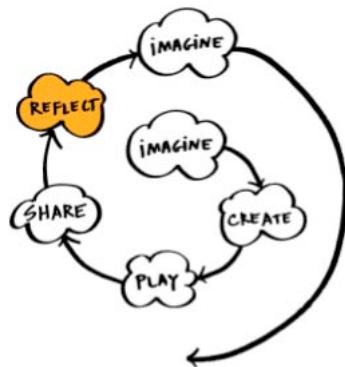


## Reflection via Communication in Scratch

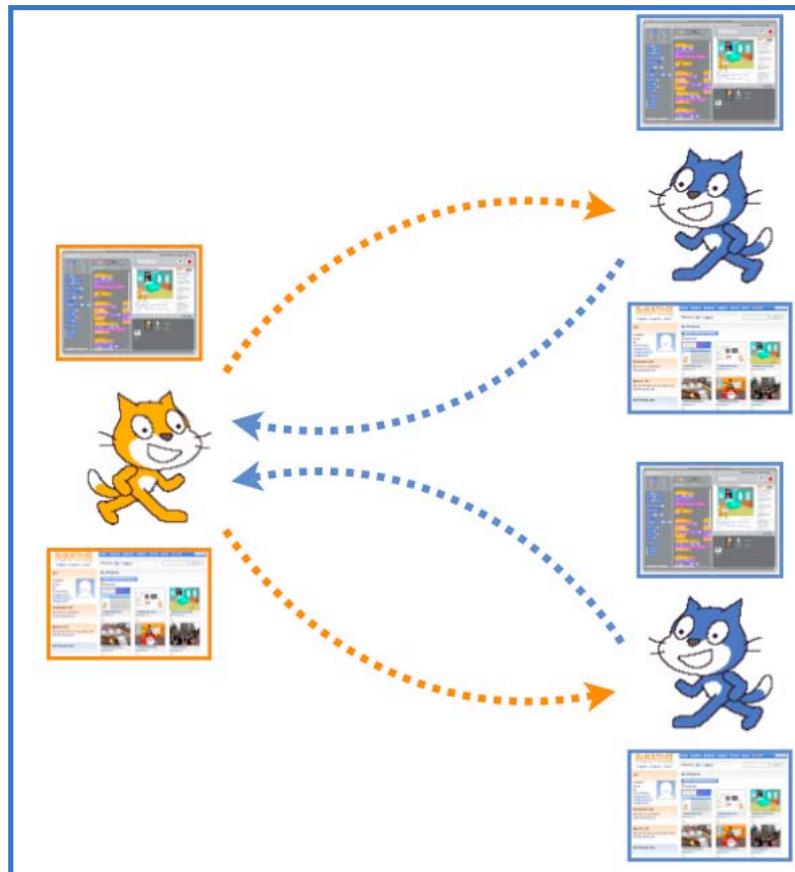
Reflective practice is an essential component to the development and maturity of practitioners in a given field. In the Scratch online community, users share, remix, and comment on the Scratch projects of other members in the community. This rich interaction helps children as they move along the creative spiral of imagine-create-play-share-reflect (Resnick 2007). However, as the current Scratch website is implemented, there is not a structured way for children to reflect on the process. The key question for the design project was the following: ***what kind of environment can and should be created to foster the communication between members of a community about the process of creating their artifacts?***

Literature and theory on youth interaction with social networking sites and reflective practice was considered to frame the study. The author observed current practices and behaviors within the Scratch community. Other successful social networking websites and paradigms were investigated. Interactive web mockups were created to envision future Scratch user profile and Scratch project pages. Scratch projects were submitted showing user scenarios to bring attention to the community the importance of communication and reflection. Users of the community have begun to respond with their own thoughts. Advantages and disadvantages have been considered for such possible new features. The author hopes that this will serve a foundation for the Scratch Development Team if and when they decide to implement such new features.



## I. Introduction

The current Scratch website creates opportunities for members of the Scratch community to interact with each other about their Scratch projects and creation-experience. However, there can be improvements made to the current infrastructure to allow members to more readily communicate with each other and express themselves. The notion of reflective practice is an important idea to try to foster. Without taking the time to step back and consider one's process, it is difficult to improve one's skills. Currently, within the community, members comment and critique upon each other's projects. The goal of this design project is to provide opportunities for a given member to broadcast to the community their thoughts, feelings, and ideas about the process. When Scratch-ers are given a chance to reflect, then the imagine-create-play-share-reflect cycle is complete.



## **II. Initial Observations**

First, I looked at how Scratch-ers interacted and communicated with each other with the given website and infrastructure. I will highlight some examples.

### Repetitive comments in posts:

Often, I found in a comment thread, many users asking the particular Scratch member the same question over and over again. In this particular example, **Bobby500** is asked multiple times whether or not others can use his sprites. Let's assume that he is fine with anyone using his sprites. It would be good to have a place where Bobby500 can give everyone permission to use his sprites. The example can be applied to instances where viewers of the project ask about how to do a certain task shown in the project.

Screenshot of Scratch discussion window removed due to copyright restrictions.

### Creation of review projects/blogs:

Many members have solicited from the community projects which they can review. For instance, **Tanner-FBI** and **Archmage** have setup their own blogs off the Scratch website to give tutorials and make reviews. Others, such as **ToughCritic**, have setup an account dedicated to the reviewing of blogs. The existence of these reviews show the desire for members to want to think about others projects. Are there ways in which a user can talk about his or her own work, broadcasting to the Scratch community the status of current work?

Screenshot of website windows removed due to copyright restrictions.  
See <http://scratchreviews.wordpress.com>

The current Scratch website actually includes a means by which users can comment on each project. This is via the "Project Notes". However, this is usually used for instructions for how to play the game and rarely used for talking about the experience of making the game. This observation motivated the idea to create simple scaffolding to guide users towards thinking about their process.

### **III. Theory, Frameworks, and Existing Practices**

#### Theory on youth and social networking sites

The work of danah boyd presents a framework for understanding how youth realize their identities and relationships within the context of social networking online websites (boyd 2007). She presents 4 basic characteristics unique to online communities: persistence, searchability, replicability, invisible audiences. All these factors should be considered if and when Scratch becomes more and more like existing social networking websites. If deep understanding is desired, perhaps at the next Scratch meetup or event, the Scratch Development Team (SDT) can ask for volunteers to interview about how they interact with "friends" via Scratch. At the very least, the SDT should read boyd's work to become familiar with the dynamics of social networking websites [boyd]. Although it is impossible to predict what emergent behavior and consequences will appear after a new feature is implemented, a conscientious effort should be put forth to anticipate possible effects.

#### Current features on Scratch

One could make the case that the Scratch website and community has become a sort of social networking website, with limited features. Users are discouraged from revealing personal information, such as email address and real names. However, upon observation, one can quickly see the social aspects of Scratch communication. Comments will talk about more personal things, such as how a person's day has been. Members will make projects just to let the Scratch world know that they will be away from the community for a few days. Unfortunately, there have been instances of cyber bullying. On the other hand, members have rallied around this cause and created projects to advocate for the stopping of such practices.

#### Communication issues and concerns

Users have asked for simple communication features, such as instant messaging and personalized inboxes. While this might make communicating better for the purposes of collaboration and finding out what others are doing in real time, allowing such features in this environment creates many undesirable risks. Currently, all communication within Scratch is open to the public. A flagging system is in place for members of the community to let the Scratch Team know when inappropriate content has been placed in projects, comments and tags. This system works well but does not prevent inappropriate content from being seen when it is initially submitted.

There lies a balance between the freedom and privilege to see content instantly uploaded and the protection of users, especially younger children. For the novice, it is empowering to see that your creation is highlighted on the front page momentarily for the world to see. However, others can use this for improper uses.

All communication is currently open to the public. There is a strong danger in allowing any sort of private communication. If cyber-bullying occurs with open communication, how much more would it happen with closed communication. It would then be more difficult to monitor.

Synchronous communication could be advantageous for the collaborative aspects of the Scratch experience. Embodiments such as chat, however, will most likely degenerate into just a place to chat, not necessarily about Scratch-related topics. Already, forum posts, a place of asynchronous communication, have been a location for un-Scratch-related topics.

#### Existing communication paradigms for social networking

In terms of existing social networking paradigms, I considered facebook and twitter. Facebook has a friend feed which allows one to see what one's friends have put as their latest status and also what content they have published to their profiles. Can we create a system such that Scratch members can let others know what is going on in their "Scratch lives" whether it is a status updated or new posted projects? Also, twitter provides 140 characters for a user to express what he is currently doing. With open-ended input, can we encourage conversation that is relevant to the Scratch experience?

Screenshot of Twitter windows removed due to copyright restrictions.

## Reflective Framework

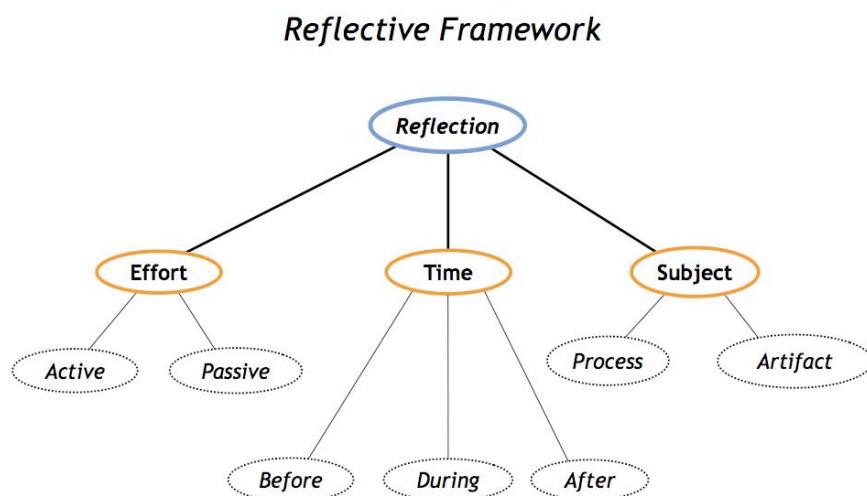
A reflective practice cannot only be the act of a user thinking about his or her own process. In addition, the user can engage with peers and mentors to help them improve their skills. Here, the focus is on how an individual can think about the creation process. A framework for thinking about reflection is presented here. There are three types and associated degrees of reflection:

- effort: active vs. passive
- subject: low-level implementation vs. high-level goals
- time: before, during, after

*Effort:* How much effort does it take for the practitioner to reflect? An example of active reflection is thinking about and responding to a set of questions about the process. An example of passive reflection is having a system automatically capture the process, whether it is the sequence of programming moves within the Scratch program or the actions of the practitioner as he is at the computer.

*Subject:* What is the practitioner reflecting about? He could be thinking about the actual programming and low-level manipulation of blocks, to try to get certain behavior in the program. Also, he could be thinking about high-level goals and what he ultimately wants to achieve in the project.

*Time:* When is the practitioner reflection? He could take the time beforehand to plan out his goals or just think about what he wants from the project. He could be struggling throughout the process of creating the project. Finally, he could think about what he has just accomplished and what lessons he has learned from the experience.



### Guiding questions

Specifically for this design project, four questions were in focus to create scaffolding for reflection:

- *What are my friends doing?* (and conversely what do my friends know about what I am doing?)
- *What do I want to do next?*
- *What am I struggling with?*
- *How do I feel about what I did?*

#### **IV. Implementation**

##### Possible strategies for deployment

Testing and implementation of these features can happen at two scales. In the short-term scale, new features would be created that try to minimize the deviation from current practices. Something as simple as the visual and graphic design of the website should be maintained as users have been accustomed to the visual environment. At this scale, awareness is brought by using current features or only incrementally changing the environment.

At the long-term scale, new features can be seen as future-looking or as visions. In order not to disturb the current Scratch website, features could be tested off the Scratch website. Constraints are fewer and the SDT along with the community can imagine possible new features.

##### Incentives and Citizenship

Another question for deployment and rolling out features is who is privileged to first adopt these features. If you only allow a subset of the community these features, how do you determine the members of that select group? Amazon and Yelp have existing systems that reward members for "citizenship" within the community, meaning that they engage in the relevant behaviors that develop the community. What would be the traits of a "Scratch Citizen"? How would this be assessed? By the community members (Amazon model)? By the Scratch Team (Yelp model)? A mixture?

Screenshots of Amazon and Yelp review windows removed due to copyright restrictions.

##### Deliverables

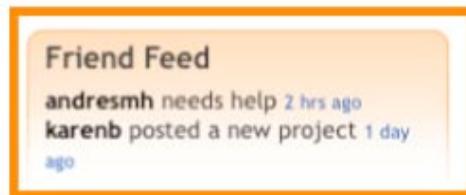
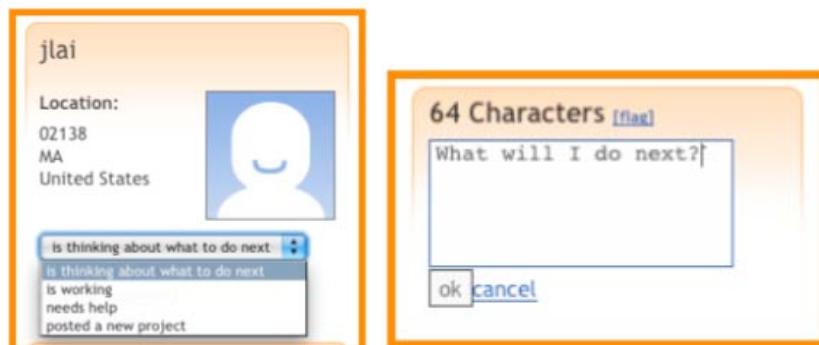
In the end, I created modified HTML/CSS mockups to show how new features would look in the context of the current Scratch website. I modified the Scratch user profile page and the Scratch project page. Each new feature corresponds to the reflection questions mentioned in the previous section.

## User Profile Page

First, an optional dropdown status menu was created to show one of four possible states, [user] \_\_\_\_\_:

- is thinking about what to do next
- is working
- needs help
- posted a new project

Then, this status would show up in a "Friend Feed" where selected friends' status would show be shown. Next, there was a "64 Characters" box that allows an open-ended expression of what specifically a user is doing. This has a "flag" option in case the content is in appropriate. Finally, "Friends' New Projects" are highlighted in the middle to see the stream of latest projects from contacts.



The image shows a full user profile page for "jlai". It includes a profile picture, location information (02138, MA, United States), a dropdown menu for status, a "64 Characters" input field with placeholder text, a "Friend Feed" section with updates from "andresmh" and "karenb", and a "Friends' New Projects" section showing various posts from friends.

## Project Page

First, a reminder is added in the "Add a Comment" box: "look at the FAQs before adding a comment". The "FAQs", or Frequently Asked Questions, box sits below the existing project notes and allows the member to add and answer questions which are being asked by many commenters. Below the "FAQs" is a "Reflections" box. Set questions are part of the template:

- What were your motivations?
- What struggles did you have?
- What have you learned from this?
- Other thoughts?

### Welcome to the World of Scratch



Download this project!

Download the 2 sprites and 14 scripts of "Welcome to the World..." and open it in [Scratch](#)

**Project Notes**

If you had 1 minute to tell a friend the useful things on the Scratch website, what would you tell them?

I've highlighted some of the things I've found useful. Please do the same and contribute to this collection!

**FAQs**

replies to frequently asked questions. look here before commenting!

*How did you make this project?*

I divided up my tutorial into different pieces and took a snapshot and recorded the narration for each piece.

**Reflections**

share about what you did

*What were your motivations?*

I wanted to help other Scratchers navigate the website.

*What struggles did you have?*

I had to plan out each piece I wanted to talk about.

*What have you learned from this?*

**Comments**

Add a Comment

look at the FAQs before adding a comment

**Love It?** [Add to my favorites?](#) [Add to a gallery](#) [disable commenting](#)

and tagging

353 views, 7 people love it, 1 tagger, 20 downloads, in 2 galleries  
Check for favoriters or taggers

jlai shared it 2 weeks ago Some rights reserved

## Scratch screen-cast project

After creating the mockups, I created accompanying Scratch projects that was a screen-cast that walked through the use of these fictitious pages. I spoke as if I was a user logging on to my profile page or viewing the project page of a new submitted project of mine. The goal was to give the audience a clearer depiction of how such features would be used.



### *Feedback via comments and forums*

Initial feedback has been gathered via the forums and comments. I expected greater use of the forums, but apparently that is not practiced by the majority of the community. The more effective means has been through responding to people's comments on my Scratch project that has a screen cast. I have encouraged users to submit their own projects highlighting what they would want. I told them that the HTML/CSS edits are not difficult to learn, but realistic-looking mockups are not the important part. The key is to enter into the conversation about features with respect to communication and reflection and to think about the consequences of new features.

2008-12-01 01:30:51 #1

**jhai**  
Member  
Registered: 2008-10-01  
[Posts: 4](#)

This thread is about the possibility of new features on the Scratch website that deal with communication with other users and thinking about what you've done when making a Scratch project (reflection).

There has been no decision on the Scratch team to implement any of the features yet. However, your feedback is greatly appreciated. It will be considered if and when the Scratch team weighs the pros and cons of different ways to address those issues.

These .html mockups are not meant to be functional nor is the visual look set in stone. Please comment on all the "new features" presented, what you'd do differently, or even your own new ideas related to this topic. Making a Scratch project will be even cooler!

Please, please, don't just say "I want to have chat". If you have any new suggestions, try to make something, in Scratch, photoshop, powerpoint, whatever your favorite tool, and submit it to provide constructive feedback. It doesn't have to be realistic, like these .html mockups. It can be quick sketches to communicate the idea of how the new interface would work and how a user would interact. Be specific about your ideas.

Thanks very much for your attention. Comment and suggest (and Scratch) away!

Scratch Screen Cast:  
<http://scratch.mit.edu/projects/jhai/339700> - Profile Page  
<http://scratch.mit.edu/projects/jhai/340574> - Project Page

'Live' interfaces:  
<http://scratch.mit.edu/andresmh/mockups/jhai.html> - Profile Page  
<http://scratch.mit.edu/andresmh/mockups/project.html> - Project Page

Places to post ideas via Scratch Projects:  
<http://scratch.mit.edu/galleries/view/34880>

Please also consider looking at another post that talks about creating Scratch projects to introduce new users to the Scratch website and helpful hints for when people get stuck:  
<http://scratch.mit.edu/forums/viewtopic.php?id=11649>

*Last edited by jhai (Yesterday 20:36:26)*

Online Report | Delete | Edit | Quote

## **V. Discussion**

### What is the core mission for Scratch and the Scratch website?

While the Scratch website could be improved in terms of organizing content and allowing more channels of communication, one has to step back and ask what the point of the Scratch website is. Much of the Scratch program is built upon principles of constructionism and the use of computers in creating content versus just accessing content. If features are added that make the website more like a social networking website but at the same time, possibly empowers members to mature in their practice, are these new features worth it?

Not only is learning achieved through the creation, tinkering, and manipulation of projects, but it is also situated in a social context. To what extent should the Scratch website support the social aspects? A vital part of the experience in become a better Scratch-er is the interaction with other members of the community, whether through formal means such as critique groups or more informal means such as shared interests.

If additional features are added which make Scratch more like a social networking website but at the same time gives more opportunity for reflection, where should the line be drawn?

Even if the SDT comes to a point that they agree upon the need for a particular change, they must consider whether or not people will want to adopt a new practice. Many of the aforementioned behaviors in the existing Scratch community were emergent and unexpected. No sort of user testing can predict what consequences will occur when new features are presented. In the end, consideration must be taken about how features will play out given the social networking environment and existing practices within Scratch.

### Minimal features necessitates creativity

From the initial observations section, one can see that the limiting features necessitates or fosters ingenuity on the part of Scratch members. For instance, because there is not a place for members to write at length about projects or to give tutorials in text format, they found their own solutions. While some of the solutions which members have taken might not be most ideal, they have learned to "figure out" a stuck situation. Also, members help each other in leading by example of these emerging practices.

Being able to improvise, then, might be a skill that Scratch users can gain as they encounter road blocks. The question still remains, how much should the Scratch infrastructure support this

sort of communication? While learning by struggling can be valuable, sometimes too much effort is put forth and time then wasted. Instead of focusing on making projects and reflecting about the process, a member might get bogged down in finding his or her own solution.

### Motivation for adoption of new practices

Adoption of new practices within a community is difficult to motivate. At a basic level, users have certain habits for how they use the website. Once users in a community are used to certain practices, it is hard to change some element that will satisfy all the users. There have been instances in online networks, such as Facebook, where changes, major and minor, have been made that cause an uproar within a subset of the community. At a higher level, taking the time out of the creation process to reflect may be a foreign idea to many Scratch members. Care must be taken to think through the pros and cons of a given design change.

As it has begun with this design project, I hope to bring awareness to the community about reflective practice while they make Scratch projects. I want members to think about and discuss both reflection and consideration of new features. For instance, there have already been responses to my projects that simply ask for private communication. My response is that cyber-bullying becomes much easier. Their response in turn, is that they did not think about that.

The notion of being "popular" is common throughout the Scratch community. Whether this has a positive or negative connotation, new users surely look to more experienced and well-viewed members as role models for their Scratch lives. Regardless of the implementation of new features, if the idea of reflection, even in the smallest bit, can be developed, hopefully adoption of new features will be built from bottom-up.

## **VI. Conclusions**

### Summary

Based on observations of the Scratch community and consideration of existing research efforts within the Lifelong Kindergarten group, I proposed a set of new features for the Scratch user profile page and the project page. These were framed with the goal of promoting a reflective practice in the community. Actual mockups were presented to the Scratch community and Scratch projects presented user scenarios for the use of these features. Dialogue about these features has begun in the community. Also, discussion about the advantages and disadvantages of features has been presented. When the Scratch Team is ready to think about new features, this design brief can serve as a starting point.

### Acknowledgements

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Forum post with links to live mockups and Scratch screen cast:

<http://scratch.mit.edu/forums/viewtopic.php?id=12166>

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Fall 2009

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