LEARNING CREATIVE LEARNING (MAS.712)
Spring Semester 2016
Wednesdays 10:30-12:30

We live in an era of rapid change -- so the ability to think and act creatively is more important than ever before. Unfortunately, most activities in children’s lives, whether it's lessons in the classroom or games in the living room, are not designed to help them develop as creative thinkers. In this course, we explore new technologies, activities, and strategies to engage children in creative learning experiences, so that they are prepared to flourish in a fast-changing world.

The course is divided into two half-semester modules. Students can sign up to participate in either or both modules (6 units each).

The first module (Lifelong Kindergarten) will focus on a framework for understanding and supporting creative learning, based on what we call the Four P’s of Creative Learning: Projects, Passion, Peers, and Play. Through hands-on activities and discussions, this module will explore strategies for supporting interest-driven, project-based, collaborative approaches to learning.

The second module (Toys to Think With) is a project-centric class focused on the design and creation of toys for creative learning. Through in-class activities and discussion, this module will explore toys through the lens of interaction design and constructivist learning theory. Each class is centered around a design principle relevant to creative learning, including: agency, comparability, tinkerability, and accessibility.

Note: The second module will be offered in the same time slot as Massive: The Future of Learning at Scale (MIT course 11.S942). So students taking the first module of Learning Creative Learning can opt to take Massive during the second half of the semester.

Want to sign up for one or more modules? Fill out this registration form. We’ll send you a confirmation by February 4.

Summary info for registration:

Learning Creative Learning (Lifelong Kindergarten + Toys to Think With) - MAS.712 - 12 units
Lifelong Kindergarten without Toys to Think With - MAS.890 - 6 units
Massive, the Future of Learning at Scale (alternative to Toys to Think With) - 11.S942 - 6 units

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MODULE #1: LIFELONG KINDERGARTEN
Facilitated by Mitchel Resnick (mres@media.mit.edu)
TAs: Jennifer (jacobsj@media.mit.edu), Moran (morant@media.mit.edu), Carmelo (tarmelop@media.mit.edu)
Room E14-633

February 3: Creative Learning
Introductory presentation by: Mitchel Resnick (slides)

In-class activity
Marshmallow challenge

Activity for next week (post your slide)
Read Seymour Papert’s essay on Gears of My Childhood and create a slide about an object from your childhood that interested and influenced you. For inspiration, here are some childhood-object stories that others have written: Cello, Knots, Stars, Blocks, Steps, Coloring Set, Kites, Pencils. (Most of these stories are from Sherry Turkle’s books Evocative Objects (2007) and Falling for Science (2008). Also, see Sherry Turkle’s Introduction about evocative childhood objects.)

Primary Reading for next week (post your slide)
Mitchel Resnick (draft): Lifelong Kindergarten: Chapter 1 (pdf)

Other Resources

February 10: Projects

Conversation with: Andrew Sliwinski

In-class activity
Hands-on exploration with Scratch

Activity for next week
1. Make a Scratch project for someone significant in your life (and add the project to the class studio).
2. Try some introductory coding activities on code.org/learn (based on Star Wars, Minecraft, or Frozen)
3. Compare the two experiences

Primary reading for next week
Mitchel Resnick (draft): Lifelong Kindergarten: Chapter 2 (pdf)

Other recommended resources
Dale Dougherty: The Maker Mindset and Learning by Making
diy.org: where kids can learn new skills online and share what they make and do with other creative kids
Scratch resources: Tips window, Help page.
February 17: Passion

Conversation with: Natalie Rusk

In-class activity
Think of something that you enjoy doing, which you’d like to teach to someone else in the class during the upcoming week. For example: how to dance salsa; how to use a 3D printer; how to play a song on the guitar; how to use a climbing wall.

Activity for next week
Based on match-ups from class, teach something that you’re passionate about to someone else in the class, and learn something from someone else in the class. Write about your experiences. What did you learn about different styles of learning and different strategies for teaching?

Primary reading for next week
Mitchel Resnick (draft): *Lifelong Kindergarten: Chapter 3* (pdf)

Other recommended resources
- Computer Clubhouse: Celebrating 20 Life-Changing Years (video).

February 24: Peers

Conversation with: Philipp Schmidt

In-class activity
Participate in a collaborative Scratch activity.

Activity for next week
Visit a local creative learning space -- a place where people are creating projects, and learning from one another as part of the process. We’ve listed a few possible locations [here](#), but you can also find your own. Here are some questions you might want to consider when visiting:

- **Projects**: What kinds of projects are people working on? How would you describe the range or diversity of projects?
- **Passion**: Where do the ideas for the projects come from? Are the projects based on individual, group, or community interests?
- **Peers**: Do people help each other learn? Are there mentors in the space? Is there a trajectory of participation from newcomer to leadership roles?
- **Values**: How do people treat each other in the community? Are there community guidelines or values that are discussed or agreed upon?
- **Space**: Which aspects of the physical space support the creative learning process? What materials are available?

Primary reading for next week
Other recommended resources
Seymour Papert (1980): Mindstorms (Chapter 8: Images of the Learning Society)

March 2: Play

Conversation with: Karen Wilkinson and Mike Petrich

In-class activity
Coming soon...

Assignment for next week
How would you apply the ideas from this course to your own work (and life)?

Primary reading for next week
Mitchel Resnick (draft): Lifelong Kindergarten: Chapter 5

Other recommended resources
Mike Petrich, Karen Wilkinson, & Bronwyn Bevan (2013): It Looks Like Fun, But Are They Learning?, in Design, Make, Play
Eric Rosenbaum & Jay Silver: MaKey Makey gallery of projects.

March 9: Creative Society

Conversation with: Natalie Rusk, Philipp Schmidt, Andrew Sliwinski

In-class activity
How would you apply the ideas from this course to your own work (and life)?

Other recommended resources
March 16: No class
March 23: No class

MODULE #2: TOYS TO THINK WITH
Facilitated by Andrew Sliwinski (ascii@media.mit.edu)
Room E15-341

March 30: Agency
Our first class will begin with reflection and discussion on the differences between “toys” and “games”. Following this discussion we’ll dive into the concept of agency as a primary design principle in toys and learning systems.

Readings
Play, Dreams, and Imitation - Jean Piaget [1952]
Drive: The Surprising Truth about what Motivates Us - Daniel Pink [2010] (Video)

April 6: Composability
In this class we’ll briefly look at the history of composability as a design principle in toys for creative learning and discuss some of the underlying features of composable systems including: abstraction, modularity, re-use, and neutrality. Examples explored during the class include: Fröbel’s Gifts, Paper Dolls, LEGO bricks, and littleBits.

Readings
In and Around: Cultures of Design and the Design of Cultures - Andrew Blauvelt [1994]
Affordance, Conventions, and Design - Don Norman [1999]
Article from “The Ecological Approach to Visual Perception” - James Gibson [1979]

April 13: No class

April 20: Tinkerability
We’ll explore tinkerability as an interaction design principle and dive into some of the details of open-ended creative systems including: transparency, adaptability, feedback loops, and failure states. Examples explored during the class include: Scratch, Makey Makey, and “Redstone” in Minecraft.

Readings
Designing for Tinkerability - Resnick, Rosenbaum [2013]

April 27: Accessibility
We’ll examine various forms of accessibility by dissecting contemporary examples of toys and their packaging (both physical and virtual). Examples explored during the class include: LEGO bricks, Toca Boca, and DIY.org.

Readings
Operating Manual for Spaceship Earth - Buckminster Fuller [1968]
Epistemological Pluralism - Turkle, Papert [1990]
Gender in Play: How Toca Boca Creates Apps for All Kids - Toca Boca [2015]

**May 4: Evaluation Methods**
We’ll explore various different qualitative and quantitative evaluation methods for creative learning systems.

**Readings**
Lifelong Interactions - Read, Markopoulos [2008]
First Contact - Jason Krogh [2013]

**May 11: Final Presentations**