



Library Kids and Scratch: An Analysis of a Random Sample of Participant Projects

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Context and Methodology

Media MashUp (MMU) was an IMLS funded (NLG 07-08-0113) project designed to help libraries build capacity for offering computer-based programs for youth. These programs were designed to help foster 21st Century literacy skills. While youth had opportunities to use a variety of software programs (Audacity, Picasa, and so on), MMU used the Scratch programming language (<http://scratch.mit.edu/>), as the primary tool for youth to learn in order to develop creative projects.

MMU was a partnership between The Science Museum of Minnesota and six library systems from around the country. Two to three staff members from each library participated in the program. Libraries ran at least 20 programs: 10 formal workshops and 10 open-labs.

Youth participating in project workshops were asked to fill out either a short-form or a long-form survey in order to provide information to project evaluators. Over 300 short form surveys were returned to the evaluators and from those responses a random sample of 30 were selected for this analysis. (Note: 2 of the 30 usernames provided in the short survey were inaccurate so this analysis focuses on 28 of the random sample respondents.)

Scratch projects of the 28 random participants were reviewed with the following factors considered:

- The **number** of projects completed by the participant.
- The **type of projects** - games, stories, music videos - completed.
- The **types of text literacies** integrated by the youth creating Scratch projects. For example, this analysis looks at whether or not notes are included with a project in the project gallery, if there is text included in the project itself, and if the youth developing a project interacted by commenting with others about his or her own project.
- A **youth's involvement in the overall Scratch community**. For example, do the youth interact with others by commenting on their projects, asking about how different aspects of projects are accomplished, etc.?
- The **age and gender of youth** completing projects.

Highlighted Examples

Three youth provide useful examples of the activity of those involved in the library Scratch sessions. (The youth are referred to by their usernames, this is how they self-identified on the survey filled out at the library.):

Ben9

At the time of the library workshops this male participant was 9 years old and at the time of this report, Ben9 completed 33 projects. This youth's Scratch involvement

stands out not only because of the number of projects completed, but also due to the variety of his projects and his commitment to the Scratch community.

For example, Ben9 recently posted a contest in his Scratch space. As the contest announcement states:

“This is my first contest the movie or game contest what you have to do to enter is make a game or movie and put it in my gallery my first contest then on January 15 I will make a game announcing the winners good luck. p. s anyone can participate.”

While it’s possible to notice the grammar and writing errors in the contest announcement, it’s also important to realize that this pre-teen boy is actively participating in a large community and taking on a rather large-scale project. For this project Ben9 needs to not only announce the contest, but he also needs to view each of the entries, evaluate those entries based on his own criteria, and announce a winner. While Ben9 might not use adult methodologies for this process, it is a multi-step process that requires planning, critical thinking, and implementation, all of which are 21st century skills (www.p21.org).

Ben9’s projects show the variety of programming possibilities for young people using Scratch. The projects in Ben9’s gallery include games, music animations, and opportunities for members of the Scratch community to participate in Ben9’s work. In the music project titled *dynamite* (A screenshot of which is shown below), Ben9 asks community members to add lyrics to the comments and offers to put those lyrics into a Scratch project.

Urhungry

dynamite



Download this project!



Download the one sprite and 2 scripts of "dynamite" and open it in [Scratch](#)

Project Notes

if you have any spoofs to the lyrics like this

I throw my mops up in the air
sometimes sayin ayo gotta clean
o

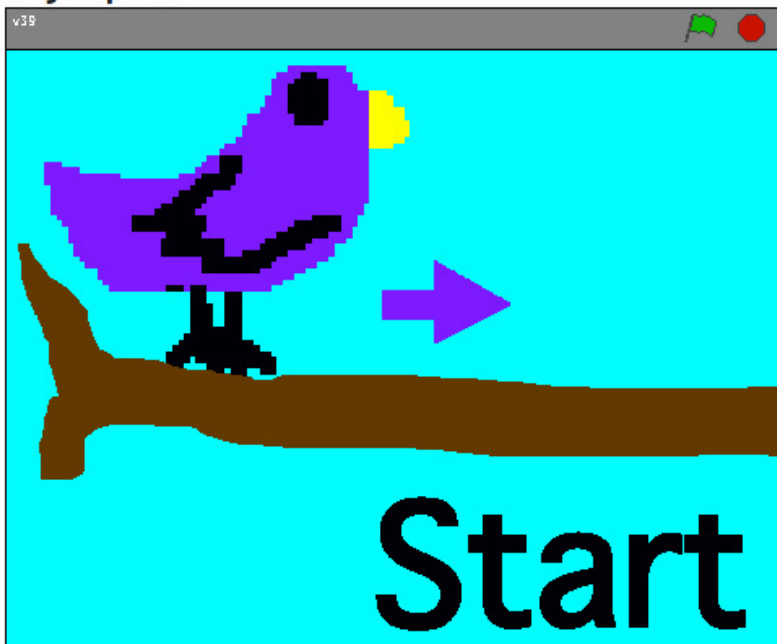
post them on your comments
and ill put them up here

Tags

Add Tags

At the time of the library workshops, this male participant was 12 years old. Urhungry completed 26 projects over several months, including one of the most popular games on Scratch - bird jump 1.3. All of Urhungry's projects are games. In many instances he has created different versions of a game as a way to try out a new idea or make an improvement to something previously released.

bird jump 1.3



Download this project!



Download the 14 sprites and 31 scripts of "bird jump 1.3" and open it in [Scratch](#)

Project Notes

NOTE ABOUT REMIXES: Feel free to remix.

85th top viewed game on scratch!

Over 1500 views! 4/11/10

Over 1000 views! 4/9/10

Over 700 views! 4/8/10

Featured! 4/7/10-4/12/10

Number 15 top viewed! 3/30/10

Move with the arrow keys and

try and avoid touching the top

and bottom. The orange gives

50 bonus points. Help the

awesome purple bird eat the

mystical floating oranges!

Version 1.1 features new wing

flapping! Version 1.2 has a

menu! Version 1.3 has multiple

bird colors

Urhungry's last game upload to his Scratch gallery space was six months prior to this report. As with Ben9, Urhungry shows a strong connection to the Scratch community. His knowledge of the importance of the community is actually demonstrated in a comment in the bird jump 1.3 project notes area. Urhungry writes:

"Sorry for not replying to comments, but there are too many for me to get to. Feel free to comment, but don't expect a reply."

This note is important because it demonstrates Urhungry's understanding that Scratch is an interactive community in which the members are expected to participate. Urhungry realizes that when this expectation can't be adhered to then community members should be made aware. This understanding for Urhungry could go beyond the Scratch community. If he understands the rules of participation in Scratch one might assume and expect that he would also understand, or at least begin to understand, how rules of community apply outside of the software development environment and in his personal and school environments.

Catholic101

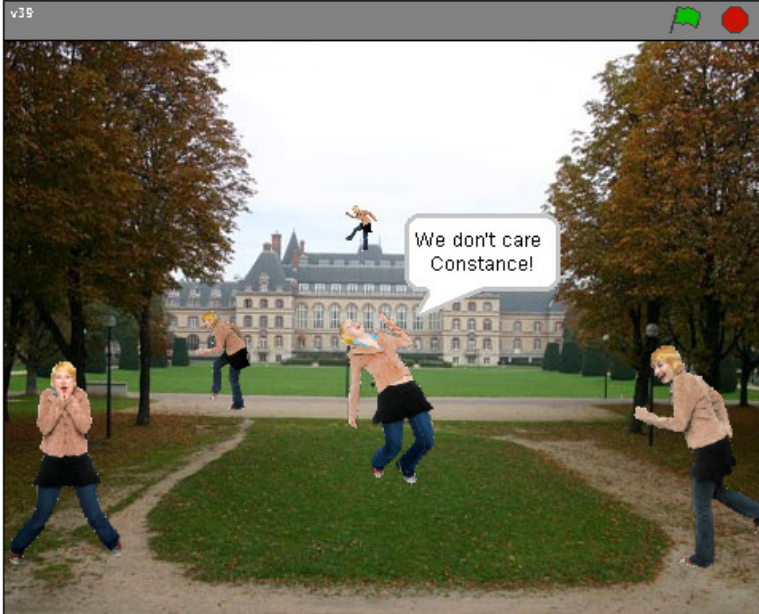
At the time of the library workshops, this male participant was 10 years old. While Catholic101 only posted four projects in his Scratch gallery, his work is important to consider for a few reasons.

The four projects that Catholic101 posted are all story-based. Each one uses either photographic or hand-drawn images for a story told in short snippets of text. It is clear from the projects that Catholic101 enjoys telling stories and finds a platform like Scratch a useful tool for doing just that.

Three of Catholic101 stories are entirely original and one is a tale based on stories about Medusa and Athena.

At the time of this analysis, Catholic101 had not updated his gallery in eight months. He was not an active participant in the Scratch community at the time he was posting his stories. However, it is clear that Scratch was at least a short-term tool for him to use to write and tell stories and it gave him an opportunity to illustrate as well as create text.

The Furious Five



Download this project!



Download the 5 sprites and 3 scripts of "The Furious Five" and open it in [Scratch](#)

Project Notes

I haven't finished it yet and I hope to finish it sometime. This is about a quintet that causes trouble and their dad is really rich. Hope you like it!!!

Tags

Add Tags

Add

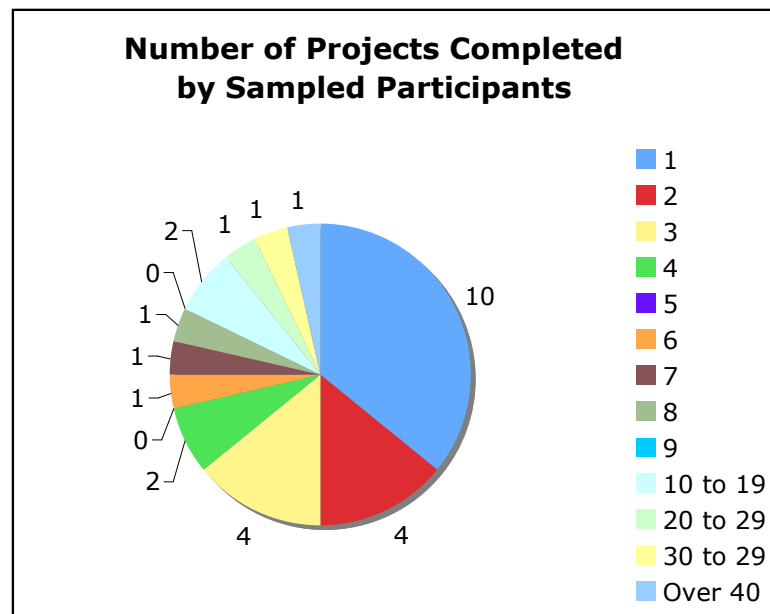
[Link to this Project](#)

By Catholic101

Findings From the Random Samples

Average Number of Projects

The chart below provides an overview of the number of projects completed by those in the random sample. Two thirds (64%) of those in the random sample completed between one and three projects:



Types of Projects

Youth who completed the most projects were also those that created the most varied types of projects. Steppenwolf, the most prolific Scratch creator with 41 projects (at the time of this analysis), developed a wide-range of projects including biographical music videos, games, and surveys.

It's important to note that while the more projects created does correlate to more types and varieties of projects, it is also clear that when a Scratch developer finds the platform useful for a particular type of content development then that becomes the main focus. For example, both Urhungry and Catholic101 found the platform useful for focusing specifically on game production and storytelling (respectively). And, as mentioned in *Meeting Learners Where They Are: A Case Study of Media MashUp Libraries' Approaches to Teaching 21st Century Literacy Skills* by Molly Phipps, some participants in library programs were drawn to the use of Scratch through a connection to a particular interest. (Girls who like to draw see the value in using Scratch as a drawing platform.)

Involvement in the Community

Analysis of the random sample demonstrates *a strong correlation between the number of projects completed and a Scratch developer's participation in the Scratch community*. Those who created the most projects in the random sample also were most apt to provide feedback on other Scratch projects and seek out feedback on their own projects. It looks like those who take the time to create multiple projects, revise their work, and try new ways of using Scratch are aware that one way to improve their own understanding and ability to use the software is to connect with others that use the software.

Those actively involved, also made notes in their own projects about use of their projects by others. For example, Steppenwolf's *Game Pod* project includes this comment in the notes, "Remix with your own game..."

Text-Based Literacies

As mentioned above, those most committed to the software and what they create with Scratch are more likely to include comments and notes on their own projects and also interact with others in the community by writing comments on other's projects, asking questions, and so on.

However, it is also important to note that many of those who created just one, two, or three Scratch projects demonstrated some use of literacy skills. For example, user KaiFlores, who only developed one project, in that one project wrote a short dialog in which she asks visitors how they are doing as shown in this screen shot:



Finally, 12-year-old female user mrtdeneke completed six projects including two that integrate song lyrics into the screen visuals. In order to create these projects this young girl needed to transcribe the songs she listens to and place the text into the Scratch project. As a result she made strong use of both reading and writing skills.

Questions, Recommendations, and Further Study

There are quite a few questions that cannot be fully answered through analysis of the random sample data. Answers to these questions would help to provide information that would ultimately aid libraries that are integrating or starting to integrate technology programming into their youth initiatives. Questions to consider are:

- Why do many youth not continue developing Scratch projects outside of the library workshop environment? The answer might be that the young people are using different usernames than recorded in the survey used for this analysis. Or, the answer might be that these young people face barriers to continuing. Or, the answer might be that the young people simply are not interested in what the software allows them to do.

It is worth investigating this more as the information provided in this follow-up investigation would help librarians understand more clearly what draws young people to software projects, what are the best ways to connect young people to technology, and, what is required to support young people's interest in technology once the appetite is whet.

- What barriers are there for young people who would like to continue but are finding it difficult to do so? Do these young people no longer have access to the required technology at home, at the library, or at school? Is their time on

computers so limited that they do not have time to work on developing Scratch projects? Or, do these youth need more instruction on how to use Scratch in order to move onto more detailed and complicated projects? Libraries that understand what barriers young people face when using technology for Scratch will have a better overall understanding of what technology needs to be provided, and what training is needed when providing that technology.

- Would a project of this type be more likely to be sustainable if young people who participated in the workshops were regularly used as experts and mentors? For example, should a library ask experienced users such as Ben9 and Urhungry to regularly work with their peers on creating Scratch projects? Would that system help to build library capacity while at the same time improve the skills of the participating youth? And, would the expert/mentor role provide youth with incentives for continuing to work with the program? Some libraries using Scratch already use this type of mentoring program, and it would be valuable for more libraries to look at those programs and consider integrating something similar into their own technology based youth services.
- What changes in continued use of Scratch might occur if public and school libraries worked collaboratively on using the software with young people? For example, an English class might use Scratch as a storytelling platform and create Scratch projects focusing on theme, plot, structure and so on. The public library could work with teachers and school librarians both in teaching students how to use the software and providing a venue for working on their projects when outside of the classroom.
- What is required in order to create sustainable use of Scratch (or similar software programs) by young people in libraries? Once a workshop or workshop series is completed in a library, should library staff be expected to continue to provide support and training on the software? If so, how is that support integrated into the work schedules of the participating librarians? The young people sampled for this analysis that continued their use of Scratch outside of the library workshop construct, obviously discovered value in using the software. These young people's interactions with others in the community and their use of text-based literacies in order to create and communicate should not be ignored by libraries. Understanding what is the motivation for a dedicated Scratch use and then providing support for users is an important step libraries need to consider when providing 21st century skills support.

It is clear from this small random sample analysis that Scratch has a great deal of potential as a programming platform for youth. However, in the library setting, a lack of commitment to providing long-term access and a lack of support to users may lead to a small return on investment. This does not mean that use of Scratch by libraries in short-term workshop series is not worthwhile. But, librarians that become involved in these projects need to think carefully about the benefits of supporting Scratch, and similar technology platforms, over a long-term as a way to support 21st

century skills and a way to build a library's technology capacity.

Appendix A

The following is a list of the 28 Scratch developer's projects reviewed for this analysis.

silverwing
KaiFlores
iceskate44
mrtdeneke
BABYCRY
silverwolf91
darkkenpachi24
daveed
jp589
DSHADOW
softwere
Ochey
jackty210
123scott
killer123456789
ben9
catholic101
urhungry
CraigB4L
Steppenwulf
sipcup1213
egypt29
abdullahi
garsone333
darquet
forever16
joshperkins
sammy206