DiGiME: An Interactive Experience to Ease the Education of Social Information Sharing

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DiGiME: An Interactive Experience to Ease the Education of Social Information Sharing

by

Kexin ‘Coco’ Wang

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Fine Art in Visual Communication Design

Visual Communication Design Program
College of Arts and Design

Rochester Institute of Technology
Rochester, New York
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Committee Approval:

We, the undersigned committee members, certify that we have advised and/or supervised the candidate on the work described in this thesis. We further certify that we have reviewed the thesis and approve it in partial fulfillment of the requirements of the degree of Master of Fine Arts in Visual Communication Design.

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ABSTRACT

College of Arts and Design
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Program: Visual Communication Design

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Thesis Title: DiGiME: An Interactive Experience to Ease the Education of Social Information Sharing

Ever since digital and social media activities made their way into our day-to-day lives, things have become very different. People are continuously glued to their mobile devices, including children. Besides the tv screen time, mobile media time for 0-to-8 year-olds has tripled between 2013 and 2017, from an average of 15 minutes per day to 48 minutes per day¹. As digital exposure is increasing at earlier ages, the danger of social information sharing increases as well.

Children do not often realize that they are giving out a vast quantity of their personal information, and even their parents’ to the internet while being online. They are a particular vulnerable population when speaking of digital marketing and advertising - they could be easily manipulated and persuaded towards sharing their personal information and using the services or products.

This thesis project intends to raise awareness about the impact of online safety among children and their parents, and also seeks to explore the possible communicational ways of helping parents helping their kids better protect their online user data in the meantime. The goal is to find an easy tool to serve as an easy-to-learn life lesson for both the kids and their parents, with parents leading the way. And the project should communicate the idea of safety does not happen by accident and people should help their loved ones better manage and protect their online data.

Keywords: Digital Identity; Social Media; Private Information; Online Data; Mobile Devices; Education; Communication

DEDICATION

I would like to dedicate this thesis to my most beloved parents, who have been my biggest influences and supporters since day one.

Secondly, in the hope that this work may in some way contribute to the exploration of the education of social information sharing, this is also dedicated to the professors, mentors, committee members, friends, and classmates who shared their words of advice and wisdom and inspired me throughout this study. Thank you all for your help and support.
Social media and mobile devices are ubiquitous today. People are continuously glued to their digital and mobile devices, including the younger generations. However, as digital exposure is increased at earlier ages, the danger and complexity of digital and social information sharing also increase.

A big problem that the society is facing now is that kids often fail to see their online activities as generating personal information and sharing it beyond their intended circle of social contacts. They are a particularly vulnerable population and could be easily manipulated online. Without understanding the process of exchange of information involved in online activities, children and their parents can hardly protect their user data and privacy.

In my research from pages 10 to 14, it’s noted that mobile media time for 0-to-8 year-olds has tripled between 2013 and 2017, from an average of 15 minutes to 48 minutes per day. And 42% of children under 8 have their own tablet devices, which increase from 7% in 2013 and less than 1% in 2011\(^2\). In addition, 55% of teens have given out personal information to someone they don't know\(^3\) and 92% of children have an online presence by the time they are two\(^4\). With all these key data, it’s obvious that social media has been a huge part of younger generations’ lives - data is following them around ever since they were born. As the younger children are growing up, the duration of their social media and online data can only get longer and the marketers will never undervalue this population.

In order to better educate children on the impact of online safety and the importance of online data protection, I created DiGiME, an interactive digital experience to visualize the invisible internet information exchange and the impacts of online behaviors for kids and their parents so they could enjoy the online world and avoid potential risks.

I also conducted an online survey to gather meaningful insights to better support the solution. Based on some research prior to this survey, children age from 12 to 17 legally fall into a protected class of people who also cannot consent\(^5\). Due to this complexity of surveying children under 18, I sent the survey out to the parents of kids age between 5 and 13, with the generous help of family and friends. And I gathered a total number of 65 results. As shown on

page 13 and 14, about 40% of the parents confirmed that their kids have a presence online and about 52.3% of parents did not feel so confident in guiding their kids to understand the social boundaries and protecting their online safety. After all, it’s essential to have a digital tool like DiGiME to help the parents help the kids realize the importance of safeguarding their digital identity and data. And another response suggests that an interactive digital product or experience would be helpful for the kids to better understand the rules of the digital world.

When looking at other existing products in the market, I also realize that it’s crucial to strengthen children’s connection to the product itself. Coming up with the idea of using the Exquisite Corpse construction (presented on page 18-20) as a design base provides an opportunity for kids to customize their own digital identity and understand that their actions online can have negative impacts on their identity. Having features like storing and curating the characters in a gallery (page 27 and 32) also represent the idea of safeguarding data and identities with healthy online habits.

My ultimate goal was to make the experience fun and meaningful so that it could ease the education of social information sharing effectively. Choosing the proper prototype was one big challenge I faced as kids nowadays have very a limited attention span. Adopting a method that differentiates itself from the traditional teaching method but still delivers knowledge and joy was the key point. The factory concept and mini game series that DiGiME uses achieved a balance of education and fun. With the additional elements such as the physical mix & match card set and coloring paper (presented on page 49 and 50), DiGiME makes even stronger connections to the ideas and knowledge and reinforce the memory created previously. The physical design elements also help reduce screen time and encourage them to be more creative outside of the digital screens and devices.

Another challenge involved was performing testing and workshop during the COVID-19 pandemic. It made it almost impossible to test out the effectiveness of the prototype among actual kids and their parents. However, the pandemic also made it even more important to educate the impact and danger of social information sharing as more young children are spending more time indoors and online. If I were to push DiGiME further in the future, I hope that the scope of this prototype can expand beyond a tablet and become more accessible and adaptable, such as an interactive museum display or an online platform, teaching these important lessons in any way possible.
Bibliography


Build it, and see it yourself.
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Overview

Getting to Know DigiME and Its Audience
About the Project

DiGiME is an interactive educational prototype that allows children to explore the world of social information sharing and learn the consequences through building their own digital identities.
The Prompt

Kids are addicted to their devices.

The Problem

Kids often fail to see their online activities as generating personal information and sharing it beyond their intended circle of social contacts. If not protected well, these data can be used and accessed easily by outlaws.

The Solution

Create an interactive digital experience to visualize the invisible internet information exchange and the impacts of online behaviors for kids and their parents so they could enjoy the online world and avoid potential risks.
The Objectives

The ultimate goal is to **raise awareness** about the **impact of online safety** and the importance of online data protection among children and their parents.

**Safety**
Offering the most fun and meaningful way to educate kids about digital safety.

**Exploration**
Allowing kids to discover more interests and knowledge with the app, cards and coloring papers.

**Enjoyment**
Creating a more enjoyable interactive experience instead of just giving literal facts and tips.
Research

Providing Contexts to the Problem, Concept & Topic
Young Kids in the Digital Age

1 in 3 Internet Users Worldwide is A Child

42% of children ages 8 and younger have their own tablet device

55% of teens have given out personal information to someone they don’t know

92% of children have an online presence by the time they are two

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Screen time is increasing, so does its dangers.

While the screen time is increasing, children do not realize that they are giving out a vast quantity of their personal information including their parents’ while being online. The top dangers they face online are cyberbullying, cyber predators, posting private information, phishing, falling for scams, downloading malware & posts that come back to haunt kids later in life.⁶
The Survey

In order to better understand digital device usage and social/internet habit among kids, I conducted survey to gather meaningful insights.

Due to the complexity of surveying children under 18, along with the challenge of sending survey out physically during the pandemic, I created this online survey that includes 15 questions related to the topic and sent it out virtually to parents of kids age between 5 and 13, with the generous help of family and friends. And I gathered a total number of 65 results.
Featured Questions

Q: Does your kid/tween have an online presence?

About 40% of the surveyee (parents) confirmed that their kids have a presence online. And nowadays, children’s digital identities are often shaped by their parents, which makes it even more important for the parents to work with the kids together to keep them safe online.
Featured Questions

Q: How confident are you that you guide your kid(s) to understand the social boundaries and protect their online safety constantly?

About **52.3%** of surveyee (parents) did not feel so confident in guiding their kids to understand the social boundaries and protecting their online safety. Another response suggests that an **interactive digital product** or **experience** would be helpful for the kids to better understand the rules of the digital world.
Competitive Analysis

After looking at other tools and products that solve similar problems, I found out that some of them were already offering users fun and engaging ways to be safe and responsible online. However, I also found certain limitations in them such as not being able to strengthen children’s connection to the product itself.

**Google Be Internet Awesome**
- **What works?** Great visual design; fun elements to cultivate kids’ interests; very well-designed curriculum system; great guides for teachers and parents
- **What doesn’t?** The game takes too long to finish; some terms are hard for preschool kids; the guide includes too much information, most parents don’t have the time

**Data Defenders**
- **What works?** Good concept (narrative based); kids get to protect their privacy scores by completing quizzes about privacy tools
- **What doesn’t?** Not so modern visual style; the storyline is not fun enough to keep kids’ attention

**Internet Safety for Kids K-3**
- **What works?** Narrative/character-based; involves conversations between the students and the teacher
- **What doesn’t?** Not so modern visual style; visual elements are not consistent; pacing is too slow; not interactive

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Kexin ‘Coco’ Wang
Comparative Analysis

Most of the content and interactive elements in game applications for kids adopt flat to semi-flat illustrations and vibrant color combinations. By giving user images that are organic-looking graphic-y and cartoony, the interface can designate itself fun and friendly environments.

As for navigation within the app, most are displayed as an animated & adventurous map which always includes multiple game sections for kids to explore on their own. This pattern will work well with my user because they get to be adventurers and get ready for imaginative fun.

![Toca Boca World](image1)
World-building Game App

![Dumb Ways 2](image2)
Safety Mini Game App

![Artie](image3)
Drawing Game App

![Dr. Panda Town: Collection](image4)
Adventure Game App
The Concept

Expressing the Intentions, Domain and Technology
Digital spaces are a lot like Halloween in how they provide young people with outlets to explore their identities...it is important to help them recognize the boundaries and limits of this.”

- Art Bamford

The Concept

The Exquisite Corpse Construction

**Exquisite corpse**, also known as exquisite cadaver, is a **creative method** by which a collection of words or images is collectively assembled. It was first adopted and invented by surrealist artists in the 1920s, in order to create collaborative bizarre and intuitive drawings.\(^\text{13}\)


Exquisite corpse → DigiME

Nowadays, the drawing game is a super fun and popular activity for children to play, especially together with their family and friends. It has the magic to stir up creative energy even in the most non-creative types.

On this basis, DiGiME was born. By completing a series of mini-games and collecting pieces of the character body that break into three sections: head, torso, and legs, kids will be able to build their own digital identities.

User & Solution Mapping

Defining the Target User and Developing User Flow Diagram
Users

The target users of DiGIME are kids who spend a great deal of time on their tablets, and their parents. The parents should be leading the way and assisting in making this experience an easy-to-learn life lesson.

Tim Smith
Son

User Needs:
> To understand the steps easily
> To have pure fun exploring the game
> To feel engaged, supported & rewarded

Lisa Smith
Mom

User Needs:
> To spend quality time with their kids
> To guide the kids in an effective way
> To learn with the kids together
Users Flow
Diagram pt. 1
Users Flow
Diagram pt. 2
Final Features & Solutions

Diving into the Final Game App and Features
Features Pt.1

Entertained but Challenged
Once kids select a machine to start with, the first thing is to adjust the difficulty level to suit the user the best. The medium and hard levels can make the earned stars go triple and quintuple.

Rescue Your Private Info
The first mini-game under Peepsee Plant allows kids to differentiate between private information and personal information by quickly responding to the boxes on the conveyor belt.
Features Pt.2

Understand Social Boundaries

This mini-game helps kids understand social and public boundaries in the internet world and how they are connected to their family and friends as a whole.

Store Your Identities

In the storage, kids are able to review the characters that are generated from the end machine based on the pieces they collected. Storing the 'identities' in a safe place also represents the idea of safeguarding your data and identities.
Starting the Journey

Fun, colorful and appealing logo animation to engage the kids at the very beginning of the digital experience.
Visiting the DigiFactory

The homepage gives an overlook of the DigiFactory with different plants, each represents a series of themed mini-games that educate kids on the impact of social information sharing.
Choosing Preferred Series & Levels

Once a plant/machine is chosen, kids can choose a difficulty level that they are comfortable to start with. Usually different level reflects different time limit and game speed.
Game On!

It’s time to collect the body pieces! Each Series consists of three mini-games and each mini-game would produce a body piece to form a robot character that represents digital identity.
Curating the DigiGallery

All the pieces collected will show up in the DigiGallery where kids can create and store various versions of their digi-Identity.
Customizing Your Identity

With Mix & Matching different pieces, along with the shuffle button, kids are able to create any kind of digi-identity they can possibly imagine.
Why Black & White Pieces?

The look of the pieces collected is based on kids’ game performance. Stars will be given to the kids at the end of each mini-game based on their speed and degree of accuracy. If given three stars, kids will be rewarded a fully colored and detailed body piece, and on the other hand, if given one star or worse, only a silhouette piece will be given. If kids want to collect all the colored and happy looking pieces in order to mix & match their characters they will have to conquer all the mini-games to their best.
Visual Explorations

Generating Prototypes and Testing Wireframes
Prototype Iterations

In order to make the experience interactive and accessible, the project was originally designed to be a digital tablet app that allows kids to go through different internet-safety questions and acquire more knowledge from it. However, after rounds of prototyping, I figured the questionnaire-like system was not the best solution - making it more like an adventurous game would be way more fun and effective instead. Therefore, the idea of doing a robotic factory/plant came alive.
Moodboard

**Colors and shapes** are very important for young kids while learning new knowledge and skills. Choosing elements (visual clues) that come from their daily life and making them into fun and meaningful design was the main goal.
Styleboard

In order to offer more visual stimulations to our young users, bold and vibrant colors, simple geometric and organic forms, fun patterns and textures should all be considered during the design process.
Character Design

Each character was designed based on a certain type of internet activity, which includes sharing information, creating accounts/profiles, adding/making friends, gaming, and commenting.

There are two versions: accomplished/safe and unaccomplished/alert. Kids will have to hit certain levels of scores in order to collect all the completed pieces for the characters, and therefore be able to mix and match their own version of digital identities, based on how well or bad they perform in the games.

The final results reflect the impacts of kids' internet behaviors and habits on their digital identities.
Initial Sketches
Accomplished/Safe Collection

Peepsee
- Sharing Information
  - Keywords:
    - digi identity
    - footprint
    - reputation
    - oversharing

Hax
- Creating Profiles
  - Keywords:
    - secrets
    - password
    - passcode
    - hacker

Fakero
- Adding/Making Friends
  - Keywords:
    - strangers
    - predators
    - friend
    - fake profile

Scammy
- Gaming
  - Keywords:
    - scammer
    - identity theft
    - credit card fraud
    - pop-up ad

Bullbully
- Commenting
  - Keywords:
    - chat/comment
    - (cyber)bullying
    - aggressor
    - target
Unaccomplished/Alert Collection

**Peepsee**
*Sharing Information*
Keywords: digi identity footprint reputation oversharing

**Hax**
*Creating Profiles*
Keywords: secrets password passcode hacker

**Fakero**
*Adding/Making Friends*
Keywords: strangers predators befriending fake profile

**Scammy**
*Gaming*
Keywords: scammer identity theft credit card fraud pop-up ad

**Bullbully**
*Commenting*
Keywords: chat/comment (cyber)bullying aggressor target

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Brand Identity

Developing Visual Language and Brand Identity
Typography

Headlines

Montserrat
Alternates
SemiBold

Subheadlines

Montserrat
SemiBold

Bodytext

Raleway
Medium

Aa

ABCDEFGHJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789
!@#$%^&*()
Color Palette
Logo Design

The logo represents the three elements of the digital identity that kids will be collecting. The various intersecting shapes symbolize the internet connected data and devices on the internet.

The goal is to achieve the idea of showing how every single internet activity, as well as every piece of generated data, can add to your digital identity, which is permanent.
Add-on Experiences

Additional Design Elements that Adds to the Experience
Mix & Match Puzzle Cards

This set of Mix & Match Puzzle/Game Cards is also part of the learning experience. With the same concept as the digital game, the set allows children to have fun mixing and matching their colorful robot friends. On the back of each card, there is a tagline or slogan that is related to the topic which the character represents. The language of the messages is simple, direct, and positive, and the kids can read them out loud and treat them as takeaway cards as well.
Takeaway Coloring Pages

Repetition creates the foundation for all learning. For this project, it’s essential for kids to go back and revisit the concepts and takeaways and make connections to previously learned knowledge.

With a traditional coloring page that also functions as an origami cube, the kids can review the ideas and knowledge presented in the digital product in a non-digital way. And it solves two problems at once: first, kids spend less screen time now but more on fun physical activities; and second, the memory is reinforced.
Conclusion
Providing a Summary and Main Take-aways
Conlcusion

As current and future young generations are exposed to the digital world sooner than previous generations, it is extremely important that they learn the complexities and dangers of social information sharing and their digital identity. DigiME provides an interactive and effective tool that eases the education of these concepts through digestible and fun activities.

When I began this project I struggled to find a suitable prototype that could meet my initial goal - to make it both meaningful and entertaining. Particularly with a younger target group, it was essential to find a solution that could occupy their already strained attention. I believe DigiME has achieved a good balance of education and fun. A tool like DigiME is even more crucial now during the covid 19 pandemic as more young children are spending more time indoors and online. I hope that one day this prototype can expand beyond a tablet and become more accessible and adaptable, teaching these lessons in any way possible.
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Appendix B