 Appropriation and Creativity: User-Initiated Contests in Scratch

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Abstract

How do people motivate each other to participate in a peer production environment? This question is addressed through the study of user-initiated contests on the electronically mediated social network that surrounds the programming language Scratch. The users of Scratch, mainly youths, have created their own mechanisms to motivate and recognize creative achievement. Some wish to achieve popularity on the site by having their project posted on the front page so contest creators offer to perform actions that will help participants reach that goal. Other contest creators, though, offer hand-made, personalized gifts such as drawings and animations made to spec. For those who offer both incentives, the ad hoc, personalized rewards are deemed more valuable than the mechanisms provided by the web site. Users are appropriating the technology, establishing their own organizational structures that encourage creativity.

1. Introduction

Designers of online communities often plan for one scenario, but then an unexpected scenario occurs. That is, a website might be carefully crafted to encourage certain kinds of participation, but instead the mechanisms of the site may be creatively adapted, and appropriated, in an unintended way [5, 9, 11, 25]. Designers may benefit through a greater understanding of how individuals creatively adapt the mechanisms of online communities.

To further this understanding, we will focus on Scratch, an online community that encourages youths to imagine, program, and share. This environment is interesting for several reasons. It is a community with a registered user base of more 600,000 people making it larger than other youth-oriented programming communities such as Alice [1], Greenfoot [14] and Game Maker [13]).

Scratch combines two major ideas: a software forge, and an electronically mediated social network. As a software forge it allows users to upload programs and encourages all other users to modify these programs. The source code of all programs is shared with a Creative Commons Attribution-Share Alike license [7] that is displayed in a child-friendly form on every project page. The programs are built by putting together images, sounds and visual programming blocks, as shown in Figure 1. At the time of writing, there are 140,102,833 blocks that have been used in 1,262,132 projects yielding an average of 111 blocks per project. According to the users’ self-reported demographics, the modal age of participants is 13 and 36% of participants are female.

Figure 1. Six Scratch blocks, including a loop, a condition, an event handler, an assignment, and two functions controlling the look and motion of a sprite.

As an electronically mediated social network, Scratch links together participants through discussion groups based on projects and through a friending system. The friending system makes it easy for users to monitor the new contributions of others. The site also allows people to express their affinity for projects through a vote-like rating choice called a love-it. Popular projects appear on the site’s front page, scratch.mit.edu.

The youth orientation of the site is in itself interesting: the Scratch programmers of today may be the SourceForge developers of tomorrow, and so their attitudes toward openness, remixing, and incentives may give us insight into what will come.

This paper will focus on a particular aspect of this website: the emergence of user-initiated contests. Contests are, we argue, a particular kind of...
organizational structure that fulfills several desires of the Scratch user community. On the one hand, contests provide a way to establish reputation. On the other hand, they provide a means for personal engagement, through the entry, discussion, prize creation, and prize dissemination process. Many have observed that those involved in open communities have multiple motives, and among them have a desire for reputation, and a desire to have fun [3, 4, 18, 26]. Our findings support that broad observation, and suggest more specific ways of identifying and comparing motives by observing the way users reward themselves.

We will show that Scratch users provide each other two kinds of incentives. They offer each other a reputational incentive: contest creators promise to rate the projects of a contest winner highly, regardless of their actual feeling about the projects. In other words, ratings are treated like a commodity. This is a negative unintended appropriation of the rating system — the subversion of the rating system is unfaithful to the intentions of the designers (cf. [9]).

With the other kind of incentive, contest creators reward winners by performing requests, creating drawings, animations, or games personalized to please the contest winner. This is an unintended but faithful appropriation, because it encourages creative production which is a goal of the site designers. We will show that the later type of incentive is more highly valued than the former.

These findings contribute to the information systems and open community research fields by describing a new phenomenon, user-initiated contests. Also, the findings provide information about the possible unintended consequences of combining open source and social networking mechanisms. We proceed in the following manner. First, we discuss literature related to the appropriation of technology. Next, we review the use of contests and their relationship to software. We also look at the affordances provided by online websites. Then we provide an analysis of contests in Scratch.

2. Background

2.1 Appropriation and creativity

Technologies are intended for one thing, but are sometimes used for another. Users always take the technology they are given and make it their own: this is called appropriation. This appropriation involves many steps, and may involve following the intent of the designer, combining ideas, or finding new uses. Appropriation may be motivated by several causes, including a desire for pleasure [5, 25]. In a study of youths, power and identity needs reinforced appropriation [5].

The term appropriation ably captures the surprise of a designer exclaiming: “They are not supposed to do that!” but not: “What a great idea!” The problem with the term appropriation is that it has negative connotations. Orlikowski has proposed using the term enactment instead under the assumption that there is little to appropriate: users just form habits through interactions, which should be focus of information systems study [21].

But there is an even deeper objection to using a term with a pejorative connotation: unintentional use is what we are after in any creative endeavor. In the psychology of creativity, conceptual combination, especially combination in unexpected ways, is the driver of new ideas [27].

In reflecting on organizational innovation, Murray and O’Mahony posit three important antecedents: disclosure, recombinative access, and rewards [20]. Recombinative access is a form of conceptual combination: innovators need to be able to not only look at, but also combine things. In their scheme, content is central; For example, libraries provide access to content but copyright laws restrict recombinination, while open movements provide both access and recombination rights. If such recombinination is so important with respect to content, shouldn’t it also be important with respect to process? Why would we expect participants in open movements to recombine and repurpose aspects of the process of creating the code? That is, innovation can happen at multiple levels, and it is possible that innovating at one level, say content, will help cue innovation at another level, say process.

What are the goals of the users that might drive innovation? Shah finds that hobbyists contribute code for fun [26]. Also that they closely monitor and enjoy feedback. Others in the open source research community have found that the interest in feedback reflects a larger interest in establishing and building reputation (e.g. [18]). In sum, the literature suggests two major motivations for contribution: reputation from an end result, and enjoyment through a process.

Thus we might reasonably expect that users of Scratch will want to have fun, and that they will also be interested in establishing and building reputation.

2.2 Contests

User-initiated contests, we will argue, provide both a way to build reputation, and also a way to have fun. The fun is experienced by the contest
participants through the process of creating projects to be submitted, and by the contest creators through the process of creating personalized rewards. First we discuss the nature of contests generally, then we describe those initiated in Scratch.

Contests are characterized by a set of roles and processes. The typical contest has the following structure: First, a contest is announced. The announcement spells out several prizes: 1st, 2nd, and 3rd, as well as the date by which entries must be received. Next, participants enter the contest by submitting their work. Then the contest is judged and the awards bestowed. Thus, there is a schema, a script, which is familiar to youths and adults alike.

Contests have been used online in both open and proprietary environments. For example, the United States Open Government Directive encourages governmental agencies to create “challenges, prizes, and other incentive backed strategies” [30], and many contests have emerged as a result [29].

Many commercial websites use contests as incentives: for example, TopCoder and Netflix have found that contests can be a way of garnering participation on a site [2, 16, 28]. These contests function as form of broadcast search [17]: those seeking a particular solution open it up to wide variety of participants hoping to harvest a new idea.

Besten [2] claims that most competitions stand in contrast to the cooperative ethos of collaboration (e.g. [8]). There are, however, many forms of contests that can elicit coordinated, friendly production. For example, Besten thinks the Matlab contests [12], in which programmers modify each other’s code to improve the runtime performance, are an example of benign competition.

Contests often provide a way for those on the fringes of a community to gain recognition. For example, in music circles, remix contests provide a way for individuals to stand out [6]. Cheliotis and Yew claim these contests can increase overall community production temporarily, but not permanently. That is, the contest music is remixed once by each participant, and the innovation ends there. Their work suggests that artistic sites should seek a deeper level of collaboration in which many people will take their turn on a chain or tree of remixes.

Shallow collaboration may be due to the nature of the music contests: the contributors of the music piece to be remixed are often not part of the remix community. Nonetheless, Besten criticizes contests for a different reason: contests create closed problems that don’t allow for user innovation (cf. [15]). Besten is specifically referring to contests that are initiated by a website owner.

But what about contests that are initiated not by site owners but by users? Aren’t they by definition user innovation? That is, if the users themselves generate the contest topics, other users respond, by generating contest topics. Upon this creation the innovation process is likely to be driven by user, rather than website owner’s needs. The process will be open in the sense that the contest topics can be as tightly or narrowly specified as the users desire.

On Scratch, users do create the contests themselves. Indeed, the occurrence of contests was not anticipated by the web site designers. We will look at the way contests are created, and the nature of the prizes offered. Two studies will be discussed: the first, exploratory, and the second to test hypotheses emerging from the first. Next, we discuss website mechanisms in general, those of Scratch in particular, and the way they afford the creation of user contests.

### 2.3 Website mechanisms

In order to understand user-initiated contests and their reward structures, we need to first understand what users can do on typical websites, and in particular on Scratch. Table 1 below summarizes a key set of actions permitted in online electronically mediated social networks.

<table>
<thead>
<tr>
<th>Structural acts</th>
<th>Voting acts</th>
<th>Modifying acts</th>
<th>Originating acts</th>
</tr>
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<tbody>
<tr>
<td>friend</td>
<td>votes</td>
<td>comments</td>
<td>submissions</td>
</tr>
<tr>
<td>follow</td>
<td>ratings</td>
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<td>diggs</td>
<td>edits</td>
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<td></td>
<td>love-its</td>
<td>bug fixes</td>
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<td></td>
<td>favorites</td>
<td>tags</td>
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<td></td>
<td>views</td>
<td>retweets</td>
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<td></td>
<td></td>
<td>remixes</td>
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</tbody>
</table>

On the left are acts associated with the structure of the social network. For example, when a user friends someone, this act means that any future content produced by the person receiving the friend action will be sent to the person initiating the friend action. Thus, the structural action gives communication power to the receiver of the action, and gives the person who friends a new source of information.

In most online web sites, there is a way of voting for particular content: on Amazon and Netflix, a rating, on Digg, a digg, and on Scratch, a love-it. Such votes are often the basis for an overall ranking on the site. For example, stories with lots of Diggs...
are likely to be promoted to the front page of the site [24]. Likewise, projects with enough love-its will be promoted to the front page of Scratch [19]. Thus votes build reputation in a concrete way, because reaching the front page of these sites not only is considered an honor, but also results in a large segment of the community noticing the promoted content and its creator.

On Scratch, the number of views of a project also enhances reputation because the most viewed projects are promoted to the home page. There is another mechanism for enhancing reputation: participants on Scratch can pick someone else's project as a favorite. All these voting actions are simple to accomplish because they take no more than a few seconds of effort.

But some acts take longer. For example, participants on Amazon can write reviews as well as rate books. Participants on Scratch can comment on each other's work, providing suggestions or asking questions.

Scratch users are encouraged to remix each other's projects. These remixes may be as simple as a bug fix, or as elaborate as a reworking of the entire project.

The most committed act on Scratch is usually the submission of a new project, because some of the projects, particularly animations and video games, can involve weeks or months of labor to construct. Thus the nature of the website allows for a series of actions, that require varying amounts of work.

What is the everyday mix of contributions to Scratch? Many users generate individual projects, and receive comments and critiques from their friends and more casual observers. But our particular interest is in user-sponsored contests.

A user will set up a contest by submitting a project, usually a drawing, animation or game. They declare the project a contest in the project title. In the project notes, the user provides rules for entry, deadlines, and a list of possible prizes.

In order to understand this phenomenon, we have performed two studies. The first study, the exploratory study, sampled a set of projects to understand their award structures. From this study two hypotheses were formed about the awards, and these were tested from a different sample collected in the classification study.

3. Exploratory study of Scratch contests

Through a search on the website, 48 contests were found in March, 2010. Specifically, the sites were located by finding an initial contest, and then following links mentioned inside the contest to other related contests. The project notes containing the award structures were analyzed.

Five notable award structures are shown in Table 2. The first two award structures involve both love-its and requests. The third and fourth award structures offer to include the winner in a project of the creator. The fifth award structure is tongue-in-cheek, making fun of digital awards. Remarkably, this contest was very popular.

<table>
<thead>
<tr>
<th>#</th>
<th>award structure</th>
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<tbody>
<tr>
<td>1</td>
<td>1st: Love all of your projects and 3 short project requests. 2nd: Love 10 of your projects and 1 short project request. 3rd: Love 5 of your projects or 1 short project request</td>
</tr>
<tr>
<td>2</td>
<td>1st place: 3 drawings and ill give you love its on 5 of your projects 2nd place: 5 love its 3rd: 2 love its 2 comments</td>
</tr>
<tr>
<td>3</td>
<td>1. Get to be in two projects. 2. Easy icon request. 3. An animated request</td>
</tr>
<tr>
<td>4</td>
<td>the winner gets put in the next cheez game!</td>
</tr>
<tr>
<td>5</td>
<td>1st place-Invisible car, and gas money for a whole year! OMG! :D. 2nd place- Invisible chocolate, and invisible unlimited movie passes! :D. 3rd place- Invisible gift card, and savings bond! 4th place- invisible cloak. 5th place invisible fuzzy slippers :o 6th place-33rd place: PRIDE! :D</td>
</tr>
</tbody>
</table>

Rewards were counted, and a histogram of the major categories plotted, as shown in Figure 2. Specifically, awards included requests to the contest creator: the contest creator specified that the winner would have the right to request an animation, picture, or game of their own choosing. Awards also included love-its: in general, first prize would give some number of love-its, for example ten, and second prize would give less, say five. A third category of award promised to star the enterer's character in an animation or game that the contest creator was making. Two other categories involved reputation: the contest creator offered to friend the winner, or put the winner's projects in the creator's favorite gallery, a sign of respect, and a public location all users can see on the home page of the contest creator.
Figure 2. Proportion of award types in the exploratory study. For example, the chart indicates that slightly more than 40% of the contests examined included a request as an award. Purple bars represent different forms of website mechanisms, and yellow bars represent ad hoc mechanisms. N = 48, and contests with award structures were collected in March 2010.

These common categories can be classified into two sets: those that use the mechanisms of the website (love-its, friends, and favorites) and those that are ad hoc (requests and star-ins). The requests are an unusual aspect of the contests in Scratch, and so we provide here an example of one particular request cycle.

A user created a coloring contest that asked for a mythic creature to be created and promised a request to the winner as a prize. The winner's entry, a combination of a cat, dragon, lion, butterfly and bird, is shown in Figure 3.

The contest creator, honoring the award promised, asks the user what she wants the creator to draw for her. The winner asks for "a wolf howling at the moon". The creator asks the winner if the drawing should be realistic or cartoon-like: the answer is "cartoon-like". The creator provides Figure 4 as the award, posting it as a project.
What is notable is the creativity of the products of the interaction. The original entry is imaginative. Then, the winner challenges the constant creator to draw a particular type of picture. The result is again imaginative: a personalized gift to the winner. Indeed, the situation is analogous to musicians who ask for requests: the piece performed is meant to please the audience, and at the same time it serves as a challenge to the performer. Theories of creativity posit that constraints enhance performance [10]: here the users, children, are creating constraints for each other, in the form of both a contest, which provides constraints to the contest enterers, and a request, which provides constraints to the contest creators.

We are interested in understanding this phenomenon better; the user-initiated contest seems to be a structure that encourages creativity. We noticed that prize schemes can be classified into three types: schemes that use exclusively the mechanisms of the website as rewards, and schemes that use ad hoc rewards, and finally hybrid schemes that mix the two mechanisms.

The predominant website reputation mechanism is the love-it. Since a user can only give a love-it to a particular project once, many love-its are often promised to be attached to many different projects of the winner – for example, ten love-its for first place, five for second place, two for third place. In addition, some promise love-its in proportion to the number of projects the winner has: love-its are promised on all projects of the winner, or on half the projects of a person. Are these offers made with the understanding that the love-it can be treated as a commodity? It appears so. One contest creator promised a first prize of "love-its on all your projects" and a second prize of "love-its on projects I actually love". That is, the creator is acknowledging the use of the love-it in the first place award as a commodity, rather than as a true expression of feeling.

Views are also promised. This means the contest creator will click on a certain number of the winners’ projects. Both views and love-its are directly related to the incentive of reaching the front page of the site since there is a slot on the home page for the projects with the highest number of love-its, and the projects that are the most viewed.

Another mechanism often promised involves friending. That is, the creator promises to add the winner as a friend on the web site. This is not directly related to reaching the front page. Indirectly, however, a person may make it to the front page through friending because a person's friends sees that person's new projects, and so is more likely to have the opportunity to provide love-its and views.

In contrast to the web site mechanisms, the ad hoc mechanisms are those that community members, not the web site owners, have designed and conventionalized. These are varied, and can be classified into several categories. The simplest mechanism is the request: the contest creator promises the winner that the creator will make a picture, an icon, a game, or some other project, to the winner's specifications. In a separate category, the reward creator will put the reward winner's contribution into a game or an animation. In other cases, a form of citation or acknowledgement is offered: a project is dedicated to the winner, their name promised to appear in animation credits, or in project notes.

From this exploratory study, we are led to make two predictions. We note the creative nature of the user's interactions – both the entries and the awards. In contrast with sites such as Digg, in which reaching the front page is arguably the driving force of submitting and voting behavior (cf. [24]), we think that the participants on Scratch are driven only partially by a desire for the fame associated with reaching the front page of the website.

We think that the users want to have fun, and so they encourage each other in ways that provide themselves with a motivating environment: a set of constraints that enhance their creative behavior. That is consistent with what is known about open source contributors’ motivation [18, 26]. How can we show users of Scratch create things for personal satisfaction, for fun? If users are only concerned with reaching the front page of the site, then all, or most, awards offered will involve the website mechanisms that can drive a project to the front page. We predict, conversely, that pure ad hoc award mechanisms will be more common than pure website mechanisms.

In the event that both website and ad hoc mechanisms are used, we predict that the ad hoc mechanisms will be perceived as more valuable. This second prediction involves an economic calculation: if first prize is one request and ten love-its, we can infer that a single request is seen as more valuable than a single love-it, on the assumption that the two different reward types are seen as commensurate. This interpretation is strengthened if, for example, the first two prizes involve both requests and love-its, and the third prize only involves love-its, under the assumption that the value of the prizes cascades downwards from first to third. For example, we see this phenomenon in rows one and two of Table 2. Therefore, within a class of award, we predict more website mechanisms such as love-its will be offered than ad hoc mechanisms, such as requests, therefore...
showing the ad hoc mechanisms to be the more valuable awards.

4. Classification study of Scratch contests

4.1 Hypothesis tests

Our two hypotheses were formed by abductive inference from the data gathered in the exploratory study. Since our inference could have been influenced by the luck of the sample, and thus might represent an inadvertent overfit of the data, we tested the hypotheses on a different sample extracted from the website data.

Specifically, we pulled a sequence of projects starting from Jan 1 2009 that contained key words related to prizes, such as: "1st, First, prizes". (There are many thousands of such projects, testifying to the popularity of user-initiated contests). We sequentially considered all projects that provided recognizable award structures, and coded the awards into the categories of ad hoc mechanisms vs. web based mechanisms, (the later identified by the key words "love it, view, friend"). We did this identification by hand, but the coding in principle can be automated if variants, common spelling errors and typos are added to the list of keywords (for example, lovit for love-it). That is, we believe there is nothing in the coding process that involves subtle interpretation, and thus could lead to low inter-rater reliability.

We coded the first 40 projects in the sequence that had award structures. Of these, 25 used purely ad hoc mechanisms, 4 used purely website mechanisms, and 11 used mixed mechanisms. Of the 11 mixed mechanism examples, 10 out of 11 consistently within a prize level provided more web-based awards than ad hoc awards.

We used a proportion test for our first prediction, that ad hoc mechanisms will be more common than web-based mechanisms. This hypothesis was supported by an exact binomial test, p =.0001. Our second hypothesis, that the ad hoc mechanism would be less numerous, and therefore be more valuable within a particular class of reward was also supported by an exact binomial test: p=.0117.

Next, we offer other observations that came from scanning the project notes of an expanded set of contests.

5. Qualitative observations

We reviewed several hundred projects from 1/1/2009 up until 5/03/2010, and provide here some additional insights gleaned from the project notes written by the contest creators.

While participants on Scratch have a modal age of 13, there are many younger participants. Not all participants are aware of, or invested in open source values. That is, the open discussion environment can be used to try to create demand for exclusive information!

For example, one contest creator writes:

*The winner will also receive EXCLUSIVE information about the latest and greatest prodcject[sic] in scratch. This prodcject was made by my older brother who has helped me create most prodcjets in the past. I learn from him! He's a scratch master! Don't worry, this information is BIG!*

Here, the appropriation is a combination: the child is using the schema of exclusive knowledge to add to the value of prize to be given in a contest. This is clearly antithetical to openness as understood by the open community, but probably most Scratch users can infer the young age of the contest creator. In other contests, when the users seem older, users will debate issues of intellectual property and remixing.

Another example:

*One of the prizes: gets to be a voice in my movie (if you want to) (Sorry all I have left are boys).*

This idea that others will be excited to participate in your creative project is a concept that comes out of theatrical auditioning: actresses competes for parts in a production. Also, notice that all the girl parts are taken: judging from the themes of most contests, the majority of contest creators are female.

The criteria for judging is sometimes made explicit:

"you will be judged on originality and life likeness".

Rules are sometimes set for the contest: for example,

*"DO NOT REMOVE MY PINWHEEL! I WORKED HARD ON IT!"*

Entries also often have comments such as "I worked pretty hard on it". These declarations of effort are, of course, part of contributions to many peer production environments: cover letters for academic
article submissions often contain more subtle words
to the same effect.

The actual contests often have explicit deadlines,
and the contest owners manage the submission
process:

"NOTICE: I JUST BLOCKED THE GALLERY.
NO MORE ENTRIES CAN BE SUBMITTED. I
WILL ANNOUNCE THE WINNERS
MOMENTARILY"

Non-winners do comment on the results:

"All the winners look good. Sigh."

One unusual set of comments does indicate that
reaching the front page is a concern of at least some
Scratch users. This set of comments was made over
several days:

LET'S GET THIS TOP VIEWED!!!!! IT
ALREADY HAS OVER 50 VIEWS!!!! WOOT!!...
OMG!!!! 3RD TOP VIEWED!!!!!!!
NUUUUUUUUU!!!!!!! IT'S OFF TOP
VIEWED !!!!! NUUUUU!!!!!!!!!!!!!"
W@w, 118 views!!!!  
OMG!!!! 1st TOP VIEWED!!!!!!

The contest creator cheerleads the contest onto
the front page, monitoring its progress and informing
her/his friends. The notes continue for several days;
the project also eventually gets selected as the 2nd
top remixed project.

In contrast to such popularity seeking, there is an
educational aspect to some contests. A ferret drawing
contest ends with this:

Extra points: ...
What does ferret mean in latin?
ex-(latin) agricula to (english) farming
(latin) Ferret to (english)?????

The specifications for the contest are generally
short – "color the cat" is an common example – but
sometimes the specifications are interestingly
elaborate:

"Just make a scratch project that is a remix of
this one...The character: Approximate age 10-
11. Personality: Very childish at first, a sidekick
to another character and is very loyal to them.
Loves to pull pranks. Is only serious when
talking about politics and war fare, fairly smart,
gets upset easily when it comes to issues about
her friends. Can't keep secrets well...Her
favorite food is strawberries".

Here is a similarly detailed specification, for a
very different sort of contest:

I need you to program a main character, which the
camera must follow. He must stay in the middle of the
screen at all times, and be able to jump with
realistic physics, and must not be able to walk
through walls. ... I also need AI of enemies, who's
guns follow the sprite which is the main character, or
the nearest member of the GREEN ARMY. ... I need
the AI's to be smart enough to move randomly, and
even jump. I want all of the AI's to shoot once every 1
second, and I want the bullet to move to the target in
1 second, just enough time for the target to
possibly dodge the bullet...You do NOT have to be a
good artist. All I need is the programming, although
at least try to make objects seem like what they're
supposed to be. ...Prizes for 1st place are: I will use
your programming for the game, and I will also
create you your very own animation, along with fan
art. You will have a big name in the credits, and I
will make sure everyone know that you programmed
most of the game.

This is a well-considered specification, and
represents the kind of program outsourcing that one
might see, in more corporate language, on a site such
as TopCoder. The youths on Scratch have found that
they can outsource specialized tasks to each other
thus providing a homegrown set of incentives to
motivate their peers. This is a good example of
broadcast search [17], rediscovered by youths as a
way of producing complex artifacts such as
animations and videogames.

6. Discussion and conclusions

This work presents an analysis of a phenomenon
occurring in an online community whose participants
are predominantly youths. The phenomenon – user-
initiated contests – involves the establishment of
specifications, deadlines, and award structures.

Previous analyses of contests have shown they
provide motivation. These contests, however, usually
involved monetary awards, paid by the website,
directly (as with Netflix) or indirectly by a client (as
with TopCoder). In Scratch, the awards are non-
monetary, and can be classified into two categories.
The first category includes awards that reflect
mechanisms created by web site organizers, including
a mechanism similar to voting called love-its. These
awards facilitate reputation-seeking behavior, as
participants often have as a goal the achievement of
popularity, measured by reaching the front page of
the Scratch website. This reputation-seeking behavior is very similar to the behavior of participants on web sites such as Digg [24], and can lead to gaming the system.

A simple rationalist economic model predicts that this kind of behavior will dominate any website. But in online communities and in Scratch in particular, there are other goals including enjoyment. These goals lead to other award mechanisms we classified as ad-hoc. These mechanisms don't lead to automatic promotion to the front page of the site, but instead offer a more personal kind of gift or recognition. A very common award is an offer to fulfill a request; the winner can ask the contest creator to make a drawing, animation, icon or game according to the winner's specification. This results in what can be called an aesthetic gift, something made personally by the contest creator for the winner's pleasure.

Other ad hoc awards are a kind of acknowledgement or inclusion. Often these involve including the participant's contribution in some larger project, such as the contest creator's game.

We predicted that these ad hoc awards would dominate the web-based mechanisms, and would be seen as more valuable. Our quantitative analysis supported these predictions.

The history of electronic communities can be seen as one of appropriation of the technologies in unanticipated ways [25]. The Scratch users are engaged in several interesting forms of appropriation. The ability to submit projects has been transformed: projects are labeled as contests and are a form of solicitation for work. These solicitations create activity among the participants, leading to a set of sub-communities. They amplify the subcommunities' motivations, some related to the achievement of popularity on the website, but others not. The award activity involves giving each other handcrafted gifts, or recognizing performance much like the acknowledgement academics give each other in a paper. Moreover, the feel of these contests are similar to the feel of academic peer review processes; the contest creators establish calls for submissions, judge them, and recognize the winners, who eventually create their own contests, the same way conference paper submitters eventually become minitrack chairs, or editors, and create their own peer-review contests.

That this is all happening in an environment dominated by thirteen-year olds is enthralling. These youths are motivating each other. Their behavior is creative, constructive, and involves collaboration and sharing. Their work in aggregate might be regarded as an aesthetic gift, the promise of a generation creating its own structures for creativity.

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References


[22] Ploderer, B., Howard, S. and Thomas, P. "Being online, living offline: the influence of social ties over the appropriation of social network sites," Proceedings of the ACM 2008 conference on Computer supported cooperative work


