THE FUTURE OF CONTENT

Contests as a catalyst for content creation: Contrasting cases to advance theory and practice

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UPDATE

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Contests as a catalyst for content creation: Contrasting cases to advance theory and practice

Future of Content Project Update October 2013

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Background

New generative platforms and increasing accessibility are changing the nature of who contributes content to the Web and how they do it. Networked learning communities offer young people opportunities to pursue interests and hobbies on their own time while letting them contribute to others' learning by producing content, engaging in discussion and providing feedback. Qualitative research offers rich portraits of how contributing content actively to online communities can develop social networks, a sense of agency, technical skills, content knowledge and confidence in one's ability to create (Ito et al., 2009; Barron, Gomez, Pinkard, Martin, in press; Jenkins, 2006). More quantitative studies, however, suggest that content contributors are in the minority and that content creation is linked to parents' level of education (Hargittai & Walejko, 2008, Barron, Walter, Martin, Schatz, 2010).

Given the benefits of content creation to both the creator and the community, we must begin to understand the conditions that might catalyze content creation. In our proposal to mediaX we outlined an approach to contribute to this research and theory-building agenda by undertaking an experimental study that contrasts ways to invite content creation, exploring the idea of contests as a catalyst. Collaborating with an online citizen science community for middle school classrooms, we designed a contest inviting youth to create and submit original media projects around STEM-related content and implemented three contest-organization models that varied in the reward structure and how winners were identified: (1) Competitive model: Contest with a material prize for best contributions; (2) Lottery model: Contest with prize based on random selection; (3) Altruistic Model: Need for learning resources described, with model of resources and invitation to contribute.

Contests as catalysts

Use of competitive structures like contests as a motivational tool is controversial. Some laboratory studies suggest that when the activity is a means to a reward, intrinsic motivation can diminish (Lepper, 1982) and that individuals may produce less creative work when evaluation or rewards are present (Amabile, 1996). However, it has also been found that contextual factors can make a difference. Research in real-world settings has demonstrated that competitions are highly motivating for students in such areas as robotics (e.g., Ruíz-del-Solar & Avilés, 2004), computer science (e.g., Burguillo, 2010) and literacy and writing (e.g., Jocson, 2008). If the task is connected to personal goals, extrinsic motivators may actually increase intrinsic motivation for the task (Amabile, Hadley, & Kramer, 2002). Competitions that highlight creative output with multiple solutions (vs. contests like spelling bees where there is one right answer) have been shown to be especially generative (Torrance, 1974; Rogers et al, forthcoming).

Renewed interest has arisen in contests as a way to encourage both innovation and quality. Government agencies, including DARPA, NASA, and EPA, are holding contests as a way to organize focus and implement change around critical but unsolved international issues, encouraging the development of technologies, skills, behaviors or processes that address basic human needs in areas such as education, health, the environment or security. A 2009 report by McKinsey and Company defined various ways in which prizes can foster change, including: identifying excellence, stimulating investment, establishing goals, attracting attention, capturing public imagination, increasing diversity and improving participants' skills (see Figure 1). The report points out that though prizes are not new the nature of competitions has shifted radically over the past twenty years. Before 1991, 97% of competitions with prize money over $100,000 recognized prior achievement, while since 1991 78% of these big-money competitions are for achievements toward a specific, future goal. Similarly, the field focus has changed for these big-money prizes from arts- and humanities-oriented areas to STEM categories, many addressing specific scientific and engineering issues facing the world today.

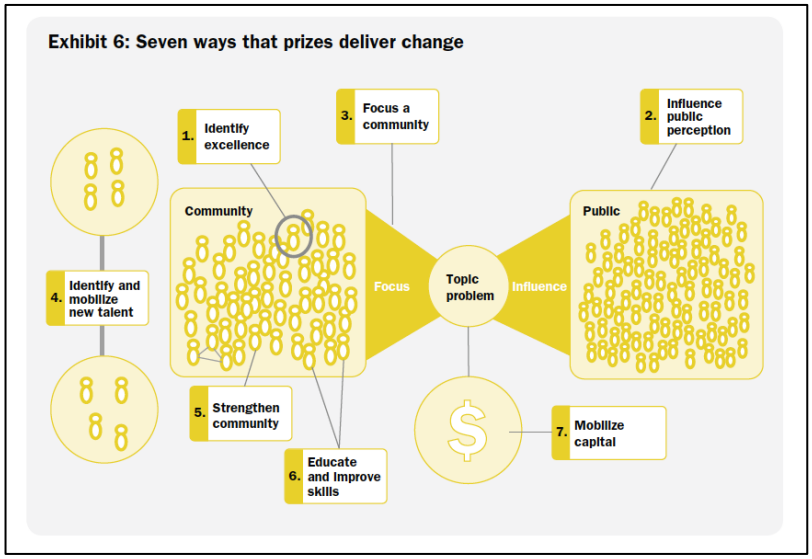

Figure 1. Figure of the ways prizes deliver change from "And the winner is…" report, McKinsey and Co.

These initiatives are not only seen in big business and government but are also increasingly reflected in contests for kids, including those focused on learning. The contests are organized around everything from art to science and engineering, initiated by corporations, government institutions, schools and non-profits. Examples include Doodle 4 Google, which asks kids to design a Google doodle around a personal theme, with winners earning $30K in scholarship money. In 2012 over 110,000 youth entered, representing all 50 states. Siemens' "We Can Change the World" challenge asks K-12 students to work in teams to identify a problem related to environmental sustainability in their community and use science and technology to design, implement and share their solutions. Students compete for over $50,000 in prizes. Others initiatives are more modest, for example a contest initiated by Creativity Labs at the University of Indiana, in partnership with Instructables.com, in which youth won prizes such as tablets and gift cards for their contributions. The motivations for organizing these youth-oriented contests are multidimensional and include giving back to society, increasing participation and also perhaps increasing brand-name recognition among the new generations.

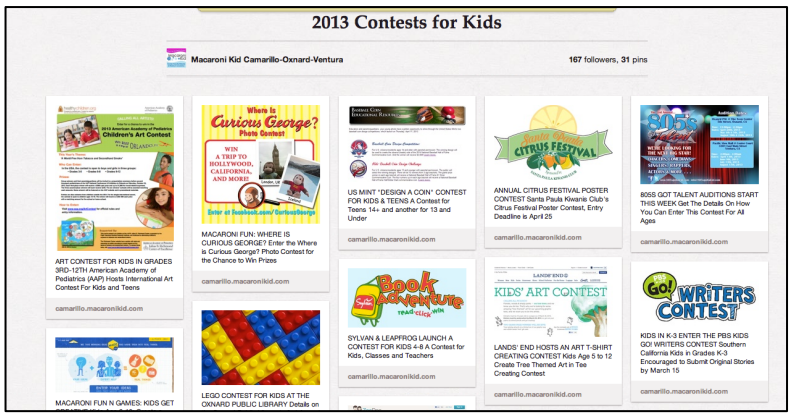

Figure 2. Example of the many contests for kids that are currently in operation

Context: A living lab

For this experiment, our prospective contributors were middle-school students participating in a learning-oriented Internet community called Vital Signs (http://www.vitalsignsme.org). The Vital Signs contribution to this project involves using their online community platform as a Research Environment for this work and collaborating with personnel for the contest design and the recruitment of teachers and students to participate in the research. The research team created the contest around which this research is based and provided contest incentives. We used the already robust Research Environment as a living lab to generate insights about how to amplify the potential of cyberlearning for all students by creating a more participatory community.

The Research Environment is a citizen-science networked system located in Maine, linked statewide to schools and accessible not only to the focal participants (teachers and students in seventh- and eighth-grade classrooms) but to anyone who wants to learn and contribute. Contributors take on missions to document invasive species and submit their observations and evidence to a public Website. Trained teachers use GPS devices and digital cameras with their students along with cyber-enabled research tools such as Google Maps. To date, more than 170 teachers and classrooms across Maine are participants within the Research Environment, including over 2,000 active student accounts.

Because Maine has a longstanding laptop program started in 2002, all middle-school students have access to their own MacBook, which they use at home and at school and can retain during vacations, making Maine a potential 'window to the future' when 1:1 computer: learner ratios can be taken for granted (see Chen et al., 2006). The statewide laptop program is unique in the United States and creates a powerful opportunity to understand how communities that vary in economic profile, sources of livelihood and technological immersion choose to engage in content creation and what barriers they face.

Although the Research Environment has enabled teachers and students to contribute species observations through a standardized online template format, students and teachers have rarely contributed original creative content that would help others learn. And students might have much to offer in doing so. Our ongoing research project, funded by the NSF, has let us create detailed case portraits of learners as they experience field work and of the process of formalizing and uploading their observations. We have found that students have varied interests and skills potentially useful to the Research Environment, if they could be inspired to share them online.

Project work

Below we describe the two phases of contest implementation in more detail, phase I: preparation activities and phase II: implementation and judging activities.

Phase I: Preparation activities

Designing the contest

In October 2012 the Research Environment team met with the Stanford team in Maine to discuss contest specifics, including scope, dates, content and learning resources. Content ideas were guided by both groups' expertise in designing learning opportunities for youth and built on the team's ongoing ethnographic and web-generated data collected during our two-year NSF funded project. These ideas were further informed and iterated using feedback from the November 2012 meeting with project PI Brigid Barron and mediaX executive director, Martha Russell, and representatives from mediaX strategic partner, Konica Minolta. The result is the Creative Kid Invasion Contest. The structure offered youth participants two content-topic options (1. to tell the story of a native or nonnative species found in Maine or 2. to create a how-to guide for a skill necessary to citizen science investigations or cyberlearning) and a selection of one of three presentation media (video, audio podcast, digital book layout).

During our October visit to Maine we held a face-to-face collaborative-design workshop with 18 eighth-grade Research Environment participants and led them through an activity to help us select learning resources to embed in the contest site. We showed the students various potential resources, including exemplar video projects made by youth around similar content and learning videos and paper-based resources around technical (how to create a video in iMovie) and planning (how to storyboard your video) activities. Students rated the resources and indicated what they liked and did not like about them.

Using this information we created a contest web page (see Appendix A) for the Research Environment that included details of the contest and links to the contest-submission page and

to the 14 learning resources (three 'how-to' project examples, three 'species-story' project examples, four media-production and four digital-storytelling and planning resources, see Appendix B). We also created a banner (see Figure 3) on the Research Environment home page to highlight the contest and lead users to the main contest page. Both the banner and the contest page were neutral in terms of condition (i.e. no mention of prizes).

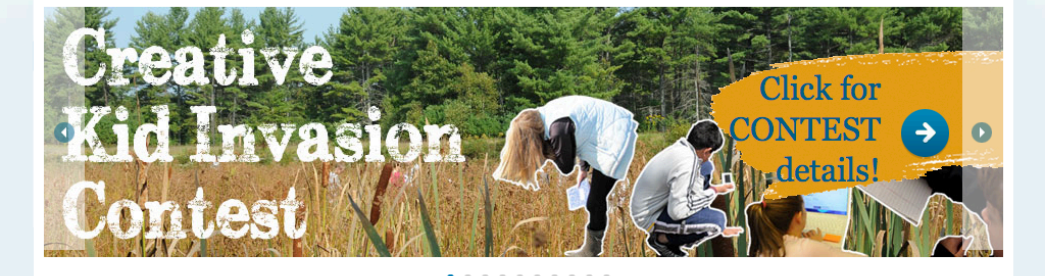

Figure 3. Creative Kid Invasion Contest banner.

Creating condition groups

Schools or organizations that had participated in the Research Environment were identified (N=93; including 90 schools and three organizations). We used stratified randomization[1] to split the 93 institutions into three 'condition' groups (Altruism N=30, Lottery N=31, and Competition N=32), each with similar proportions of institutions evidencing higher and lower socio-economic status[2] and engagement in the Research Environment[3]. Each condition had sites with approximately 48% lower SES and 32% lower RE engagement.

Developing ways to track results

We had initially intended to use Google's Analytics Design Experiment capabilities to randomly assign students to one of the three groups based on school location, but the Google system only allowed individual randomization. This would not work across classes and schools of students, who all needed to be assigned to the same condition for the collaboration and conversation we hoped would result around the contest project work.

Working closely with the Research Environment personnel, our solution was to invite participants using paper-based materials (see below) and to track traffic by contest condition on the site by creating two new custom variables in the Research Environment Drupal platform, one that holds the name of the school with which the user is affiliated and one that holds the condition that user (i.e. school) is affiliated with. We enabled these custom variables to be passed to Google Analytics, letting us observe behaviors by different user groups using the segmentation feature in Google Analytics, which tracks site traffic based on defined user groups.

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[1] Feeder schools were grouped (assuming that teachers and siblings and graduates may be in contact). Within profile groups each entry was given a random number (Excel RAND number generator) and items were sorted from least to greatest number. Each entry was assigned a condition repeated alphabetically, i.e. first = Altruism, second = Lottery, third = Competition, etc.

[2] For public schools this was indicated if the percentage of students qualified for subsidized lunch was above or below the state average (https://portal.maine.gov/sfsr/sfsrdev.ed534.ed534_parameters; while for private schools (N=7) and non-school organizations this was indicated by county % living in poverty (more or less than state average). Sites with metrics indicating lower SES, N=44 (48%); sites with metrics indicating higher SES, N=48 (52%).

[3] To indicate levels of Vital Signs engagement, we separated by those schools that had never submitted student investigations

To ensure the most accurate results, users had to sign in to view the contest page. We used Google Analytics to track (1) audience views of the contest page; (2) 'click' events on the contest page to see who is viewing which learning resources; and (3) entrance and exit URLs from the contest page to see from which locations users came to the contest page and for which locations they left it. We tested these variables and our reporting capabilities in Google Analytics using these variables extensively, first in a test site, then in the Research Environment.

We also created a custom report within the Drupal system, to track user contributions, specifically looking at the number of scientific investigations, project submissions and comments to the community for individual students, schools and contest conditions.

Inviting participants

A paper-based flyer advertising the contest was designed for teachers to (1) generate excitement about and knowledge of the contest at the school level and (2) to establish the conditions. Three versions of the flyer were executed, identical except for a description of the contest structure and selection of 'winners' (see Appendix C1-C3): (1) an Altruistic version that framed submission as important for the benefit of other students' learning, with the best options shown on the Vital Signs site; (2) a Lottery version, with entries chosen randomly to receive prizes such as an iPad, digital camera, and iTunes gift certificates; and (3) a Competition version, with the best-judged entries winning an iPad, digital camera or iTunes gift certificates. We also created a two-minute video invitation (neutral of condition) to encourage youth participation.

A DVD of the invitation video and a stack of color printed flyers (adapted for the appropriate school/organization condition) were mailed to all educators at participating institutions (N=104 educator packets sent to 104 educators at 93 schools) on February 11, 2013, with a letter explaining the contest and asking them to spread the word about the Creative Kids Contest in their school, show the video in class, post the flyers around school grounds and encourage their students to participate. On this same day the banner and the contest page went live in the Research Environment.

Phase 2: Implementation and judging activities

Tracking was done using weekly log data using Google Analytics and Drupal reporting capabilities. Participants were asked to sign up for an individual account in the Research Environment by mid March to indicate interest in project submission. If satisfactory numbers of potential participants were not received by this date, we planned a series of workshops with select participation classrooms around content creation (video production, podcast recording, etc.). As of the March 15 deadline, 139 potential students were signed up to participate and this was deemed sufficient to proceed without an intervention. Weekly log data allowed us to track signups and participation on the site throughout the project.

Communicating with teachers and students

The research team communicated with individual teachers via email to help troubleshoot school-based issues such as school firewalls that prevented students from setting up individual user accounts, and school scheduling issues, such as holidays or vacations that made reaching deadlines difficult. We emailed a reminder email to all 104 participating teachers midway through the project (April) and the week before the projects were due. We also sent a reminder

email to potential student-creators (all students who had signed up for an individual account) two weeks before the contest.

Creating a rubric and judging projects

The contest deadline was May 27, a date to accommodate classrooms engaging with the Research Environment content in the spring. The Research team worked collaboratively to develop a rubric for judging. The rubric emphasized both content standards required for the contributed media artifacts, to be used on the Research Environment website as learning materials for their audience, and on creativity, as an element rarely highlighted during school-based work in the Research Environment but that our NSF case data suggested was ripe with possibilities for these students. The final rubric consisted of four primary components: creativity, content, storytelling and production (see Appendix D), each with three sub-components. The scale for each subcomponent ranged from 0-to-2 (not present, satisfactorily present, present beyond expectations). A final score was configured with content and creativity receiving double the weight. Although it was not considered in scoring, we also documented configurations of collaboration and gender for each project.

On May 28, all projects were downloaded. The Research team then watched/listened/looked at the project submissions on a large screen and engaged in collaborative judging using the rubric tool. All submitted projects were judged blind of condition or school identification, and scores were recorded.

Surveying teachers

Utilizing suggestions from our meeting with Konica Minolta and mediaX on May 1, we designed a short survey for participating teachers. On May 31 we emailed all 104 teachers an invitation to an online survey. If they completed the survey within two weeks, their names were entered into a lottery for a $25 gift card for participation. Because the teachers were the primary mechanism through which students heard about the contest, the survey asked teachers about how or if they introduced the contest to their classes, the number of students to whom they introduced the contest, the number of contest resources they employed to introduce the contest and their perception of their students' engagement. The survey had a response rate of 50%, with 52 teacher responses.

Disseminating prizes

Prizewinners were contacted, prizes were ordered (including iPads, digital cameras, and gift cards), and were distributed to teachers and students.

Results

The results section is organized into three parts: (1) Contest participation; (2) Contest artifacts; and (3) Teacher influence.

1. Contest participation

We looked at contest participation with two metrics: signing up (students created their own individual accounts to potentially submit a contest entry) and submitting (students submitted a completed artifact for judging). In summary, contests generate results! Though content has always been invited and encouraged within the Research Environment, students rarely contributed beyond the required species investigation during classroom activity. In spring 2012 no student projects were submitted to the environment. The contest generated 174 student

signups as potential contributors, and during the contest period (spring 2013) 37 projects were submitted, representing 69 students. No significant differences in the number of signups or submissions by schools in districts of higher and lower SES were observed.

Over all. When did students signup and submit projects over the course of the project?
Student signups peaked in late February but extended through the extended, late-April deadline (note that the deadline to create individual accounts was extended through April 25 at the request of several teachers). The first student project submission was uploaded on February 28, 2013, 17 days after the launch. As with most competitions, individual projects came into the system over time but peaked during the last week before the deadline (see Figure 4).

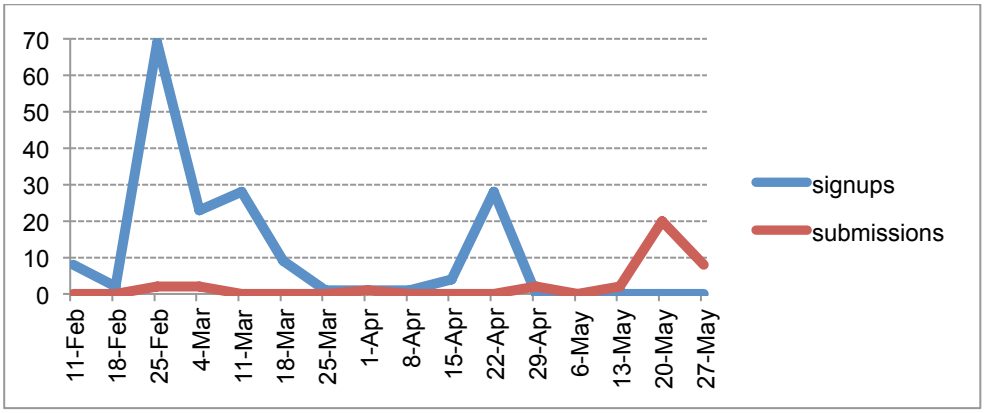


Figure 4. Number of student signups and project submissions during the contest window, by week.

Over all. Was there a connection between contest participation and other contributions within the Research Environment?
We tracked other types of activity within the Research Environment for each of the 92 schools over the academic year to detect correlations between site activity and contest participation. Activity within the Research Environment included the number of species investigations submitted and the number of comments contributed from each school. The number of investigations submitted and the number of students who signed up for the contest[4] correlated well but species investigations did not correlate with the number of contest submissions. Commenting correlated positively with both student contest signups[5] and contest submissions.[6] These results suggest that classroom connection and practice with the Research Environment contributed to contest participation, with commenting being highly correlated. Previous to this study, online commenting in the Research Environment had been encouraged but was often overlooked within the classroom. In this study, schools with teachers who saw the benefits of and made time for the extracurricular practice of collaborative commenting within the Research Environment may have been those who were more likely to make time for contest introductions, encouragement and class time for work on projects.

Comparing conditions. What did participation look like for different conditions at the school and student levels?

[4] Pearson correlation = .27, $p < .01$
[5] Pearson correlation = .56, $p < .001$
[6] Pearson correlation = .21, $p < .05$

Initial contest sign-ups showed evidence of much interest and many potential creators. Prizes were a clear motivator for signing up. Schools given the promise of prizes (Lottery and Competition) were represented more frequently than schools assigned to the Altruism group (see Table 1). Although slightly more schools in the Competition group had students who signed up for the competition, schools in the Lottery group were most likely to have students who submitted a project (Figure 5).

Table 1. Schools with signups and submissions, by condition

	Schools Invited	Schools with at least 1 signup	Schools with at least 1 contest submission
Altruism	30	1	0
Competition	32	8	2
Lottery	30	7	5
Total	**92**	**16**	**7**

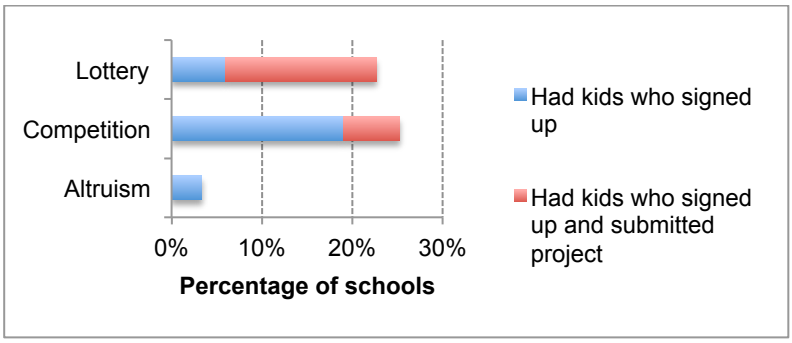


Figure 5. Percentage of schools that had students participate in the contest (sign up only, and sign up and submit a project)

When we examined individual students in each condition the pattern remains similar. The Competition condition had the highest number of individual student signups but the Lottery group yielded a much higher percentage of follow-through from signup to submission and submitted more projects (see Table 2).

Table 2. Student signups and submissions, by condition

	Students signed up[7]	Students involved in a submission	Projects submitted
Altruism	1	0 (0% of those who signed up)	0
Competition	111	13 (12%)	9
Lottery	62	56 (92%)	28
Total	**174**	**69**	**37**

The school condition numbers may more accurately indicate participation across condition groups. We discovered from our teacher survey that one of the schools in the Lottery condition had students assigned the Creative Kids Contest as a mandatory graded project (64% of

[7] Using data collected from the teacher survey, we estimate that approximately 96 classrooms and 2000 students were introduced to the contest in some way.

students involved in a lottery project submission were in this teacher's classes, representing 49% of the lottery projects submitted), reflected in the high percentage (92%) of signups who submitted work to the contest. More about the impact of teachers in the contest is included in Section 3 of results.

Comparing conditions. How did students use the Contest webpage and corresponding resources?

Research environment site activity. Students in all three groups accessed the Research Environment most frequently from school (77% across groups). Students in the Altruism group were periodically in the Research Environment site during the contest time period (February 11 – May 27, 2013), while the Competition and Lottery groups had one or two bursts of activity (see Figure 6), including one around the end of the contest cycle.

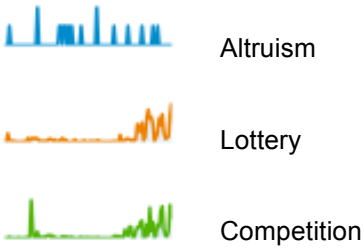


Figure 6. Google Analytics visual representation of visits to the Research Environment from each condition during project duration.

Contest page visits. Only five students from the Altruism group were logged as looking at the contest page, compared to 91 students from the Competition group and 134 students from the Lottery group. Youth had to sign in to access the contest page and this may have hindered page visits, since youth frequently lose or forget username and password combinations (especially since we had asked them to create an individual account different from their team school accounts) and may not have wanted to go through the process of submitting a forgotten password claim to the site. Despite this, the contest page was the 11th-most-popular page in the Research Environment (out of over 2,500 pages) during the contest time period.

The majority of students went directly to the Contest page as opposed to clicking on the contest banner on the Research Environment home page: two clicks on the banner were logged from the Altruism group (40% of the number of Altruism contest-page views), 35 from the Competition group (38% of the Competition group contest-page views), and 28 from the Lottery group (21% of the Lottery group-contest page views). Students may have bookmarked the page after visiting.

Students in the Competition group stayed on the page the longest (average 15-minutes) compared to the Lottery group (five minutes) or Altruism group (two minutes). Forty percent of visitors from the Altruism group left the Research Environment immediately after visiting the Contest page (see Figure 7), compared to only 16% of the Competition group and 15% of the Lottery group. The Lottery and Competition groups evidenced more variety of movement within the Research Environment before and after visiting the Contest page, including visits to their own profile page, to the submission page, and to existing contest entries (see Figure 8).

Figure 7. Google Analytics graphic of the Altruism group page flow, highlighting traffic through contest page.

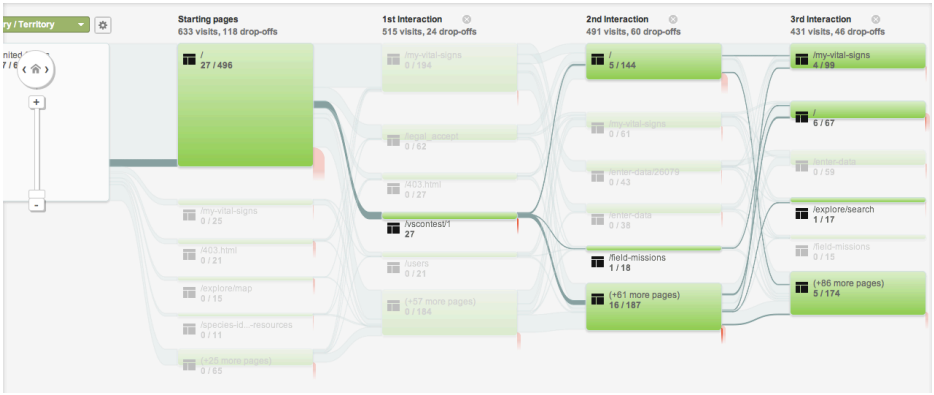


Figure 8. Google Analytics graphic of the Lottery group page flow, highlighting traffic through contest page.

Use of resources. We tracked the 'clicks' on each resource provided on the Contest page and looked at results for three clusters of resources: project examples (six), production resources (four), and planning resources (four) (see Appendix B). During the Contest (February 11– May 27) across all groups there were only 86 views of any resource, much lower than expected. The Lottery group logged the highest use of resources with 44 total views, followed by Competition with 39 and lastly the Altruism group, with only three.

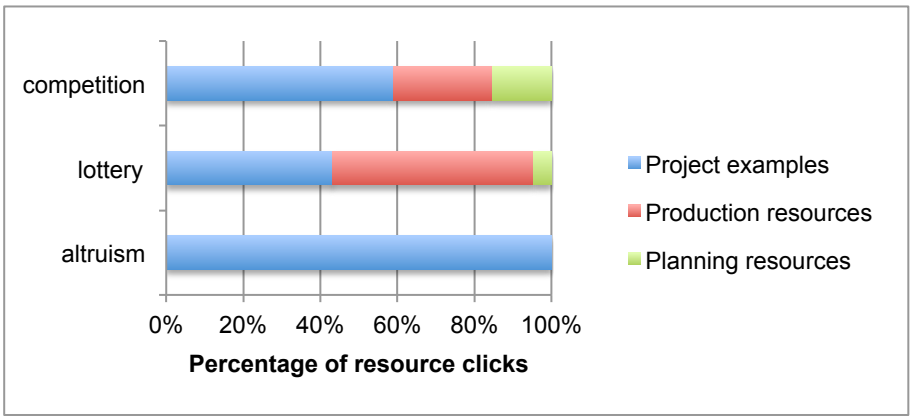


Figure 9. Percentage of resource clicks for each type of resource by condition.

Project examples were most popular, with 45 views (52% of the total), then production resources, with 33 views (37%), finally planning resources, with only eight views (9%). The Altruism group only looked at project examples. The Competition group spent more energy on planning resources than the other two groups, suggesting that more care went into planning the work for the students in the Competitive model, including storyboarding, choosing media and writing scripts (see Figure 9).

2. *Contest artifacts*

Over all. Who were individuals involved in contest entries?
Of the 37 projects, 51% were submitted by females, 32% by males and 16% by mixed-gender groups. Fifty one percent of projects were submitted by individuals and 49% by a collaborative team. The Lottery group was most likely to submit a collaborative project (61% compared to 22% of Competition group). Although we do not know a lot about these collaborative groups and how they collaborated to complete their contest submission, we know they were quite varied, including a boy who created a video newscast with his father as a co-anchor, a group of five who worked in the Research environment who performed a cheer written by the cheerleaders in the group, narrator/cameraperson dyads, and friendship groups exploring the woods together.

Over all. What was submitted?
Project submissions were varied. Forty-three percent of entries were species stories and 57% were 'how-to' guides. Students submitted a range of projects we classified into four media groups: digital video, audio podcasts, digital games and digital books, with digital video being the most-used medium (see Figure 10). Digital books included multi-page .pdfs with images and text but also included an essay submission. Digital videos included live-action movies, stop-motion animation and animated slides with voiceover. Digital games were not in our original call for contest projects but a group of students used the free introductory programming environment, Scratch (http://scratch.mit.com), to create a game around a species story.

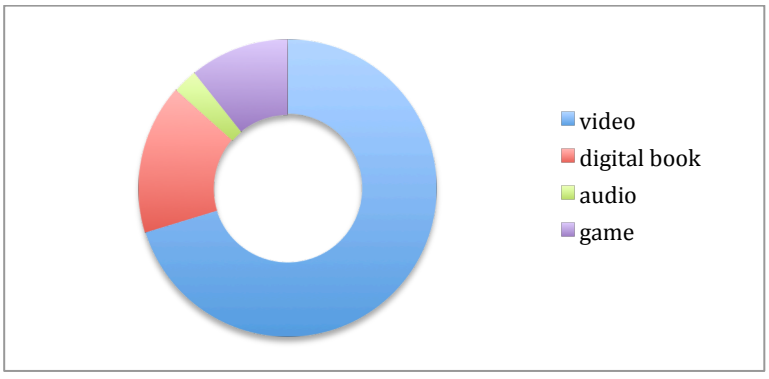


Figure 10. Pie chart of the percentage of each media type of the 37 total contest submissions.

Over all. What was the quality of the work submitted?
Project submissions were varied. The histogram below (Figure 11) represents the number of projects at each score level, as determined by the contest project rubric (Appendix D), looking at the dimensions of creativity, content, storyline and production, with a possible total score of 35.

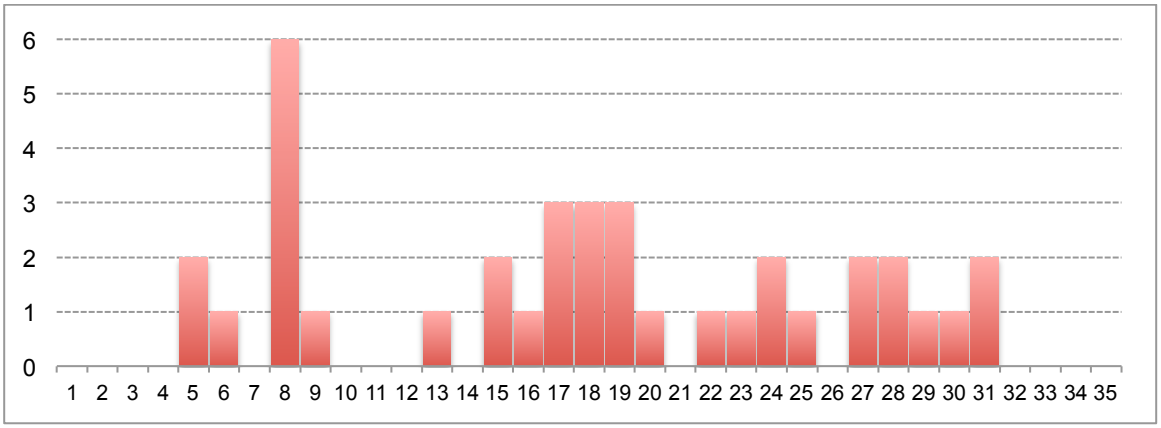


Figure 11. The number of projects by total score (results ranged from a minimum of 5 to a maximum of 31, of a possible total of 35 points).

Comparing Conditions. Did the condition groups differ in project quality?
No Altruism group entries were submitted so we can only compare the results of scoring for the Competition and Lottery groups. The Competition group had slightly higher content, storyline and total scores but these differences were not statistically significant. The Lottery group had slightly higher production scores and this difference approached significance[8] (see Table 3).

Table 3. Comparison of rubric project mean scores for condition groups

	Competition *M* (*SE*)	Lottery *M* (*SE*)
creativity	3.33 (0.65)	3.93 (0.37)
content	3.55 (0.63)	2.39 (0.35)
storyline	3.33 (0.56)	2.67 (0.32)
production	2.56 (0.28)	3.11 (0.16)
Total	**23.55 (2.21)**	**20.03 (1.83)**

We had hypothesized that the Competition group would rate statistically higher in over-all project scores, as the Lottery group had no inclination that their work would be judged but we learned from the teacher survey that almost half (49%) of the Lottery submissions came from a school in which the Creative Kid Contest was introduced as a formal school assignment graded by the teacher, adding an external motivation for good work that perhaps prompted these students to create higher-quality projects than they might have, had they been voluntarily creating a project only to enter as a lottery submission. Many students in the Lottery condition were high-school-aged, compared to the all middle-school-aged Competition group, which may account for the higher levels of production quality for the Lottery students.

[8] Univariate ANOVA, ($F(1,35) = 2.913$, $p = .09$)

Table 4. Comparison of rubric project mean scores by Lottery condition

	Competition *M* (*SE*)	Lottery (graded) *M* (*SE*)	Lottery (ungraded) *M* (*SE*)	
creativity	3.33 (0.65)	3.72 (0.46)	2.80 (0.61)	
content	3.56 (0.54)	3.22 (0.38)	0.90 (0.51)	**
storyline	3.33 (0.50)	3.33 (0.35)	1.50 (0.47)	**
production	2.56 (0.28)	3.17 (0.20)	3.00 (0.27)	
Total	**23.56 (2.90)**	**23.72 (2.05)**	**13.40 (2.76)**	*

To adjust for this issue we broke out the Lottery condition as projects that were graded assignments and those that were not (Table 4). In this case our hypothesis was correct. The graded projects in the Lottery condition scored very similarly to the projects in the Competition condition, while the ungraded Lottery scored significantly lower over all[12], and in the content[13] and storyline[14] dimensions of the project rubric.

Comparing collaboration. Did quality differ for projects created by individuals versus those created by groups?

Collaborative groups scored higher in all areas except content and the differences between the groups' creativity[15] and production[16] areas were statistically significant (see Table 5). More talent specializations on the team may have led to higher quality with the tools of production—the benefits of collaboration in fostering creative ideas has been documented in research (John-Steiner, 2000). This pattern looked the same for both the Lottery and Competition groups (condition was not a factor).

Table 5. Comparison of rubric project mean scores for collaborative teams and individuals

	Individual *M* (*SE*)	Team *M* (*SE*)	
creativity	2.67 (0.43)	4.05 (0.42)	*
content	2.94 (0.45)	2.42 (0.44)	
storyline	2.83 (0.40)	2.84 (0.39)	
production	2.56 (0.18)	3.37 (0.78)	**
Total	**19.72 (2.29)**	**22.00 (2.23)**	

Comparing gender. Were there gender differences in scoring results?

We also studied results by gender, looking at whether each project was created by one or more girls, one or more boys, or a mixed-gender team (Table 6). Girls scored slightly higher in content and slightly lower for production and total scores, but these differences were not statistically significant. Girls scored lower in creativity than both males and mixed groups, and this difference was shown to be significant.[17] Again, condition was not a factor; this pattern looked the same for groups.

[12] Univariate ANOVA, ($F(1,34) = 5.07$, $p < .05$)
[13] Univariate ANOVA, ($F(1,34) = 8.45$, $p < .01$)
[14] Univariate ANOVA, ($F(1,34) = 5.45$, $p < .01$)
[15] Univariate ANOVA, ($F(1,35) = 5.41$, $p < .05$)
[16] Univariate ANOVA, ($F(1,35) = 10.25$, $p < .01$)
[17] Univariate ANOVA, ($F(1,35) = 3.38$, $p < .05$)

Table 6. Comparison of rubric project mean scores for different males, females, and mixed groups.

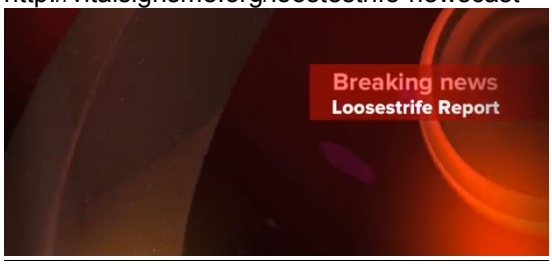
	Male(s) *M* (*SE*)	Female(s) *M* (*SE*)	Mixed *M* (*SE*)	
creativity	4.25 (0.52)	2.63 (0.71)	4.00 (0.54)	*
content	2.17 (0.56)	3.05 (0.44)	2.50 (0.79)	
storyline	2.92 (0.49)	2.95 (0.39)	2.33 (0.70)	
production	3.25 (0.24)	2.68 (0.19)	3.33 (0.34)	
Total	**22.17 (2.85)**	**20.05 (2.27)**	**21.00 (4.03)**	

Over all. What kinds of project received the highest scores?

Although statistical reporting of rubric scores can showcase important patterns and results, the projects themselves represented a wide variety of personality and creativity not evident in patterns alone. To exemplify the work, we briefly introduce the three top-scoring projects across all conditions.

Loosetrife Newscast

http://vitalsignsme.org/loostestrife-newscast



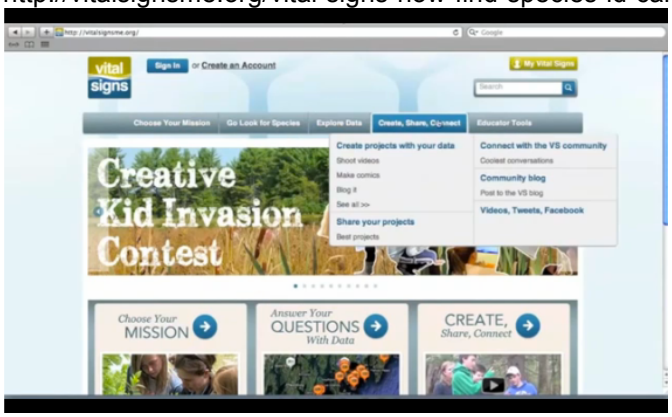
"A short newscast explaining our mission at M. Middle School. This is also my entry for the creative kid invasion contest. It explains Loosestrife, Galerucella and Japanese Beetles."

This project is a 2.5-minute species story video created by a seventh-grade male. The movie is shot in the student's home and framed as a newscast about the invasive species Purple Loosestrife, and includes his father as a fellow news anchor. The creator and his father read their lines from a script, indicating planning prior to shooting the footage. The report opens with the story of the ongoing invasive-species mission adopted by their school science teacher as part of the school participation in the Research Environment. The student shares the history of the project at his school and the work being done to combat the spread of Purple Loosestrife on the campus. He then discusses the characteristics of the Purple Loosestrife plant and Gallerucella beetle and the relationship between the two. He used iMovie to develop his project, complete with the newscast introductory music, visual lead in and credits, and uses captions and transitions throughout. The project was the winning entry from the competition condition. The project rated very high for creativity, content and storyline, with average scores for production. The final score for this project was 31 points.

Galerucella Vs. Purple Loosestrife
http://vitalsignsme.org/galerucella-vs-purple-loosestrife
<audio podcast>
"This is the story of how the Galerucella Beetle was brought to the US to help fight off the Purple loosestrife."

This 1.5-minute audio project was created by a high-school male using an original script developed using numerous online web-research citations including the U.S. Fish & Wildlife Services and the Cornell College of Agriculture and Life Sciences Entomology Department. This project entry was the only submission that relied only on audio to tell a story. The student reads the script in a professional, calm and measured tone, with almost sad undercurrents. The story is highly engaging and creative, telling the personified story of the invasive species Purple Loosestrife and themes of the battle waged as 'her' power became a threat to others. The project also has accurate and informative web content "She was a beautiful, colorful and lively young plant. Her name was Loosestrife. Purple Loosestrife." "Eventually the humans decided that the killings of the plants were not acceptable. The humans started to build an army of beetles…They have been working hard to defend our plans for over ten years now." The project earned high points for creativity, content and storyline, with average production score, for a total of 31 points. The project was in the lottery condition.

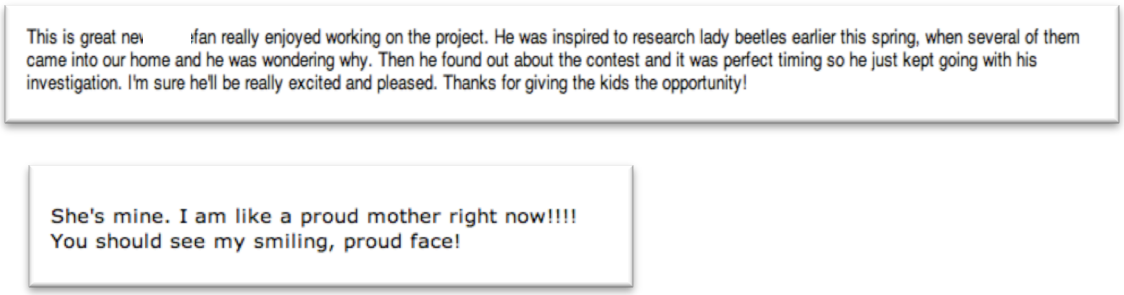
How to find a species ID card and map it
http://vitalsignsme.org/vital-signs-how-find-species-id-card-and-map-it



"This video will guide you on where to go on vitalsignsme.org to find a species ID card. Afterwards, it will also show you how to locate it on the Map Data."

This 2.5 minute video 'how-to' project was created by a high-school sophomore and represents an extremely thorough screen-capture walk-through of how to use the more advanced features of the Research Environment. The student combines QuickTime and iMovie to capture her screen as she walks through the activities, combined with a clear, organized voice over of what she was doing. The young creator reads from a script and keeps the focus on the screen, shooting the video in one seamless capture. She uses scenarios and examples to illustrate her screen actions more clearly. The content shows the user how to use the map function to locate all findings of a species across Maine, an activity that many teachers omit from classroom work but that the Research Environment deems one of the most important learning opportunities within the system. This video was determined one of the best in usefulness to other students and will be featured as a 'how-to' guide on the site. This project scored very high on content, storyline and production, and average in creativity, for a final total of 30 points. The project was in the Lottery condition.

Over all. What was the response to winning submissions?
Although we did not have mechanisms to correspond directly with participants, as many of the creators were under age 13, we received unsolicited positive emails from teachers and parents when we emailed results about winning entries. Samples are found below, the first from a parent and the second from a teacher (see Figure 12).


This is great ne\ ifan really enjoyed working on the project. He was inspired to research lady beetles earlier this spring, when several of them came into our home and he was wondering why. Then he found out about the contest and it was perfect timing so he just kept going with his investigation. I'm sure he'll be really excited and pleased. Thanks for giving the kids the opportunity!

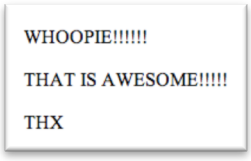
She's mine. I am like a proud mother right now!!!!
You should see my smiling, proud face!

Figure 12. Excerpts from emails from a parent (Competition condition) and a teacher (Lottery condition) in response to winning submission emails.

Phase 3. Teacher influence

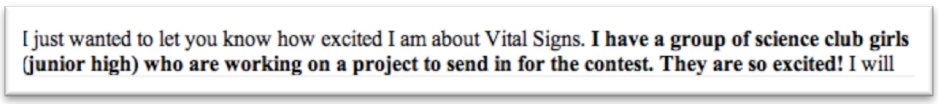
Our survey of 52 teachers showed us more about the various ways teachers introduced the contest and offered insights into all condition groups, representing each of the three conditions (19 teachers from schools in the Altruism group, 19 teachers from schools in the Lottery group, and 14 teachers in the Competition group). Interestingly, the Altruism group had the highest response rate for the survey, suggesting that they felt a connection with the Research Environment and felt the need to explain why their students did not participate.

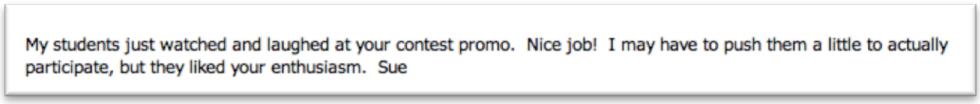
Over all. How did teachers respond to the contest when they first heard about it?
Teachers responded positively to the initial invitations via emails to Research Environment staff, sharing their plans for inviting students, asking clarifying questions and offering suggestions. Many teachers had reservations about whether their kids would participate in the contest and/or had classroom time constraints (see figure 13, showing email snippets from teachers during the contest).


WHOOPIE!!!!!!

THAT IS AWESOME!!!!!

THX


I just wanted to let you know how excited I am about Vital Signs. **I have a group of science club girls (junior high) who are working on a project to send in for the contest. They are so excited!** I will


My students just watched and laughed at your contest promo. Nice job! I may have to push them a little to actually participate, but they liked your enthusiasm. Sue

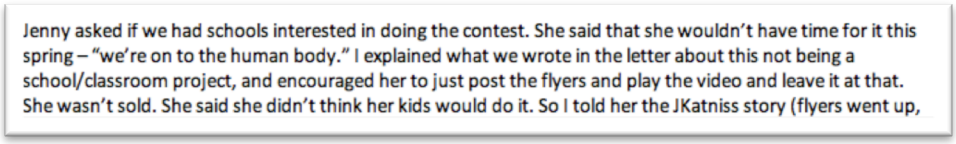

Jenny asked if we had schools interested in doing the contest. She said that she wouldn't have time for it this spring – "we're on to the human body." I explained what we wrote in the letter about this not being a school/classroom project, and encouraged her to just post the flyers and play the video and leave it at that. She wasn't sold. She said she didn't think her kids would do it. So I told her the JKatniss story (flyers went up,

Figure 13. Various email snippets from teachers to the Research team over the contest dates.

Over all. Why did some teachers not introduce the contest at all?
Of the group of 17 teachers who took the survey who did not introduce the contest, 59% of the reasons were related to lack of time and too much to cover in class to get to the contest and 41% attributed their lack of participation to not fully understanding what they were to do. One teacher reported that she was on materinity leave, one was in the hospital and several others thought a collegeue would do it, again pointing the lack of time or space to fully read and digest emails. This information alerted us to the fact that teachers felt that their role was not only to introduce the contest but to take on participation responsibility, something that teachers already spread thin could not do. Though the letter to teachers that accompanied the project information specifically said this was something students should do outside class on their own, many teachers felt a sense of responsibility, perhaps a result of their personal relationships with the Research Environment team and their professional development sessions with the group.

Comparing conditions. What were other factors that determined if students submitted a project?
A significant factor in students' submissions that we had not anticipated was teacher adoption of the contest as an in-class project of some sort. Two teachers gave extra credit for project participation (both in the Competition condition, one of whom was responsible for 88% of projects in that condition) and one teacher who assigned it as a mandatorily graded project (as previously mentioned, in the Lottery condition, responsible for 49% of projects in that condition). Combined, these classroom-based motivators were associated with 70% of the total contest project submissions.

Although we were excited about the projects submitted, we asked teachers to give their perspective on why we did not receive more. The biggest reason given was that students did not have enough time to create their individual project accounts. The signup deadline seems to have deterred student participation, at least according to teachers. Given teacher feedback of this nature via email, we pushed the deadline back significantly and only used the signup number to get a general sense of possible contributors, accepting rolling signups beyond the deadline. Teachers were concerned that the student signup deadline was not linked to the calendar time in which they were working in the Research Environment in class. The second most-cited reason was lack of teacher interest. Interestingly, though the teachers and students in related interviews stated lack of time for anything outside scheduled curricula, teachers did not cite lack of time as a reason on the part of either students or teachers. Perceptions of different potential barriers did not differ significantly between conditions, though the condition differences for "Students did not have enough time to create individual accounts" approached significance.[18]

[18] Chi square, $p = .08$

Table 7. Teacher perceptions of potential barriers to student contest submissions

		Condition		
	Total	Alt	Com	Lot
Students did not have enough time to create individual accounts	**59%**	79%	46%	47%
I was not very interested in the contest	**51%**	53%	62%	42%
Students lack follow-through to create and submit a project	**29%**	21%	39%	32%
Students lack technical skills	**22%**	16%	8%	37%
Students didn't have any interest	**6%**	11%	0%	5%
Students don't have any time	**2%**	0%	0%	5%
I was too busy to include the contest in class	**0%**	0%	0%	0%

Over all, teachers viewed their students as moderately excited about the contest and this was not significantly different across the conditions. We asked teachers to rate their students' enthusiasm on a scale of 1-10, with 10 being the most enthusiastic. The average rating over all, was 3.9 (SE = 0.34), with a low of 1 and a high of 8 (Altruism M = 3.38, SE = 0.67; Competition M = 3.78, SE = 0.64; Lottery M = 4.50, SE = 0.55).

Of the three schools with teachers who indicated student enthusiasm of seven or eight, one had no contest submissions while the other two were responsible for 70% of the projects (the teacher who assigned the project as a graded assignment in the Lottery group, and the teacher in the Competition group who offered extra credit for participation).

Comparing conditions. How did teachers introduce the contest to their students?
Sixty-four percent of teachers surveyed introduced the contest to their students, and though there are different rates for each group the differences were not significant (64% of teachers in the Competition group introduced the survey to their students, 74% in the lottery group, and 53% in the Altruism group).

Of these teachers who did introduce the project, teachers in the prize conditions (Competition and Lottery) were more likely to spread the word more widely in the school and somewhat more likely to use all materials we gave them to introduce the contest (i.e. showing the video invitation) (see Figure 14).

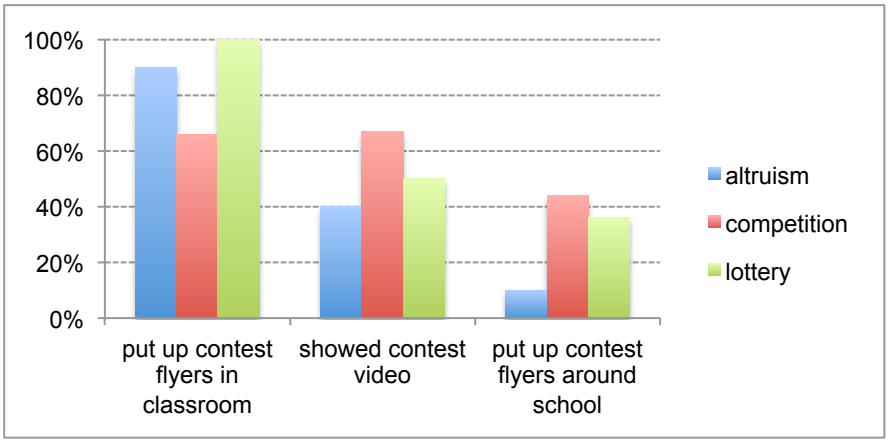


Figure 14. Teacher use of contest invitation resources by condition group.

Comparing conditions. How did teachers attend to the contest in the classroom?
Teachers in the prize conditions were also much more likely to offer time in class for students to sign up, organize and even work on their contest projects. No teachers in the Altruism-condition schools offered class time for student work of any sort (signing up for an individual account, working on media artifacts, or uploading work) (see Figure 15).

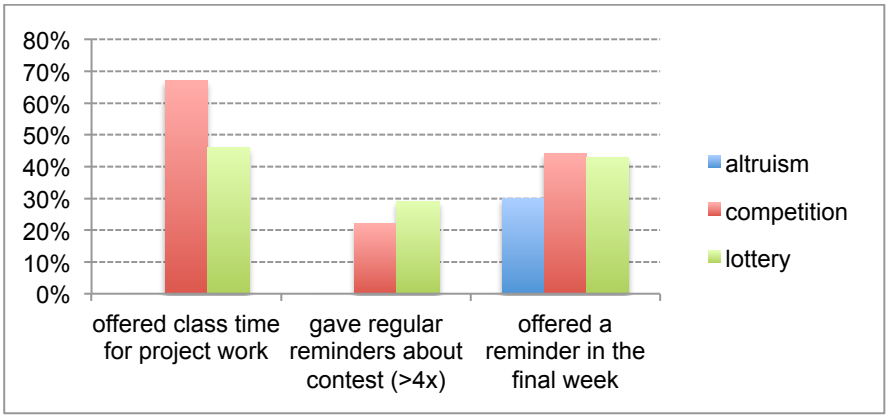


Figure 15. Teacher contributions to student entry into the contest, using class time for work and reminders, by condition group

From these results, we see that the focus on the prize conditions began before the students even became involved. For this project, teacher influence and participation was crucial and teachers, too, were more likely to encourage project work for the contest when prizes were at stake.

III. Challenges to project efforts

We ran into technical challenges that required collaborative problem-solving by our various team members at Stanford and in Maine. Our initial proposal indicated that we would use the Google Analytics Content Experiment tool to randomly determine how students come to the project work (assign and track different conditions, taking different users to different contest description pages based on condition). Upon further research we realized Google Analytics only allows random assignment to individuals for a content experiment. This did not work with our design since it was important that students in the same classrooms and schools be in the same condition. This was important because they would often use computers side-by-side in the classroom and hopefully discuss the contest together and because we wanted to ensure a similar proportion in each group of variables that could affect outcomes, such as teacher/school experience/engagement with the Vital Signs program and different levels of district and school SES. In short, we needed to change our model of how people were assigned to a contest condition and how we tracked them. We created the blended offline and online approach described and worked closely with the Research Environment design and technical teams to iterate and test versions of the online tracking and sharing between the Drupal platform and the Google Analytics module.

We also ran into more human-oriented challenges of the type often found in design-based research in schools, including school schedules (e.g., teachers have their own timing that works to introduce the project, a week of student vacation the week after the site went live, teachers requesting more time to allow student registration due to unforeseen barriers to sign up including school firewalls blocking authentication of individual student accounts in the Research Environment). We worked closely with the Research Environment staff as they work

closely with individual teachers to solve these problems and found ways to incorporate larger changes to the contest implementation that will help alleviate these issues for other participants (e.g. pushing the individual registration deadline back two weeks).

Another human-oriented challenge was the dependence on teachers for contest information dissemination, leading to students at some schools not receiving information about the contest if the teacher decided not to share the materials. This resulted in lower project submissions from fewer schools, though we are thrilled at the number of submissions compared to the usual creative project contributions on the site prior to this contest initiative. We would like to find methods to reach more students that are not dependent on school and teacher gate-keepers. Also, though we designed the materials to be as uniform as possible across conditions and schools, teachers surprisingly influenced the conditions by sharing information in different ways and incorporating the project into classroom assignments, both as extra credit work and graded project assignments.

Insights

Prizes generate participation. The data overwhelmingly supported the hypothesis that prizes would generate youth participation. These were creative projects with few criteria, instead encouraging participation in the ways that youth were interested in pursuing. Students in the conditions with the promise of prizes (Competitive and Lottery conditions) were much more likely to sign up for the contest and to submit a completed project. Although the Lottery condition included a teacher who assigned the contest as a graded class project, which added complexity to the results at the level of individual students, the number of schools with a student who submitted a final project was highest in the Lottery condition. This suggests that though students signed up to participate, it was easier to bring a Lottery project to completion compared to one that would be judged. Although the competition group scored slightly higher on content and over-all score, these differences were not statistically significant and, as mentioned previously, the fact that the Lottery condition included students whose project work was graded by the classroom teacher, the comparison of Lottery and Competition conditions is more complex. Further research is needed to understand how the layering of condition and teacher framing might influence participation rates.

Projects evidenced variety and creativity. Although projects ranged in media type, duration and production quality, creativity was high, as was laughter, enthusiasm, great content and interesting ideas. These projects were a joy to watch and represented something very different from the static species investigation that students routinely submit as part of classroom work using the Research Environment. Students obviously enjoyed putting these creative projects together and in most entries individual student voices and visions were apparent, from a quiet and thoughtful drawing lesson, to a lively how-to use iMovie guide with a K-pop soundtrack, to a multi-actor narrative complete with costumes and fake Australian accents. Combining student creativity and interest with useful educational content through open-ended project work seems a successful contribution to supplement more uniform assignments that leave little room for student innovation, imagination, and creativity.

Activity in the Research Environment was correlated with contest participation. Contest signup and project submission were related to student activity within the Research Environment website. We were not able to study this at the individual student level (i.e. were students who contributed more to the Research Environment more likely to enter the Creative

Kid Contest?) since their contest user names were often different from their team classroom user names. However, we could see that classrooms evidencing more contributions on the site during the 2012-13 academic year were more likely to participate and that this correlation was especially strong for the commenting contribution: classrooms leaving comments to scientists who reviewed their work, and on the work of other students. This suggests that classrooms more engaged with the Research Environment were more likely to enter (or consider entering) the contest linked to that environment. This finding is surely important to many contest initiators, from non-profit organizations to for-profit corporations: that contest participation and website activity go hand-in-hand and one may influence the other to increase visibility, traffic and use of online environments. The correlation between commenting and contest participation may also reflect teachers' valuing and encouraging participatory culture. This is an important research direction to explore as educators work to find ways to bridge participation divides.

More research is needed on competition and variables such as gender and collaboration. Although the project assessments for Competition and Lottery groups did not differ significantly, the projects did differ when we compared projects according to gender of creator, and individual and collaborative efforts. Although our sample size is small, we think these findings are interesting and suggest that more research is needed to understand how different groups of youth enter into contest work. In this research, collaborative teams scored higher in areas of creativity and production, and girls scored lower than males and mixed groups in creativity. Future studies should be designed to collect more data on team and individual work processes as well as the role of prior expertise with tools and content.

Need to learn more about how to design and introduce online learning resources. Over all, the contest web page was not heavily used by students during the competition and specific learning resources were accessed even less. This was also an issue for the Research Environment in general, on which students asked questions about aspects already answered in resources on the website but that they did not find or chose not to use. Students in the Competition and Lottery group were slightly more likely to click on the resources, and the Competition group was slightly more likely to seek out planning resources, but none of the groups took much advantage of any learning resources offered, including project examples, resources for production, and resources for planning. From these results, we see the need for a better ways to share learning resources with students, to give them what they need when they need it. This is an area of research that will become increasingly important as more K-12 learning environments are used in face-to-face school instruction and on their own. If youth are to drive their own learning, we need to better understand how to structure support. Observational research is needed to more deeply characterize differences in learner's resource use.

Need for a range of ways for teachers to get involved in contests. Teachers clearly influenced if and how students participated in the contest. Our efforts to recruit teachers as partners were fruitful, but teachers also need a variety of ways to be involved. An invitation to a contest needs to allow different teachers to participate in different ways, by using a contest opportunity to offer their students a general learning experience, encouraging participation as extra credit for class and requiring project submission to the contest for a class grade. These are all valid outcomes of an educational contest opportunity. However, many teachers felt stressed for time and felt responsibility for student participation and submissions, leading to some groups of students not being introduced to the contest. Ideally, there should be a way in

which teachers do not feel pressure to perform and instead are comfortable introducing contest opportunities to their students without feeling responsible for their production or participation.

Need to explore multiple methods of contest information distribution. To ensure that all students eligible for such competitions get a chance to participate and that adults or peers from different places in a students' life can encourage and collaborate with them around contributions, diverse methods of invitation and information should be employed, such as through local newspapers or community websites, regional community centers, school district-level email distributions and school/PTA/parent email distributions.

Conclusion

The dynamics of user-generated content is an important area of research. Although young people's participation in the creating and distributing online artifacts has increased dramatically, the percentage of participants varies across SES groups and other variables related to opportunities to learn to use computing tools in empowered ways. Corporations and educators have important roles to play in ensuring that all young people feel able to contribute and connect. Our research suggests that contests can be an important motivator that energizes youth creativity and collaboration. Additional research is needed to better understand the short- and long-term implications of material rewards for participation and to understand in more detail how and why learning resources are pursued.

Acknowledgements

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Appendix A: Contest webpage screenshot

CREATIVE KID INVASION!

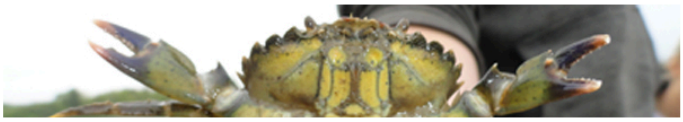
Contest Make a digital video, audio, or book to share what you know and what you can do.

- Create a Vital Signs user account just for you (not a team account) by: **March 4, 2013**
- **Submit** your project by: **May 27, 2013**
- There are two topics for you to choose from (more info below):

option 1: Tell the story of a native or invasive species found in Maine.

option 2: Create a how-to guide for any skill related to Vital Signs (photography, species ID, sketching, Google Earth, etc.)

Option 1. Tell a species story!



Every species has a story! Be a nature detective and share the story of a native or invasive species found in Maine, or that may be found in Maine soon.

1. **Check out examples** of species stories in the menu bar on the right.
2. **Choose the species** that you want to be the focus of your story.
3. **Plan your storyline.** Think of some questions you want to answer about your species. How can you make it fun or interesting?
4. **Get your information.** Use different sources to make the best, evidence-based story you
5. **Plan out your story:** What happens first, second, third? What will people see and hear?
6. **Create your story** as a 2-3 minute digital book, video, or audio project. See production resources in the menu bar on the right.

Option 2. Create a how-to guide!

Be a how-to guide producer and help other kids perfect a skill you need to do species investigations.

1. **Check out examples** of how-to guides in the menu bar on the right.
2. **Choose a skill** that you want to show others.
3. **Plan your storyline.** Why is your skill important? How did you learn it? Think of how to show kids what they need to know and how to make it fun or interesting.
4. **Get your information.** Use your own experiences and do some research to build your story.
5. **Plan out your story:** What happens first, second, third? What will people see and hear?
6. **Create your story** as a 2-3 minute digital book, video, or audio project. See production resources in the menu bar on the right.

Species Story Examples

1. The Wild Carrot's Video Blog
2. Have a bittersweet-free holiday
3. Commander Ben

How-to Examples

1. How to ID a green crab
2. How to set up a tadpole habitat
3. How to sketch a blue crab

Production Resources!

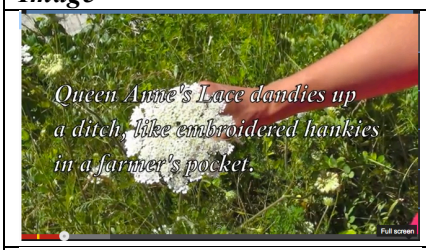
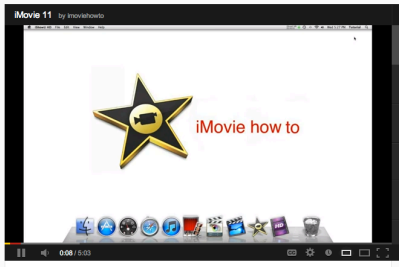
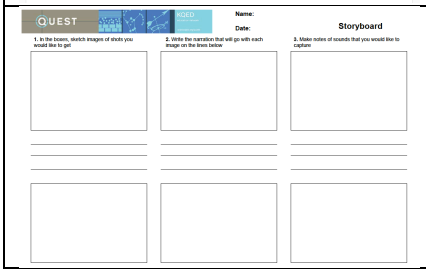
Making resources

- Create a video in iMovie
- Create a podcast in Garageband
- Create a digital book in iPhoto
- Check out video techniques

Planning resources

- Choose your media
- Choose your content
- Write a script
- Plan your scenes

Appendix B. Sample resources included in contest

Image	*Description*	*Link*
	Story Examples: A youtube channel with video stories of a number of different non-native species in Maine.	http://www.youtube.com/playlist?list=PLo3gLfzobprJYrAsXh0TCMvezJooy-RHD&feature=plcp
Students created a 1 minute Public Service Announcement to educate the public about the importance of NOT making/using wreaths made of bittersweet over the holidays. They suggest native alternatives and give a quick overview of a habitat restoration project we're doing on Mackworth Island. We're hoping to get this on a radio station before Christmas! http://dl.dropbox.com/u/21688976/PSA.mp3	Story Example: Audio PSA about the use of invasive species in holiday wreaths.	http://dl.dropbox.com/u/21688976/PSA.mp3
	How to example: Video guide about how to set up a tadpole habitat, made by a young person.	http://www.youtube.com/watch?v=tyRGgvRKqcI&feature=related
	How to example: Video guide for how to sketch a crab.	http://www.youtube.com/watch?v=Dz_zYfZHk5Q
	Media production resource: Video tutorial for how to create and export a movie using iMovie.	http://www.youtube.com/watch?v=h_oXy00a-sQ&list=SPF5B313D6DA3A8B36&index=1&feature=plpp_video
	Storytelling and planning resource: PDF storyboarding template.	http://science.kqed.org/quest/files/downloads/2011/06/storyboard.pdf

Appendix C-1. Contest flyer: *Altruistic Condition*

Appendix C-2. Contest flyer: *Lottery Condition*

Contest **Make a digital video, audio, or book** to share what you know and what you can do.

Winners will be chosen at random!
Submit a project and be entered into a raffle to win:
an iPad ✸ a Digital Camera ✸
iTunes gift cards and more

1. Choose a topic:

option 1
Tell the story of a native or invasive species found in Maine.

or

option 2
Create a how-to guide for any skill related to Vital Signs (photography, species ID, sketching, Google Earth, etc.)

2. Go to http://vitalsignsme.org to see details and view resources

3. Create your own individual Vital Signs account by **March 4, 2013**

4. Post your project to the Vital Signs project bank by **May 27, 2013**

* Prizes listed represent awards for projects submitted by individuals; team submissions are also encouraged and members will receive prizes that total an equivalent amount.

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Appendix C-3. Contest flyer: *Competition Condition*

Appendix D: Rubrics, components and Subcomponents		no **0**	yes **1**	YES! **2**
Creativity				
Engaging	*Are you compelled to keep watching/reading/listening?*	The artifact was too choppy, or long, or boring to keep the audience's attention	Audience wanted to keep going all the way through	Could not wait to see what happens next!
Original	*Does this project exhibit some element of originality (remixing existing ideas or showcasing own)?*	Simply copying a format or restating idea	Some new ideas or features in content or production	Totally unique and different from the others in some way
Individual Voice	*Does the piece have a unique voice (a tone or individual personality that comes through)?*	Regurgitating information	Some evidence of voice	Voice is strong
Content				
Research and detail	*Is there some topic content included in the project?*	No information or content is included	Some information is included but not so much detail is provided (a few basic facts).	A lot of information is provided in detail.
Accuracy	*How accurate is the content that is included?*	Lots of misinformation	Most information is accurate OR all was accurate but there was not much to be accurate about.	All of the information is accurate AND there was a lot of detail to get right.
Value	*Is the topic of value to the Vital Signs community?*	The topic is not relevant or the topic is not clear enough to judge as relevant	The topic is somewhat relevant (i.e. species that are not VS focal, or skill that is vague) or topic is relevant but content is not very useful to others participating in the VS community.	The topic is very relevant (related to a mission species or a specific VS activity) and the content is useful to others participating in the VS community
Storyline				
Logical sequence	*How clear or easy to follow is the narrative of the story?*	There is no storyline or clear idea of what the project is about	The storyline is clear and easy to follow, but there was not a ton of planning that went into it	The story is very obviously planned out (scripts being read, etc.) and has a nice introduction and wrap-up
Transfers information	*Could kids change their practice after watching/learn more than is on the species card*	No, this project does not impart information in a way that kids can use it.	The information transferred is about at the level of a species card or at the level of practice they probably already are familiar with	The artifact is successful in organizing information in a way that audience can learn more than what is on a species card or change/ improve current practice.
Connects with audience	*Evidence of recognition of audience and trying to connect*	No evidence of designing for an audience of any age/type	Some evidence of designing for an audience (talking to an audience, some level of interaction) and choosing an audience to design for	Purposefully and consistently is aware of audience chosen and uses that in presentation.
Production				
Media choice	*Yes/No: Was the right media chosen for the project?*	No, should have been something else (videos that are text heavy that should have been a book)	Yes, the vision matches the medium	NA
Production quality	*Technical production (film quality, readability, evidence of assembly of media pieces)*	Major flaws that make it difficult to watch or understand the artifact	Is functional and understandable from a technical point of view	Is very well done and showcases expertise with production tools, polished
Media elements	*Do the multimedia elements work together to enhance the project?*	There is no more than one media element	Some multimedia (even text and pictures) and the basic elements work together	> 2 multimedia elements are that work together so that each element enhances the over all project (i.e. carefully chosen music that is tied to storyline, good transitions)

Additional Reading:

Future of Content Research Theme
http://mediax.stanford.edu/FOC/concept

For more information:

- membership
- research themes
- events (conferences, seminars, workshops etc.)

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Watch us on YouTube -
http://www.youtube.com/user/mediaxstanford

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