# When Should We Use Technology with Visitors and How Much?

# Research

**Scott Burg**
**Rockman et al**

# Practice

**Carol Tang**
**Children's Creativity Museum**

**Ali Jackson**
**Sciencenter**

# Children and Screen Time: Research Overview



**ACM Interactivity**
**Denver, CO**
**May 11, 2019**

**Scott Burg**
**Rockman et al**

# Screen Time – Historical Context



"The modern world has overwhelmed people with information that is confusing and harmful to the mind."



"Disrupting the balance of young children's minds."



"Ruining conversation and the pattern of family living."

# Headlines – How bad is it?

- **Screen Addiction Is Taking a Toll on Children**, New York Times, 7/6/15

- **Screen time Is Making Kids, Moody, Crazy and Lazy**, Psychology Today, 8/18/15

- **How just two hours' screen time a day as a toddler can make children more likely to 'be badly behaved or have ADHD'**
- Daily Mail Online, 4/15/19

- **Electronic media keeping kids from communicating with parents**, Science Daily, 5/27/16

- **Is our screen-time anxiety more detrimental than screen time?** Washington Post, 5/30/16

- **It's 'digital heroin': How screens turn kids into psychotic junkies,** Dr. Nicholas Kardaras, New York Post, 8/17/16

# Headlines – Or is it that bad ?



- **Children benefit from the right kind of screen time**, New Scientist, 3/26/14

- **Maybe you're being too strict with your kids screen time**, USA Today 12/18/17

- **Screen time for kids is probably fine**, FiveThirtyEight, 6/18/15

- **Sorry Kate Winslet, some screen time can be good for kids**, The Daily Telegraph, 11/4/15

- **Parents: Reject technology shame,** The Atlantic, 11/4/15

# Some statistics

• Average child spends 3 hours per day watching television and 5-7 hours total on screens (NIMH).

• The average age a child first watched a television in the 1970's was 4 years; in 2012, it was 4 months (Rideout, V. J., & Hamel, E. (2006).

• Between their first and second birthday, on any given day, 64% of babies and toddlers are watching TV and videos, averaging slightly over 2 hours. Thirty-six percent have a television in their bedroom. (Rideout, 2011)

•Among children 8 years of age and younger, 75% use smartphones (Common Sense Media, 2015)

# Categories of screen time

- **Passive consumption**: watching TV, reading, and listening to music

- **Interactive consumption**: playing games and browsing the Internet

- **Communication**: video-chatting and using social media

- **Content creation**: using devices to make digital art or music



*The common sense census: **Media use** by **tweens** and **teens***
*V Rideout - Common Sense **Media**, San Francisco, CA, 2015*

# What kind of screen time is it?

- Screen time as a sum of all screen-related activities might not be the most accurate and useful measure.
- Computer use and video game play should not be classed as the same type of activity as TV viewing.
- Active screen time
  - Physical and cognitive
  - Physical inactivity and screen time may not be directly linked
- Passive screen time
  - Conflicting evidence on educational and physiological impact
- Extent to which a child actively engages with media may be a function of the child, rather than the specific form of media.

Analysis from Australian Institute of Family Studies Longitudinal Study of Australian Children (LSAC). (2004-2010)

# Challenges of studying screen time

- Many studies do not establish firm causality
  - Does media affect children differently in different contexts?
- Few controlled experiments
  - Would parents permit their children to participate in a control group?
- What constitutes screen time?
  - *"The research world is so far behind what these different devices and apps can do. It's difficult to do the studies to even figure out what's best for kids before the technologies change again," - Heather Kirkorkian, University of Wisconsin*
- Individual differences in how children respond to different media

# World Health Organization (WHO) Recommendations - 2019

- Children younger than 1 year old should have no screen time
- Children ages 2 to 4 should have passive screen time capped at an hour a day
- Children under five must spend less time sitting watching screens
- Limits on sedentary screen time do not include:
    - Video chats with relatives
    - Programs that have children actively participating
    - E-books where parents read along

World Health Organization. (2019). Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age. World Health Organization.

## Cooney Center – Families and Media Project (2014)

- Nearly half (44%) of the screen media 2- to 10-year olds considered educational

- Ed. media occurs most frequently with among very young children (2-4 yr. olds)

- Children spend more time with TV than any other platform

- Children still read! An average of 40 minutes per day (29-print, 8-computer, 5-e-platforms)

- As children get older, the amount of time they spend with screen media goes up (from 1:37 to 2:36 a day), and the proportion that is educational goes down (from 78% to 27%)

# AAP Position on Screen Time

American Academy
of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

- Latest report: October 2016
- Shift from previous recommendations
- Well designed media used by parents and children together, could be a tool for social interaction and learning.
- Adopting a more realistic approach
  - Recognizes ubiquity of technology in our lives
  - Toddlers may benefit from new technologies (video chat)
  - Most preschoolers already using tablets and other technology
- Role of parents in interpreting and contextualizing
- Differentiate between entertainment and educational media

# NAEYC-FRC Report

- Television shows and electronic resources can serve as powerful tools for teaching and learning, when incorporating what is known about effective reading instruction (Corporation for Public Broadcasting 2011)

- It is the educational content that matters—not the format in which it is presented (Wainwright & Linebarger 2006).
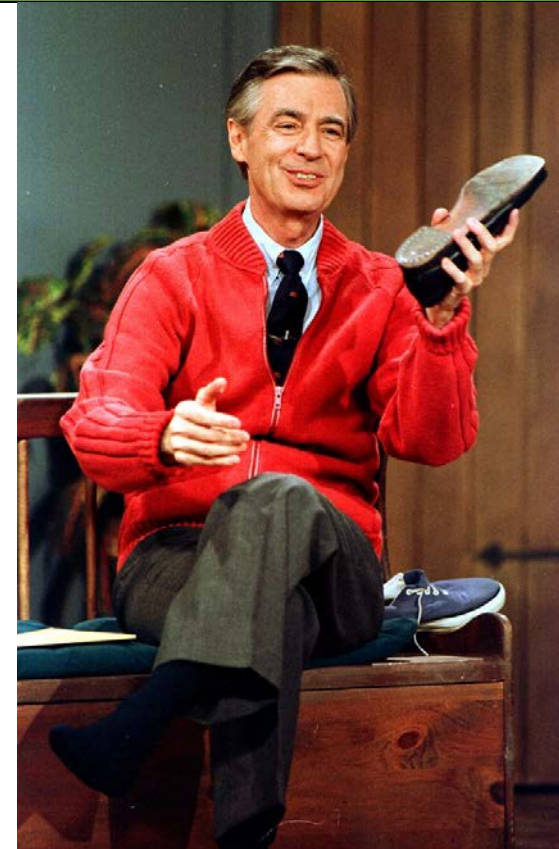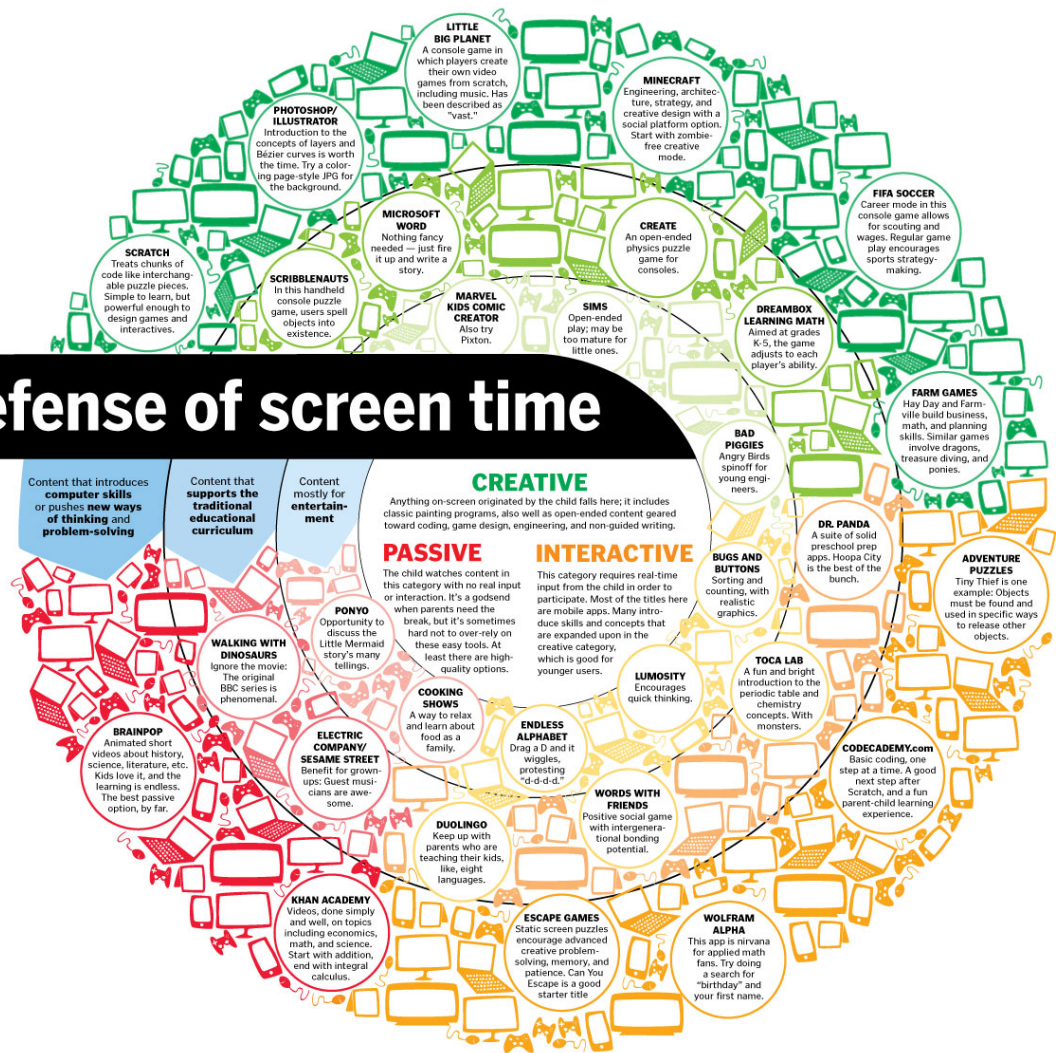
Flickr user galaxyfm
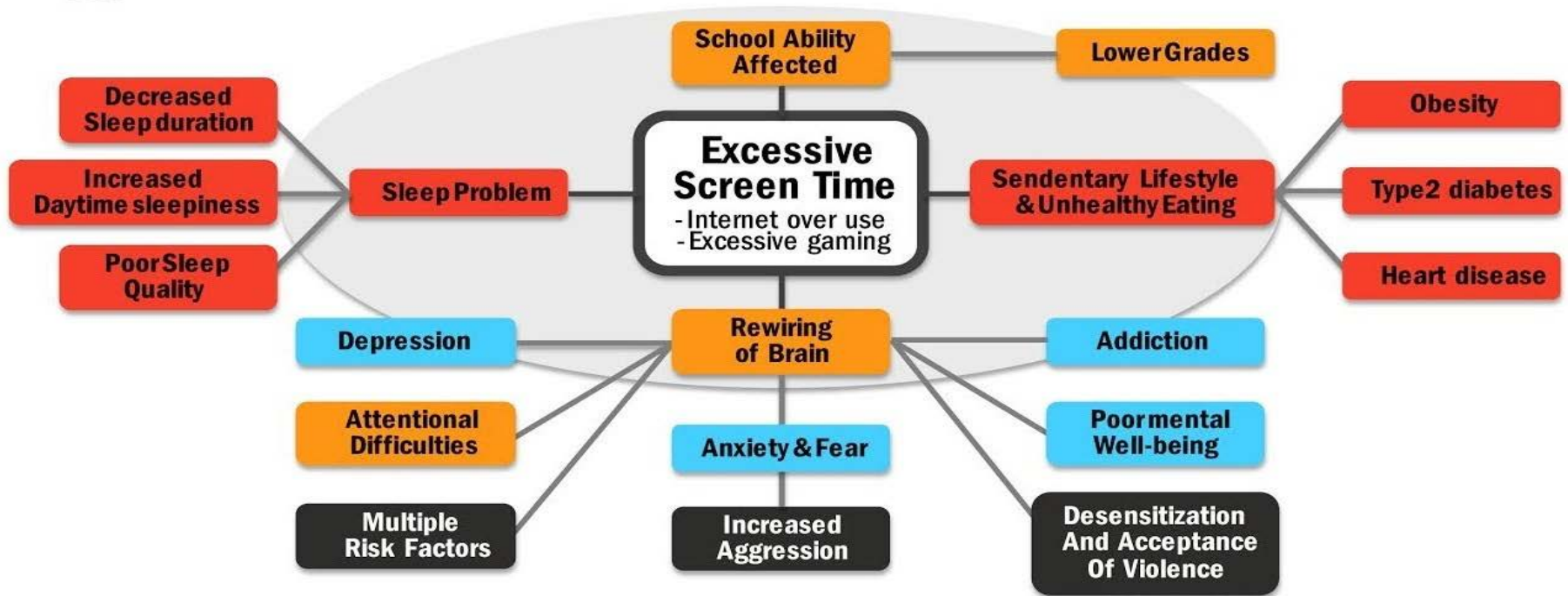
# Impacts of screen time

# Impacts of screen time

# Children and screen time

- Preschoolers can and do learn from high quality educational media (Fisch & Truglio, 2001)
- Children under age 3 struggle to learn from a screen, but some features can support learning
  - Repetition (Barr et al., 2007)
  - Familiar characters (Lauricella et al., 2011)
  - Social contingency

# Impact on cognitive development
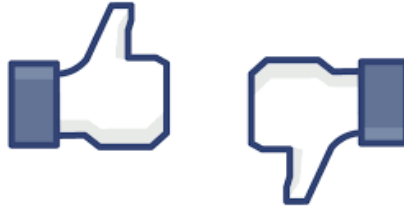


- TV watching is correlated with poor language development. Two or more hours per day of screen time before the first birthday is associated with a six-fold increase in language delay. (Aamodt & Wang, 2011)

- Live interactions between a child and an adult conducted over a digital device such as a tablet or smartphone enable children to learn new words (Roseberry, 2013)

- Violent content and evening media use were associated with increased sleep problems for children aged three to five years. (Garrison, 2011)

- Interactivity and adult modeling help children to learn a task better than passive viewing of the same material (Lauricella, A. R., et. al. 2010)

# Link between research and recommendations

- Evidence cited is overwhelmingly from quantitative sources, especially for risk-focused advice (harm reduction is often the starting point).

- Positive visions of screen time tends to be crowd-sourced (i.e. self-reported experiences of parents), advocated by industry (e.g. Apple), or claimed as 'common sense' with no links to evidence.

- The organizations with the closest links between evidence and recommendations are those that commission their own research. (e.g. Common Sense Media)

- Children's ages, interests, developmental abilities and gender are intrinsic parts of media use, however very few recommendations acknowledge these differences.

# Parents, children and screen time

- Parents' own digital skill level determines how, and with what results, they mediate their children's digital media use. (restrictive vs. mediation; Livingstone, 2015)

- Parental values around digital media can be as influential as parents' skill levels in how they approach media in the home and in their children's lives.
  - Digital media use offers opportunities for parents and children to share expertise and to learn from one another, if both are open to doing so (Fletcher and Blair (2014).

- The gender of both parent and child influences parental mediation.
  - Studies have shown that girls tend to be monitored and restricted more than boys, even when they are the same age (Eastin et al. (2006); Kirwil (2009); Livingstone et al.,2016: forthcoming).

- Parents of young children are more likely to engage in all forms of parental mediation, including technical restrictions, social restrictions, active mediation and monitoring. (Pasquier et al. 2012).

# Conclusions

- Media use is no longer an optional extra

- 'Screen time' cannot be homogenized as a uniform or inevitably problematic activity.

- Heavy focus on risk with little exploration or recognition of opportunities creates the dominant message to parents that their main responsibility is to limit and control.

- Heavy focus on restrictions leaves parents unsupported in finding opportunities for children and parents to learn, connect and create together using digital media.

# Scott Burg

scott@[rockman.com](rockman.com)

# Think ahead about technology use in your museum, share one <u>hopeful</u> and one <u>concerning</u> statement?

**Hope**

**Concern**

# Children's Creativity Museum San Francisco, California

**Dr. Carol Tang**

**Executive Director**

**ACM, May 2019**

To nurture creativity and collaboration in all children and families.

# Zeum opened in 1998

# Strategic Plan: Theory of Change

# Strategic Plan: Theory of Change
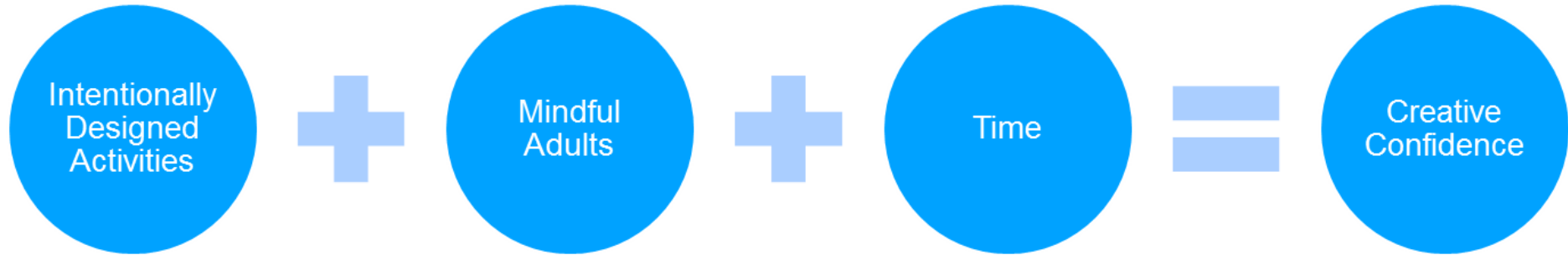


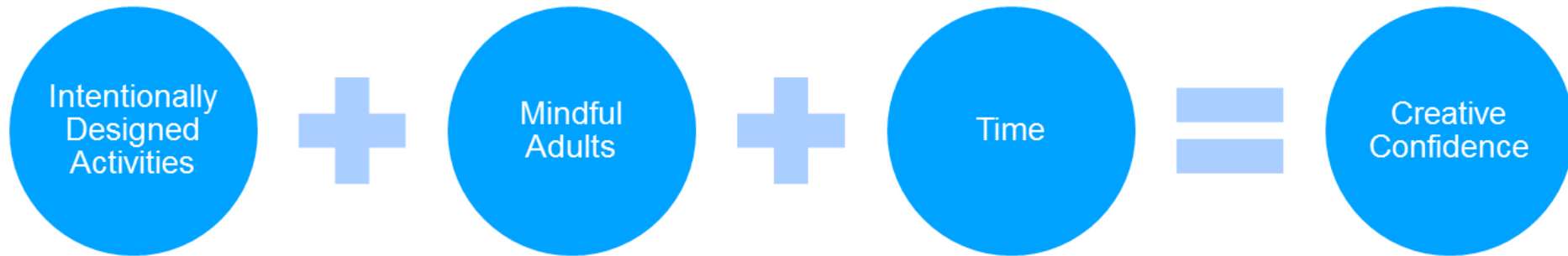Intentionally Designed Activities **+** Mindful Adults **+** Time **=** Creative Confidence
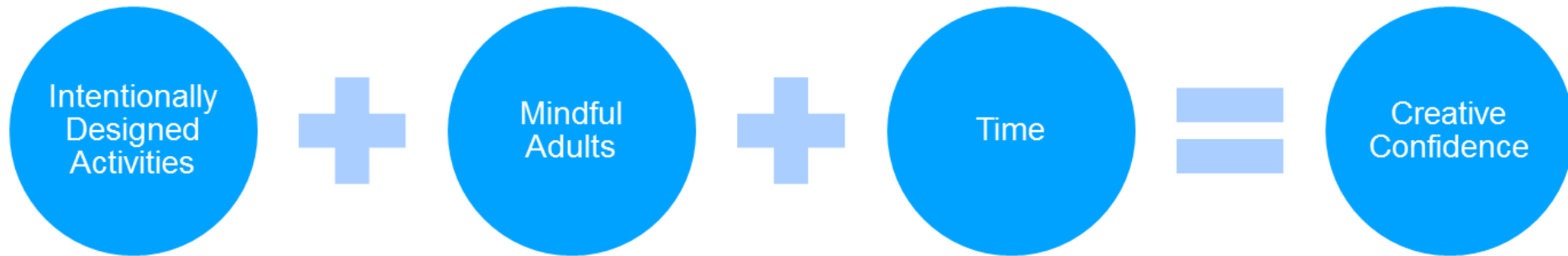
- "Sticky" for 20+ minutes
- Repeatable
- Serve children through ages and stages

# Strategic Plan: Theory of Change

**Intentionally Designed Activities** + **Mindful Adults** + **Time** = **Creative Confidence**

- People-facilitated
  - Model good behavior with technology
  - Sharing and re-iteration

# http://bit.ly/2EcZVnN

- ACM Newsletter. Vol. 30 #1
- Winter 2016/17



**hand to hand**
ASSOCIATION OF CHILDREN'S MUSEUMS

**Digital Technology: Use it or Not— One Museum's Guiding Principles**

Carol Tang
Children's Creativity Museum

The Children's Creativity Museum's (CCM) approach to using technology stems from its unique location in San Francisco—blocks from some of the most famous internet companies in the world—and also from its origin as an art and technology studio for underserved youth.

When CCM was founded as "Zeum" in 1998, relatively few low-income children or teenagers had access to computers and other digital media. That has changed, but digital arts continue to be an important part of CCM's identity. Even when Zeum became the Children's Creativity Museum in 2011 (in response to changing neighborhood demographicsm such as more residential housing, more young families with young children), it did not abandon its core digital arts exhibitions such as the ClayMation Studio and Music Studio. Along with the name

To avoid making the screens themselves the focus of museum exhibits or programs, there is always something physical to look at and manipulate nearby. Some examples include:

- **Augmented Reality Sand Box:** A projection of colors onto the sand's surface encourage visitors to interact with and manipulate the material.
- **Sketch Town:** Children create their own buildings and vehicles using paper and markers. These paper creations are then scanned and projected into a digital city. Children can even interact with the buildings on the projection and make them move and spin.

that "getting in the flow" is an important element for creativity and skill mastery. Thus, all of our experiences aim to be fun yet challenging enough to keep a child's attention.

**All activities must have an element of collaboration and/or sharing.** For videos and films, we email finished projects home so that family members can review and discuss the stories and the creative process soon after their museum visit. We also encourage sharing with grandparents and on social media to build children's creative confidence. We encourage children to play each other's video games during our workshops. They are also able to share their playable video games with a virtual online community created by Bloxels (in compliance with online child safety laws).

**Activities built around screens should** most often be situated in separate rooms, al-

CHILDREN'S CREATIVITY MUSEUM



Empowering children to be producers of digital media, not just passive consumers



- Technology can unlock creativity
  - Story-telling
- Hide Screens
- Digital + Analog
- Social Component

The Children's Creativity Museum is a hands-on multimedia art and technology experience designed to build creative confidence in children ages 2-12. We advance our mission, to nurture creativity and collaboration in all children and families, by providing opportunities for creative expression, innovation and critical thinking.

# First Floor

Be sure to visit **SketchTown** in our **Community Lab**!

## Inspiration Studio

Drop-in for a variety of activities including special workshops and Early Childhood classes.

**AGE VARIES**

## Animation Studio

Tell your own story creating clay characters and using digital technology for a stop-motion movie.

**AGES 5+**

## Community Lab

Visit SketchTown, an immersive technology experience that allows for real-time creation and collaboration in the digital realm.

**ALL AGES**

## Imagination Lab

Build, sculpt, perform and set your imagination free. Augmented Reality Sandbox: Construct landscapes to learn about natural environments.
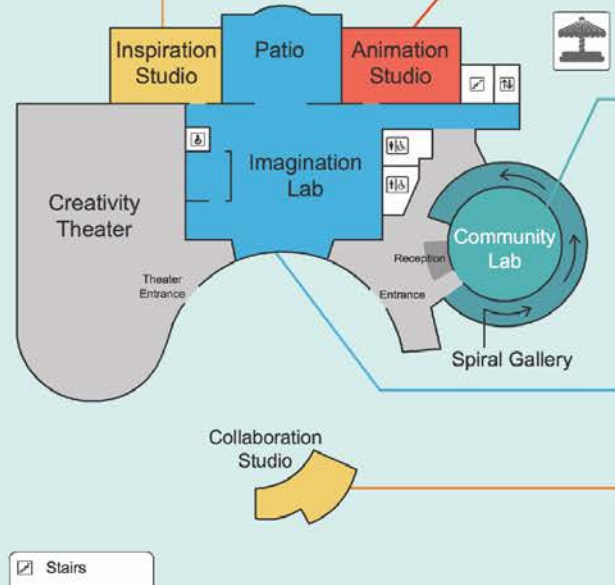
**AGES 5 AND UNDER**

## Collaboration Studio

Located adjacent to the entrance, this space offers special programs and activities in collaboration with other organizations.
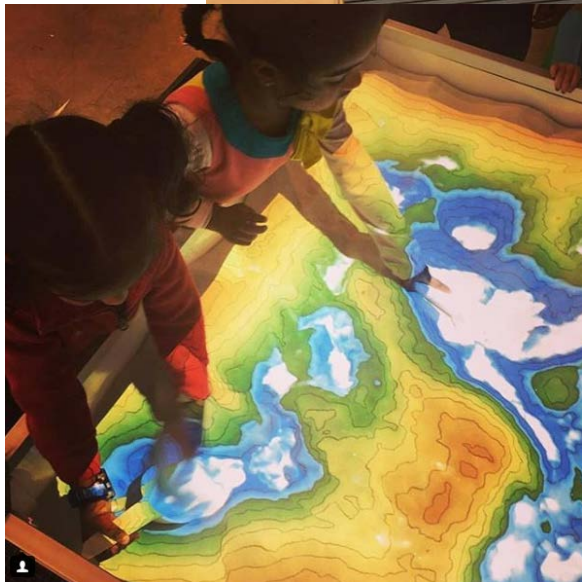
**AGE VARIES**

Inspiration Studio

Patio

Animation Studio

Creativity Theater

Imagination Lab

Community Lab

Theater Entrance

Reception

Entrance

Spiral Gallery

Collaboration Studio

Stairs

# SketchTown

# Augmented Reality Sandbox
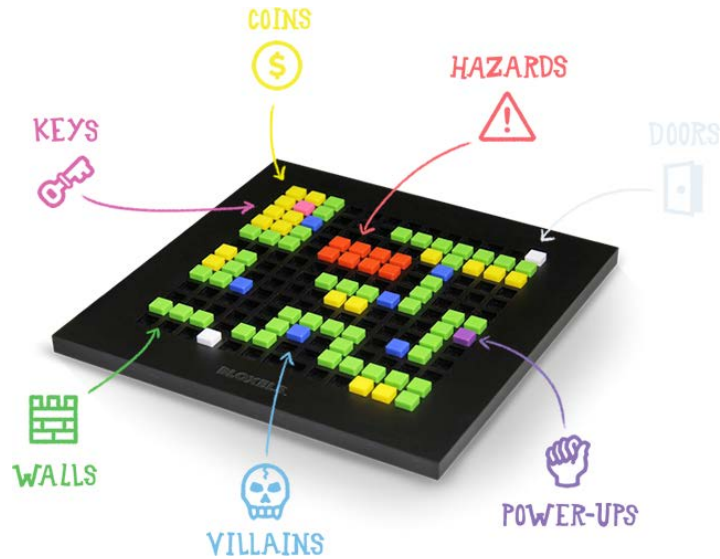
INSTITUTE of Museum and Library SERVICES

# Animation Studio

# Robot Coding Lab

# Make Your Own Video Game Workshop



Story-telling

- Characters
- Rules
- Plot Twists
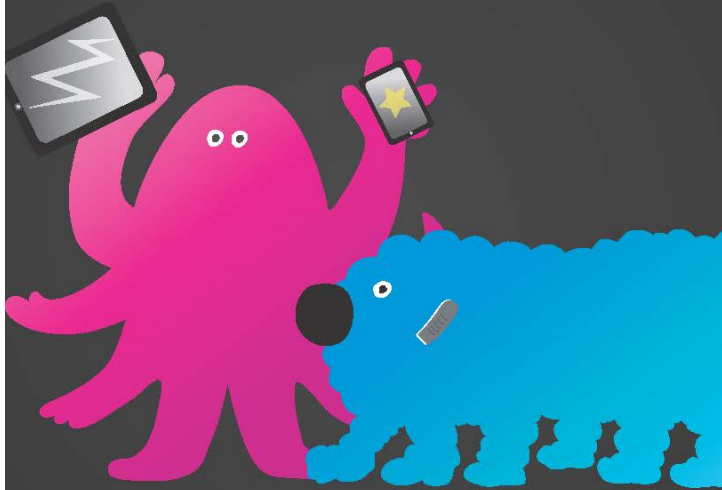- Pitfalls
- Happy Ending

# Making Music Studio

www.creativity.org

IMAGINE, CREATE AND SHARE WITH US!
#celebratecreativity

f /creativitymuseum

@creativitykids

carol@creativity.org
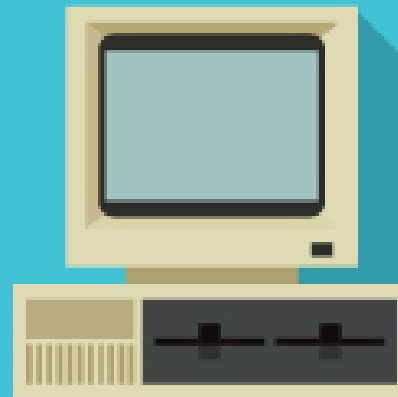@CarolTang1

CHILDREN'S CREATIVITY MUSEUM

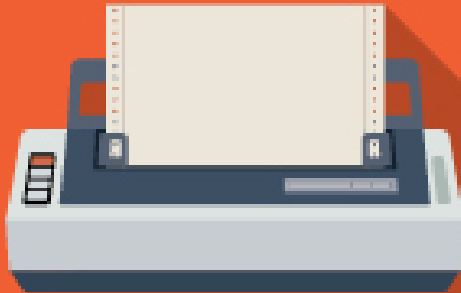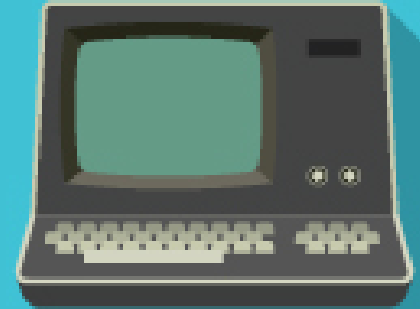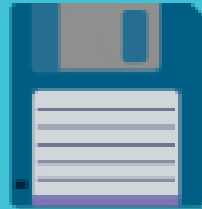# Does the digital technology **engage** or **distract**?
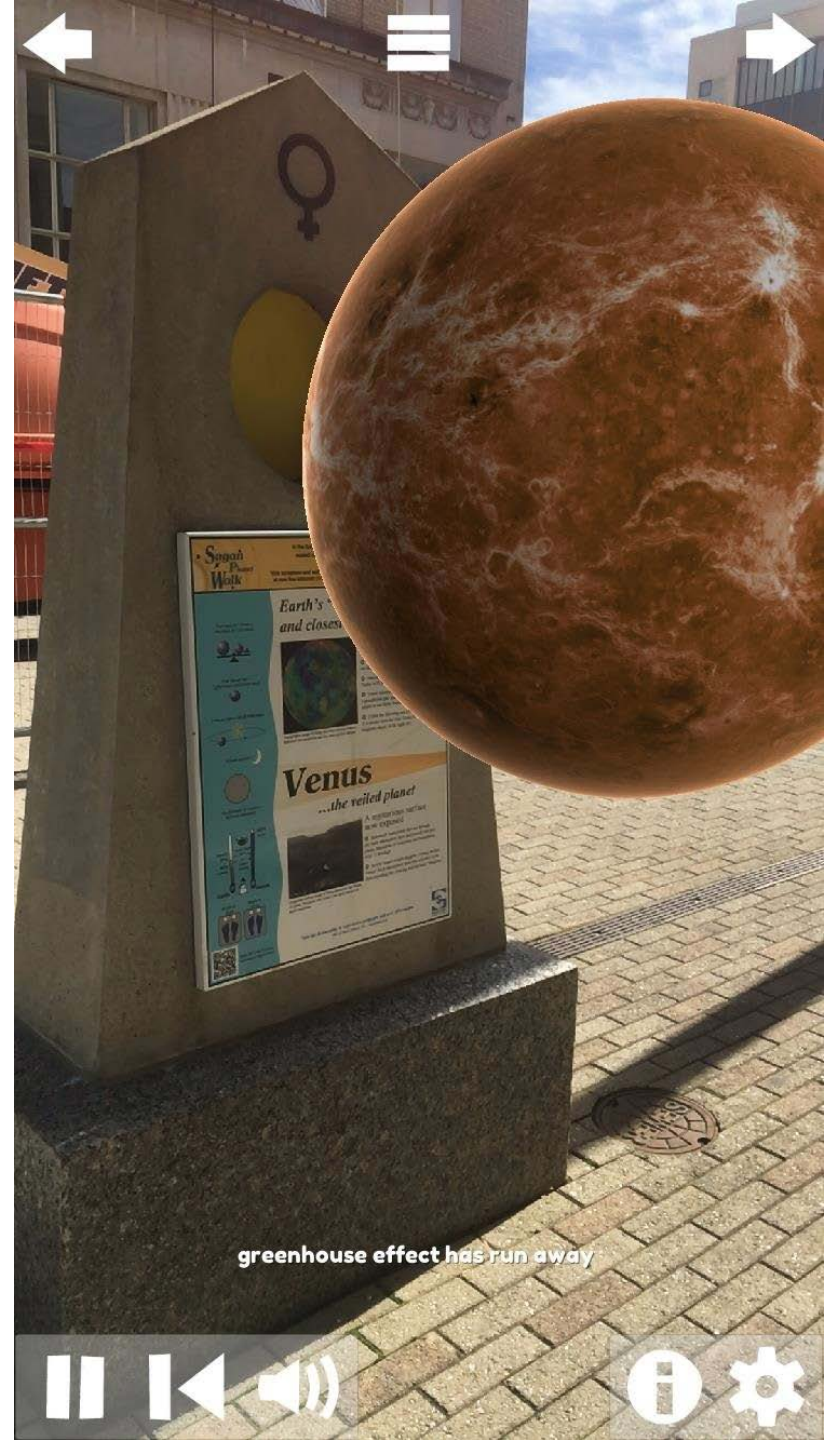
Technology as just another **tool**.

Is it about the **technology** or the **experience**?

# How quickly will the technology become **outdated**?

What's the **digital culture** in our local community?

# **Thank You**

Ali Jackson, Director of Partnerships

ajackson@sciencenter.org

| Carol | Scott | Ali |
|---|---|---|
| **Funder or board request to add new technology to the floor.** | **The museums is planning an exhibit with a lot of technology, how do you evaluate it?** | **Dealing with digitally distracted children and parents or caregivers.** |

# Thanks!

**Scott Burg – [scott@rockman.com](mailto:scott@rockman.com)**
**Rockman et al**

**Carol Tang – [carol@creativity.org](mailto:carol@creativity.org)**
**Children's Creativity Museum**

**Ali Jackson – [ajackson@sciencenter.org](mailto:ajackson@sciencenter.org)**
**Sciencenter**

**Darrell Porcello – [porcello@gmail.com](mailto:porcello@gmail.com)**
**Children's Creativity Museum**

**Interactivity 2019**