveness and impact of the game, including classroom observations, teacher interviews and conversations with students.

As we acknowledged in our initial proposal for this work, the field test did not emphasize measuring the impact of the intervention on student outcome. Historically, vocabulary assessments have been tests of isolated knowledge about words, and the study of word knowledge has not been well integrated into broader assessments of students' overall reading comprehension skills. Consequently, we knew that neither traditional vocabulary tests nor standardized reading comprehension measures would be appropriate outcome measures for this intervention. In fact, no existing assessment on its own could measure the literacy skills we were targeting. The *Portable Wordplay* games directly target skills specifically articulated in the both the Common Core Literacy Standards and literacy assessment frameworks published by the Smarter Balanced Assessment Consortium. However, no established standardized vocabulary assessment that is currently available calls out and measures growth in these skills specifically.

Despite this challenge, we chose to use this field test as an opportunity to pilot-test draft assessments aligned to the goals of the *Portable Wordplay* games. Because the results of these assessments were

promising, we summarize them briefly below. These data should be interpreted cautiously, as the primary purpose of administering them to students was to test and refine the instruments themselves.

About the assessments

During the fall 2011 field test, teachers administered, pre-, mid- and post-tests to participating students. These three researcher-developed measures used familiar assessment formats to tap:

- Students’ familiarity with the words presented in *Code Invaders* and *Cipher Force*;
- Students’ ability to discern the correct meaning of the multiple meaning words from the games when they were used in paragraphs; and
- Students’ perceptions of their reading and literacy skills.

Teachers administered the assessments to nearly 300 individual students over the course of the intervention. Due to shifting class period assignments of students, and inconsistency in teacher administration, not all students responded to complete sequences of pre-post assessments. The findings reported below are based only on data collected from those students for whom we do have complete assessments as all three time points (pre, mid, and post) for the word familiarity assessment, or two time points (pre- and post-) for the other two assessments. These groups range from N=109 to N=182 across the three assessments. Also note that we sometimes call out scores for special education students. We use this as a proxy indicator of relatively lower reading fluency, as compared to these students’ peers. In a more extensive evaluation, we would prefer to collect more specific information about students’ reading levels. We chose to disaggregate the data in this way in order to test our hypothesis that playing the games will help students with lower levels of reading fluency to build a body of word knowledge, and knowledge about how to decipher word meaning, that is more on a level with that of their peers.

We are happy to share more detail about student and teacher responses to the games, our observations of student game play, assessment data, and lessons learned about optimal implementation models for the games as it becomes useful.

Word Familiarity assessment. The Word Familiarity assessment (WF) asks students to assign a value to each of the 25 words used in the games. Values ranged from 1 (never seen the word) to 7 (know all about the word). Higher scores indicate more familiarity with more words. This assessment was administered to students prior to playing the games, after playing *Code Invaders* (mid-point), and after playing *Cipher Force*. We observed an increase in WF total scores from pre-intervention, to the mid-point assessment, to post-intervention. With a maximum score of 175 indicating a student knew ‘all about’ all 25 words, we observed an average score of 147 at pretest, 151 after students played *Code Invaders* and a score of 155 after the full intervention - a statistically significant difference. We also found that although special education students began at pretest with scores on average 6 points lower than their regular instruction peers, the groups were essentially equal at post-test.

Mean scores for the *Word Familiarity* assessment\*

	pretest	midpoint	posttest
Mean total score (n= 109)	147.68	151.49	154.82
Minimum word score (n=197)	4.88 (authority)		5.62 (authority)
Maximum word score (n=196)	6.50 (light)		6.50 (light)
Mean total score for special education students (n=12)	142.50	151.58	156.00
Minimum word score (n= 28 (pre); n = 29 (post))	4.75 (monitor)		5.63 (authority)
Maximum word score (n=29)	6.38 (light)		6.48 (light)
Mean total score for regular education students (n= 97)	148.32	151.47	154.67
Minimum word score (n=168)	4.88 (authority)		5.63 (authority)
Maximum word score (n=167)	6.38 (spring)		6.50 (light)

\* Possible scores range from 25-175 in total, 1-7 for each word, with 1="I've never heard of this word" and 7="I know all about this word."

Definitional Paragraphs assessment. On the second measure, the Definitional Paragraphs assessment, students read three paragraphs containing three or four of the words found in *Code Invaders* and *Cipher Force* (for a total of ten words), and were asked to select the definition that best matches the way the word was used in the paragraph. This assessment was administered before and after the full sequence of game play and activities. Overall, student performance on this measure was high and relatively stable at pre- and post-test, with scores ranging from six to eight points (out of a possible ten points).

However, when students were divided into three groups with distinct performance levels on the pretest, students who received the lowest scores on the pre-test assessment (tertile 1) showed positive gains at post-test on this assessment, while higher-scoring students actually performed less well on the post-test than the pre-test. These results suggest two things: the second form of the assessment may actually be more difficult than the first form, and the games may be successful at helping the least fluent readers in a group begin to build up the word-comprehension skills that their peers have already mastered. Both of these possible interpretations will need to be tested in future research.

Mean score on the Definitional Paragraphs assessment\*

	pretest	posttest	change in score
Mean score (N=182)	7.94	6.64	-1.30
Mean score for special education students (n=25)	7.32	6.40	-.92
Mean score for regular education students (n=157)	8.04	6.68	-1.72

\* Possible scores range from 0-10. Note pretest and posttest used different test forms.

Mean scores on the Definitional Paragraphs assessment, by tertile\*

	pretest	posttest	change in score
Tertile 1 (n = 37)	4.65	5.94	1.29
Tertile 2 (n = 48)	7.54	6.58	-.96
Tertile 3 (n = 96)	9.47	7.01	-2.46

\* Possible scores range from 0-10. Tertiles were set by dividing pre-test scores along three natural breaks in the data. Tertile 1 = scores of 3 – 6 on the pre-test; Tertile 2 = scores of 7 - 8 on the pre-test; and Tertile 3 = scores of 9 - 10 on the pre-test.

Opinions on Words and Reading. For the final assessment, students were asked to respond to a series of ten statements reflecting their opinions on how they felt about, and what they knew about, words and reading, using responses ranging from "a lot like me" to "not at all like me." Scores on the measure as a whole were almost identical at pre- and post-test, but did vary on some individual items. The average response to the statement "Some kids know more than one meaning for a lot of words" moved toward "somewhat like me" and away from "Not really like me." Responses to "Some kids recognize words easily when they read" trended more towards "A lot like me" instead of "Somewhat like me."

Mean scores on the Opinions on Words and Reading assessment\*

	pretest	posttest
Mean Total score (N= 122)	20.5	20.4
Mean Total score for special education students (n = 26)	21.7	21.5
Mean Total score for regular education students (n = 96 )	20.2	20.1
Mean score, "Some kids know more than one meaning for a lot of words"	2.16	2.05
Mean score for special education students "some kids know more..." (n = 27)	2.33	2.15
Mean score for regular education students "some kids know more..." (n = 104)	2.12	2.02

Mean score, “Some kids recognize words easily when they read”	1.94	1.80
Mean score for special education students “some kids recognize...” (n = 27)	2.04	1.89
Mean score for regular education students “some kids recognize...” (n = 104)	1.91	1.78

\* Possible scores range from 1-4, with 1 = a lot like me; 2 = Somewhat like me; 3 = Not really like me; 4 = Not at all like me. Thus, the *lower* the score, the more the statement reflected how the student felt about his/herself.

Student reactions. Finally, students in one participating classroom also wrote about their initial impression of the *Portable Wordplay* project during the early days of implementation (after playing *Code Invaders*). We are sharing three quotes from students’ writing here, because they characterize the types of initial reactions many students had to *Portable Wordplay*.

- “I think this game is so cool because it’s fun and helps you learn. I got to level 4.”
- “I love this videogame! When I first heard about it I was like, this is another boring test thing, but it was awesome. I like [that] the game combines action and knowledge. Those green things were annoying though. I could never get passed [sic] level four because of them. But don’t change anything!”
- “My first reaction was that I can’t believe we’re playing video games. What I liked about the game was when we had to read the sentence [and] put the correct definition with the correct word. The thing that was frustrating about the game was that [there] were some hard parts of the game. The level that i got to was 4 because i had to start all over, but it was okay.”

## VII. Intellectual Property

No patents have been filed for this work. No third parties have rights to the project technology or materials, with the exception of the limited rights we have secured for the use of photographs included in the games. If a commercial version of the games is ever created, rights to those photographs would need to be renegotiated and new photographs would potentially have to be secured.

Our currently funded Next Generation Learning Challenges (Wave 2) grant builds on the work created through this grant and does have specific requirements regarding the rights assigned to the materials developed under that grant. Specifically, all the Flash-based versions of the games and all three sets of words and pictures (original, science and social studies) will be made freely available for public use, and all project materials will be subject to a Creative Commons Attribution license.

## VIII. Organizational Capacity

CCT was well prepared to implement this project. We did make three strategic hires at the start of the project to build our expertise in key areas. Jeffrey Nelson is a skilled writer and content developer with extensive experience in children’s media. He has led the creation of the *Portable Wordplay* games’ narratives, in-game writing, and vocabulary. Andrea Rizzo, a literacy expert, was brought in for her deep knowledge of literacy needs in the middle grades and her experience planning and implementing large-scale literacy intervention research studies. Jay Bachhuber brought educational game design expertise, knowledge of the game development processes, and prior work as a journalist that prepared him for the interviewing techniques at the core of formative research.

The biggest development challenge throughout the project was ensuring clear communication among all team members. In 2011 we began using the project management software Basecamp to centralize game builds, revision notes, and other project materials that were essential to ensuring that everyone understood where the project was in its development, and could access needed materials.

## IX. Financial Report

Please see the attached financial report.



## **X. Project Budget Narrative**

This explanation is included in the attached financial report.

## **XI. Sustainability Plans**

The work begun through *Portable Wordplay* is moving forward with funding from the Next Generation Learning Challenge, Wave 2 (funded by Educause). That work has three goals: moving the games to the web, developing science- and social studies-specific word and picture sets, and assessing impact on student word knowledge more systematically.

During this project (which runs from October, 2011-July 2012), we are continuing to partner with 1st Playable to convert the games to run in Flash and adapt the user interface for use through a web browser. We continue to believe that the DS has many educationally useful affordances, and we are satisfied with what we learned from using it in classrooms. However, we believe we can now disseminate the games most effectively as Flash-based online games, which can be played using a range of devices, rather than via any single dedicated mobile platform.

We plan to conduct a field test of the social studies and science versions of the games in May 2012. Once the games have been developed and tested, they will remain on the servers of our parent organization, Education Development Center, Inc., and made available to teachers across the US. The cost of hosting is negligible, making the project sustainable for the long term.

We also plan to pursue a research agenda about the cultivation and assessment of middle grade students' word knowledge, a process that our exploratory research to date suggests is well supported by the *Portable Wordplay* games. We are considering applying to the U.S. Department of Education/Institute of Education Sciences in June, 2012, to support a more systematic investigation of how the games support distinct stages of emergence of students' understanding of multiple-meaning academic vocabulary words.

## **XII. Reports and Publications**

Since the last reporting period (July 2011) we have presented about *Portable Wordplay* as part of an alternate format session at the Literacy Research Association Annual Conference in Jacksonville Florida in December of 2011. We also plan on submitting proposals to present our work in 2012-2013 at the American Educational Research Association and the Society for Research in Child Development.

Throughout the life of the project we have drafted literature reviews and other informal documents to guide our thinking and drive our theoretical frameworks and design premises. These, along with more formal documents created for project participants will serve as the basis for two journal articles we are currently drafting and plan to submit for publication in the first half of 2012. We plan to submit one article about our iterative design and development process to a peer-reviewed journal on games and learning, and another about the lessons learned about implementation of the games and related activities to the *Journal of Adolescent and Adult Literacy*.

The project was also featured in a local newspaper in one of our pilot testing communities, as well as in the school newspaper at one of our field test sites. A participating teacher and four of his students also presented about the project to his school board, and received a very positive reception.

## **XIII. Foundation Relationship**

Our project shifted from one program officer (Anh Nguyen) to another (Andrea Foggy-Paxton) in September 2010. We had regular monthly update meetings (usually by phone) with both Anh and Andrea, to ensure that the program officer was up to date on our progress, and able to ask any questions she had about the work. We found that these conversations to be very beneficial, because over time Andrea (and Anh before her) was able to develop a deeper understanding of not only the progress benchmarks we were meeting, but how we approach our work and the longer-term goals we are seeking to achieve through this development project. These conversations also allowed us to develop a better understanding of the

Foundation's priorities and process, and ensured that we were aware of the evolving nature of Andrea's portfolio of work. Andrea has also welcomed us into several convenings related to the implementation of the Common Core Standards, which has helped us to think creatively and ambitiously about how to position this project and other future work relative to the needs of teachers as they begin teaching to the new standards. We value our relationship with Andrea and have found her to be a creative, supportive and engaging partner in our work. Other Foundation staff have also responded promptly to any questions we have had about budgetary and contractual issues.

#### **XIV. Success Story**

At the conclusion of the Fall 2011 field test we had the opportunity to sit down with the three participating teachers in upstate New York. These teachers had implemented *Portable Wordplay* similarly, but not identically. One had half her students play at a time, using it as a station, while the other two had their whole classes play all at once. Some extension activities were completed at home instead of in class, and different teachers omitted different activities for different reasons.

Despite their varied approaches to implementation, when we asked if the intervention had value for their students, all three teachers agreed it did. Each one explained that the experience had increased their students' attention to their own understanding of the academic vocabulary being used in class.

One teacher described how during a discussion before the intervention, students had felt confident that they knew all the meanings of words that would be used in the games, though they could not clearly articulate them. After playing for a month, however, the students came to understand that the words had more meanings than they had known. This understanding, the teachers believed, then applied to other words not used in the games, deepening the students' understanding of vocabulary in general.

The teachers recounted instances after the post-intervention when, while doing unrelated literacy work, their students had asked questions about other possible definitions of vocabulary words. For example, during a vocabulary quiz one student had asked which definition the students were expected to provide. The students, these teachers believed, were monitoring their own understanding of vocabulary in a new way, and considering the potential existence of unknown meanings when encountering new words, or familiar words in unfamiliar contexts.

Hearing all three teachers relate similar stories describing the intervention's value for their students felt like a major victory for the project, and reinforced our own conclusion that refining, extending and disseminating the games is an important task that will contribute to building middle grade students' reading comprehension skills.