DIGITAL MAKERSPACES

A Professional Development Guide to Implementing a Digital Media-Based Makerspace in K-12 Education

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WHAT IS A DIGITAL MAKERSPACE?

DEFINITION

To digitally create something original or remixed using technology in a physical or virtual space, usually called a digital media lab, to boost self-confidence, learn skills, and take ownership of one's own work.

PHYSICAL OR VIRTUAL

A digital makerspace can be implemented in both physical spaces, such as brick-and-mortar schools, as well as online schools. A virtual makerspace can utilize a website curated with the tools and resources needed to create anything that the user can dream up.

TECHNOLOGY

Digital makerspaces can be low-cost to initially start up. Many free software and web resources exist so that one could startup a makerspace with as little as a few computers, headphones, and microphones. See the following page for an expansive list of the many types of items that can be included in a digital makerspace.

COMPLEMENTARY OR STANDALONE

A digital makerspace can be either a standalone lab within a school, or it can be used to complement another feature, such as a one open once a week in a public library.

CREATING & SHARING

A digital makerspace fosters collaboration, communication, and community among its users. Users are free to explore ideas and technology, share projects, and foster knowledge transfer among one another.

TYPES OF CREATIONS

A digital makerspace is focused on the exploration and creation using digital media—such as videos, music and audio production, remixing content, podcasts, graphics, websites, digital zines (magazines), animation, and much more.

WHAT TOOLS CAN BE USED IN A DIGITAL MEDIA MAKERSPACE?

COMPUTERS, SOFTWARE, WEB

Multiple computers as workspaces (can be desktop or laptop), printers, webcams, curated website for students to access resources they or teachers have compiled, blog accounts, Wordpress, Soundcloud

VIDEO PRODUCTION

Video cameras, green screen for chroma keying, video editing software (iMovie, Final Cut Pro)

AUDIO PRODUCTION

Microphones, headphones, audio production software (Audacity)

VISUAL ARTS

Drawing tablets, cameras, plotter printers, photo and graphic software (Adobe Photoshop, Illustrator)

GAMING & DIGITAL ARTS

Stop-motion animation set-ups, VR/AR, gaming consoles, mobile technology and app coding software, 3D object software (Blender)

THE BENEFITS OF **VIRTUAL** DIGITAL MEDIA MAKERSPACES

DISTANCE

- Online virtual education students can have their own makerspace without the need of a physical space.
- Homeschooled students can use curated online makerspaces through their local library or through non-profit organizations.

TIME

- Children and teens can have access to making things at anytime.
- Users who are passionate about creating things can have more time working on their projects from home.

MONEY

- An online makerspace is a good solution for school districts and libraries that have limited funding to organize a physical makerspace with equipment.

AVAILABLE RESOURCES

- Makerspace coordinators can utilize the vast amount of apps, software, websites, and other resources – many of them free – to create a customized curated website to build up a large virtual lab for students who are not physically present.

Digital Storytelling & the Makerspace

"**DIGITAL STORIES** are multimedia movies that combine photographs, video, animation, sound, music, text, and often a narrative voice. Digital stories may be used as an expressive medium within the classroom to integrate subject matter with extant knowledge and skills from across the curriculum. Students can work individually or collaboratively to produce their own digital stories. Once completed, these stories are easily be uploaded to the internet and can be made available to an international audience, depending on the topic and purpose of the project."

Roland, C. (2006). Digital stories in the classroom. *School Art,* *105*(7), 26.

How Students Create Meaning and Truth Through Storytelling

"**MULTIMODAL LITERACY** refers to meaning-making that occurs through the reading, viewing, understanding, responding to and producing and interacting with multimedia and digital texts. It may include oral and gestural modes of talking, listening and dramatizing as well as writing, designing and producing such texts. The processing of modes, such as image, words, sound and movement within texts can occur simultaneously and is often cohesive and synchronous. Sometimes specific modes may dominate. For example, when processing screen-based texts the visual mode may dominate whereas the mode of sound may be dominant in podcasts."

Walsh, M. (2010). Multimodal literacy: What does it mean for classroom practice. Australian Journal of Language and Literacy, 33(3), 211-239.

Digital storytelling through the use of "media tools to craft and record meaningful stories from their lives and share these stories in ways that enable learning, build community, and inspire justice"

– Center for Digital Storytelling, Berkeley, California

(via http://guides.library.stonybrook.edu/digital-storytelling)

TECHNOLOGY & COLLABORATION

Digital makerspaces allow participants to build community through their peer networks, foster collaboration and explore new creative avenues, and bring their stories to life.

Digital makerspaces offer the chance for students to take ownership of their work, which will increase self-esteem and increase creativity. Digital makerspaces allow for knowledge transfer by students acting as instructors and helping their peers learn new techniques.

REMIX CULTURE
WHAT IS IT?

remix culture: the amateur creation of cultural artifacts—often remixes, mashups, or parodies based on the creative works of others

EXAMPLES

- GIF remixing: taking a GIF which shows some form of mass media, and remixes its meaning from the original context to use as a form of personal expression in a different content than the original
- Taking open source software and customizing it for another purpose
- Vidding: A form of fandom, where fans of a particular movie create music videos from the footage of one or more visual media sources
- Many forms involving music: DJing, Arranging, Sampling, Music Mash-Ups

Remix culture is rooted in the works of renowned academic Lawrence Lessig, who is a proponent of reduced legal restrictions on copyrights and the founder of Creative Commons

Remixing is one of the most popular activities done in K-12 digital makerspaces. If implemented, it is recommended that students are taught basic fundamentals of copyright law and Creative Commons usage.

DIGITAL STORYTELLING PROJECT IDEAS & PROMPTS

Medium.com Group Digital Storytelling

Use Medium.com to compile stories, photos, and videos in an essay format centered around a subject or thought by members of the digital makerspace.

Example: 18 in the Bay asks "What is it like to be 18 right now?" A class of high school seniors in the San Francisco Bay Area found "the answer to that question. Through a series of projects—some written, others visual or digital—the students told their own stories and captured a vibrant portrait of their lives. Here is the result: A raw, raucous and very real of depiction of what it's like to be an American teen today."

Content suitable for older teenagers. This concept could be modified for younger students.

Link: https://medium.com/18-in-the-bay

Makerspace Podcast

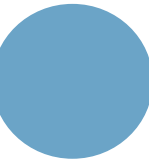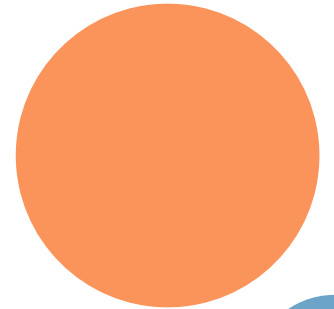Use Audacity and Soundcloud to record and edit a podcast.

Example: Makerspace participants could develop their own podcast series about a topic. Examples could be interviewing fellow students and talk about either a specific theme or just do it freestyle and let the conversations flow naturally. This is a good way for participants to learn how to organize, interview, learn audio production, and all of the other fundamentals of podcasting. It will also allow them to get to know their peers.

Futuristic Storytelling

Use audio or video production or digital arts to remix pop culture into a futuristic theme.

Example: Students can envision what the world will be like in the year 3000. Have them remix a current piece of media – a commercial, print advertisement, etc. into what it will sound or look like in the future.

potential challenges & harm

Digital makerspaces, and the content produced within them, pose multiple challenges and potential harm due to the sensitive content and topics that students may self-author.

The content produced within digital makerspaces may initiate a difficult conversation. Makerspaces often delve into social justice issues, personal coming-of-age stories authored by the students, and other situations that might have the potential to cause harm to a student or at least initate a difficult conversation, such as a student revealing sensitive personal information about his or her life. Educators tasked with managing a digital makerspace need to be aware of these potential issues and how to handle them.

Makerspace managers have the opportunity to engage in difficult topics. Students using the makerspace should be made aware that content produced within the space may result in challenges, and the students should be taught several ways to handle such situations and even be prepared to talk about them as a class.

In choosing emotionally-charged topics, it may be wise to reserve certain topics for only the oldest students. Topics should be assessed by grade-level that is using the makerspace.

Types of creations that involve safe exploration gravitate towards mash-ups, website building, game coding and 3D object creation, and music production.

Depending on grade level and other factors, educators may opt to steer away from certain topics, such as those concerning culture, politics, family issues, personal stories about sensitive subjects, violent images, videos, and games, and topics that are sexualized. If a topic seems to cause a negative reaction, it may be best to avoid unless students are older and/or mature enough to handle the content.

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