

# Family Story Play

## *Reading with Young Children (and Elmo) Over a Distance*

Hayes Raffle, Rafael "Tico" Ballagas, Glenda Revelle, Hiroshi Horii, Sean Follmer, Janet Go, Emily Reardon, Koichi Mori, Joseph "Jofish" Kaye, Mirjana Spasojevic



*Sesame Workshop, Sesame Street, Elmo and related characters, trademarks and design elements are owned and licensed by Sesame Workshop. ©2010 Sesame Workshop. All Rights Reserved.*

# Acknowledgements

Colleagues at NRC, Sesame Workshop and the  
Joan Ganz Cooney Center

Morgan Ames, Karim Seada, Chris Paretti, Scott  
Klemmer

CHI Community – Reviewers and all of you

*Thanks for coming!*

# Families live apart

*"If I were totally aware of the kind of diaspora of our families ... we're 8-10 hours away from anybody. It's not ideal." (Dad, S.F. Bay Area)*



# Families keep in touch

yet struggle with today's technologies



*Young children and long distance grandparents often have the most time and desire to communicate, but have the most difficulty using today's tools*

# Hypothesis

*There is a synergy between young children's education—in this case, a rich shared reading experience—and communication with long distance family.*



Family Story Play  
**DESIGN**

# Design Guidelines

## Promote dialogic reading activities

children ages 2-3 in the context of long-distance family communication

## Support typical reading experiences

e.g. physical page turning  
fit into typical family reading rituals (bedtime stories)

## Provide Shared Context

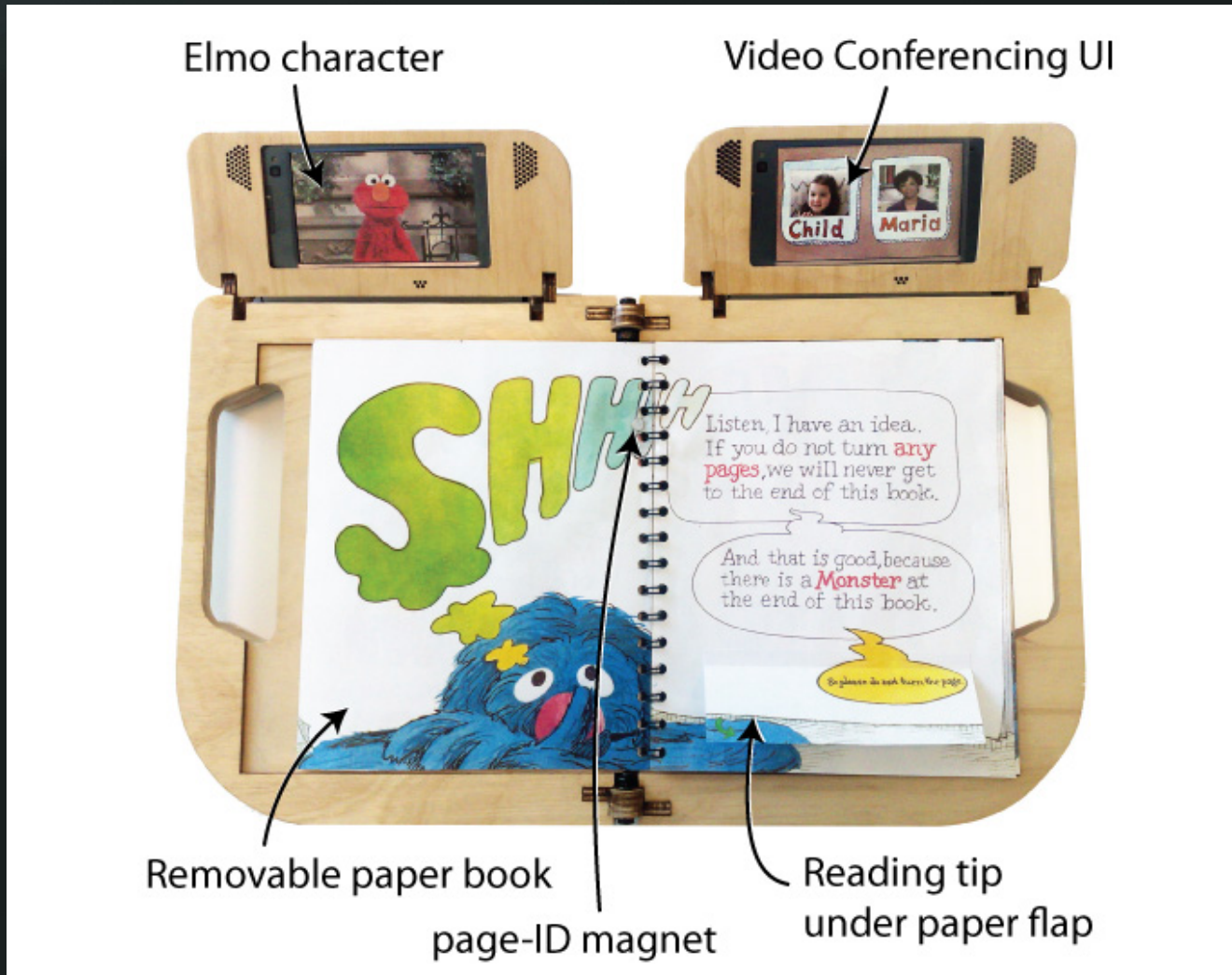
coordinating page turning

## Accessible and playful

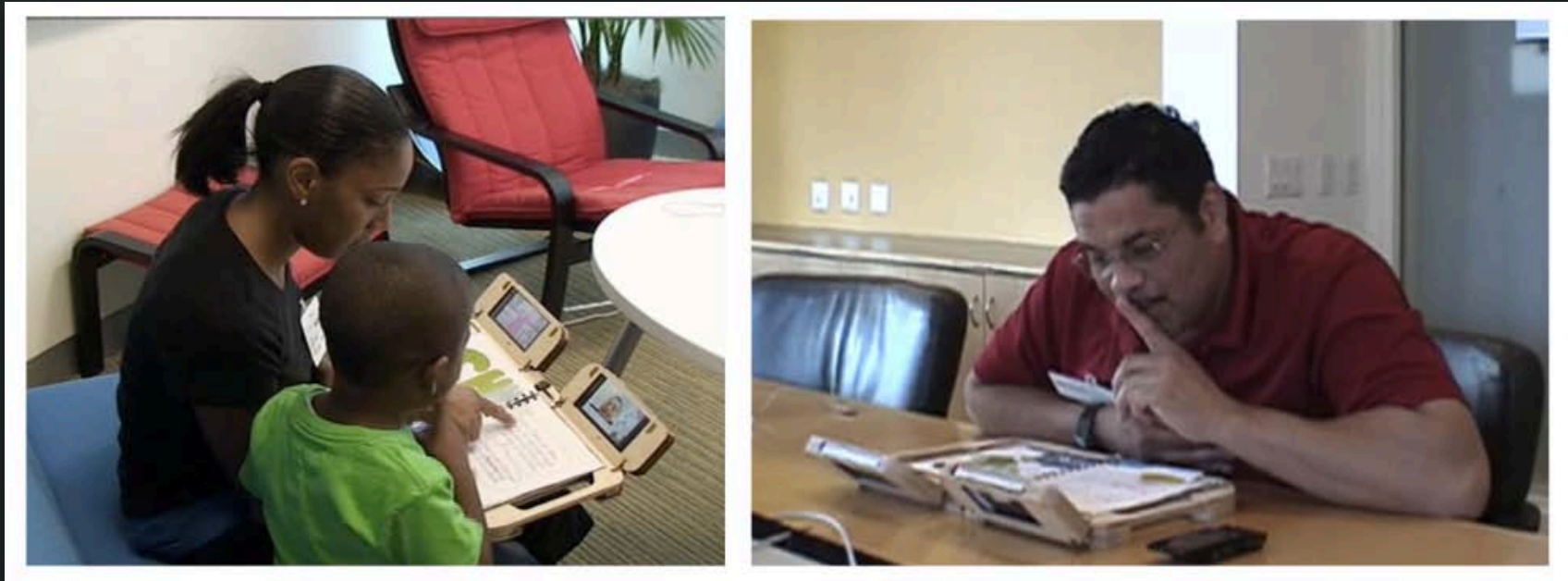
## Scaffold both children and grandparents

play, and playful conversation

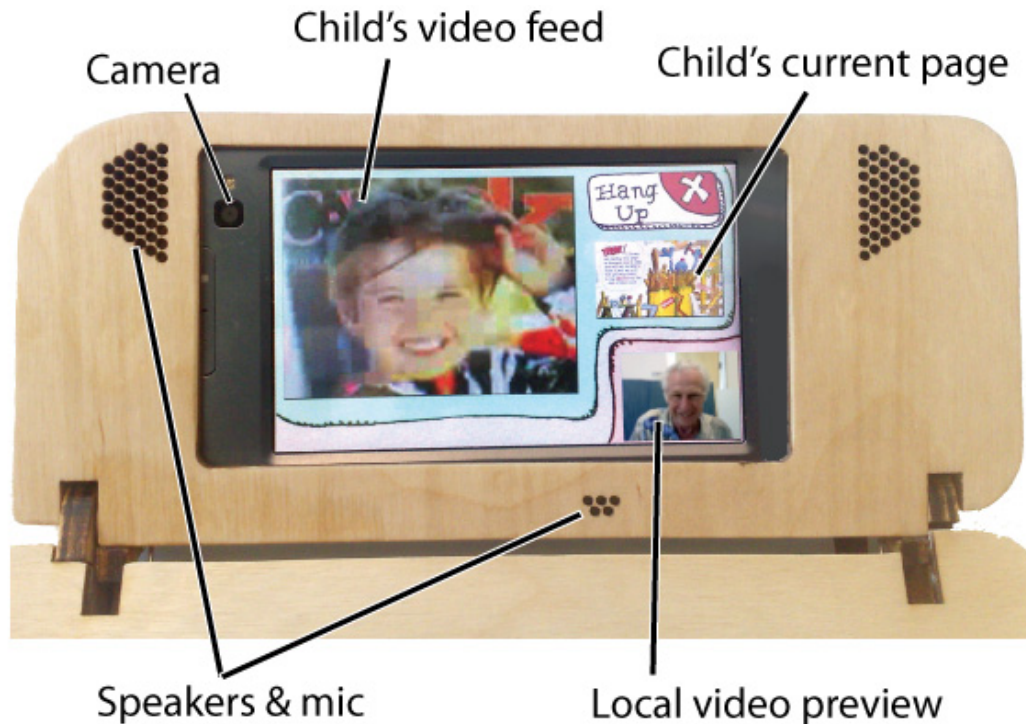
# System



# Two systems connect over wifi



# Mobile Video Conferencing



Nokia n810 internet tablets

Custom software in Py-Qt with Telepathy Stack

# Elmo's Role

Story Listener

Models an interest in reading



Synchronized for both parties  
3<sup>rd</sup> member of the activity

# Elmo's Role

Interrogative prompts  
Models dialogic reading



Pic of the storybook spread  
Of ropes

Synchronized for both parties  
3<sup>rd</sup> member of the activity

# Elmo's Role — helps establish a call

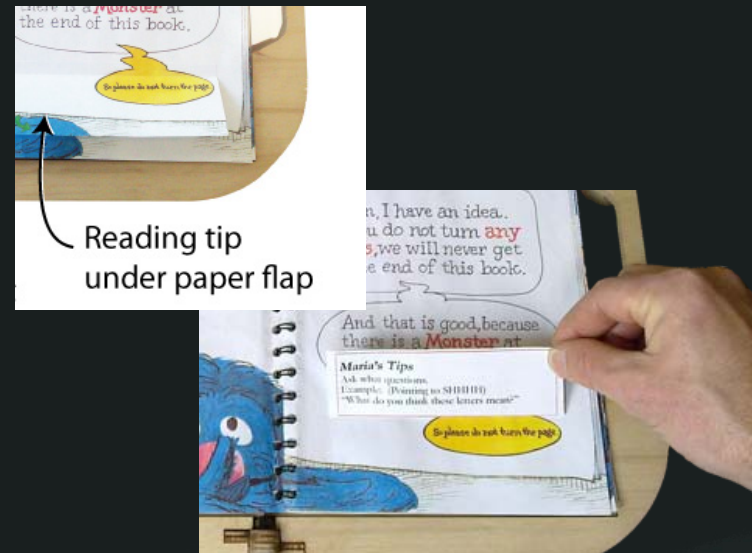
foreground actor, helps dial and answer a call  
Empowers children to actively engage



# Maria—scaffolding dialogic reading



Video, shown to grandparents, illustrates dialogic reading principles and techniques



Maria's ten "tips" are repeated in the book under paper flaps with page-specific suggestions.

# Related Work

Dialogic Reading Zevenbergen & Whitehurst

Videoconferencing Mediaspaces

Intergenerational Comm. Sharetable, CASY

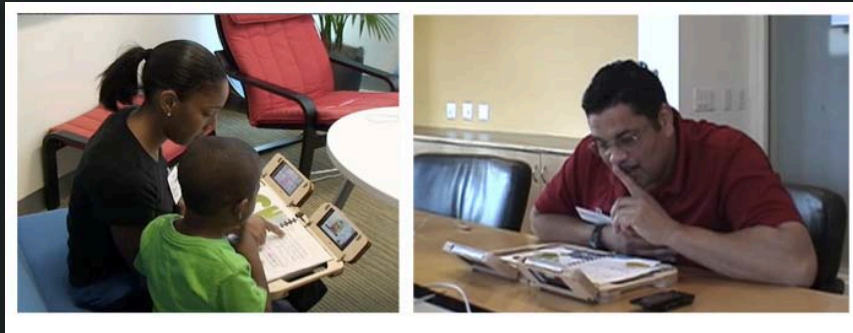
Pedagogical Agents

Augmented Books XFR, Leap Pad

Family Story Play  
**USER STUDY**

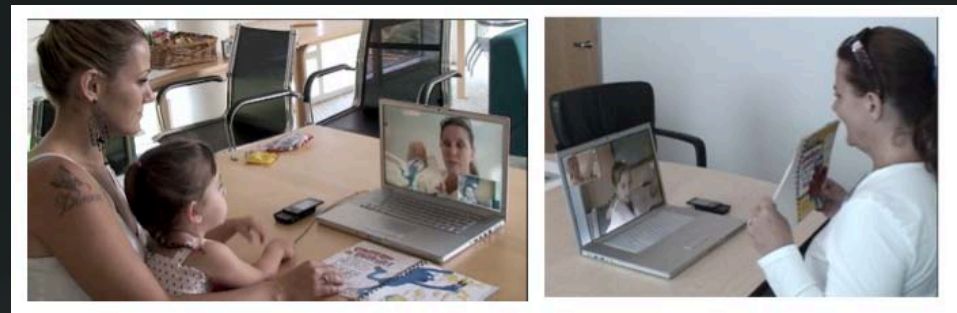
# Reading books over video chat

## Compared Skype to Family Story Play



Eight families (child age 2-4, parent & grandparent) used both systems in the lab, with counterbalanced ordering. Families chosen for diversity.

Families were introduced to the systems, used them and then were interviewed. Sessions videotaped, conducted in-depth qualitative analysis, coding scheme modeled on SOCSI.



# Findings: family communications

Quantity and quality was higher with books

<b>Skype</b>	<b>Family Story Play</b>
(F1) 4:37	(F2) 24:01
(F3) 8:37	(F4) 8:31
(F6) 10:02	(F5) 6:35
(F7) 10:17	(F8) 8:05
<b>average 8:23</b>	<b>average 11:48</b>

Child Engagement remained high, esp. for FSP

Parents and children preferred FSP  
Grandparents equally enjoyed both Skype and FSP

# Findings: reading with young children

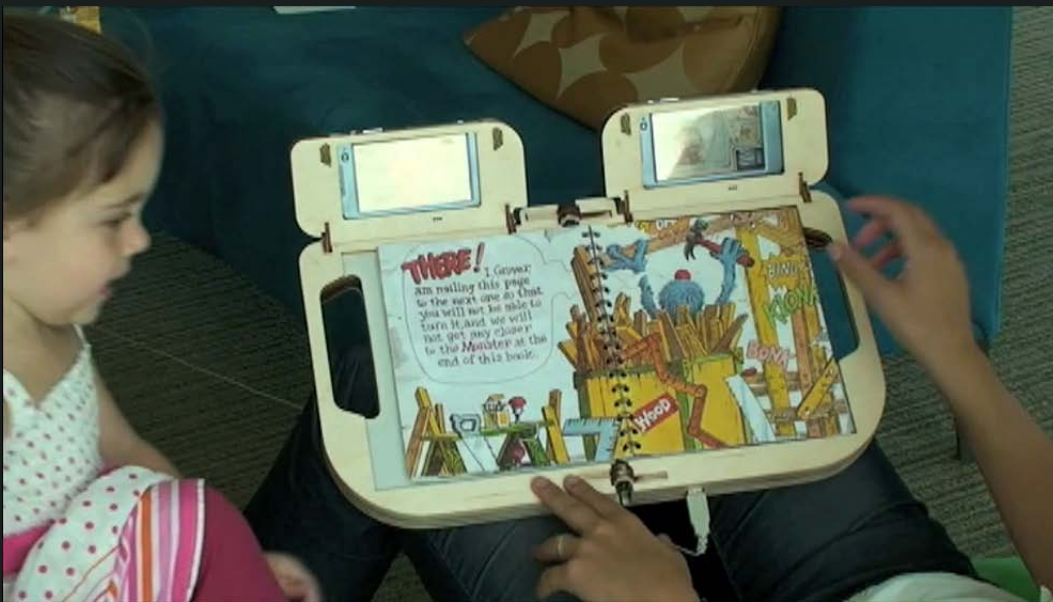
Children engaged with the physicality of the book with FSP



Parents were twice as likely to give children control of the book pages in FSP vs. Skype (70% / 38%)

# Findings: scaffolding

Evidence of dialogic reading with both systems, but grandparents asked children twice as many questions when using FSP.



# Physicality with the book



Interaction with book pages was encouraged by the book content

Charles, 3 years old, pounded his fist on the pages along with Grover, who was nailing them together.



# Elmo's role was complex

## Three scenarios

Elmo & grandparent collaborate

Elmo as center of the show

Grandparent as center of the show



# Elmo's role was complex

## Elmo UI was not perfect

Interaction design not clear to all children

Thought bubbles not explained well enough

Need better definition of Elmo's role

*It was a heart breaking moment for my 3yrs old son this morning to know Elmo is in New York. He cried and cried...until I told him he'll be back next week.*

—Researcher

Family Story Play  
**DISCUSSION**

# Parents are essential

Set up calls, arrange everyone in the room, give prompts, synchronize page turning, modeling behavior, etc.



Usage of books suggests more formal steps towards learning how to read and overall literacy.

# Children's attention and engagement

Just seeing each other helped maintain engagement.

*Gees, it's just 100% better...So it's like if you can see them, it pulls them in, you know. Then you can start asking questions, see their actions...Get that whole conversation going." (Grandmother, Family 3)*

Children's increased enjoyment in Story Play over Skype could be in response to the presence of Elmo.

Shared play activity:  
book provides context and content for conversation

*"Oh, I think it's still better than talking on the phone. Well, you have something to talk about...." (Family 5).*

# A new kind of collaborative storytelling

Reading with FSP is a creative act that promotes engagement far beyond the book.

Longer duration of both Skype and Story Play sessions compared to normal Skype sessions demonstrates synergy between book reading and long distance family communication.



Family Story Play

# LOOKING AHEAD

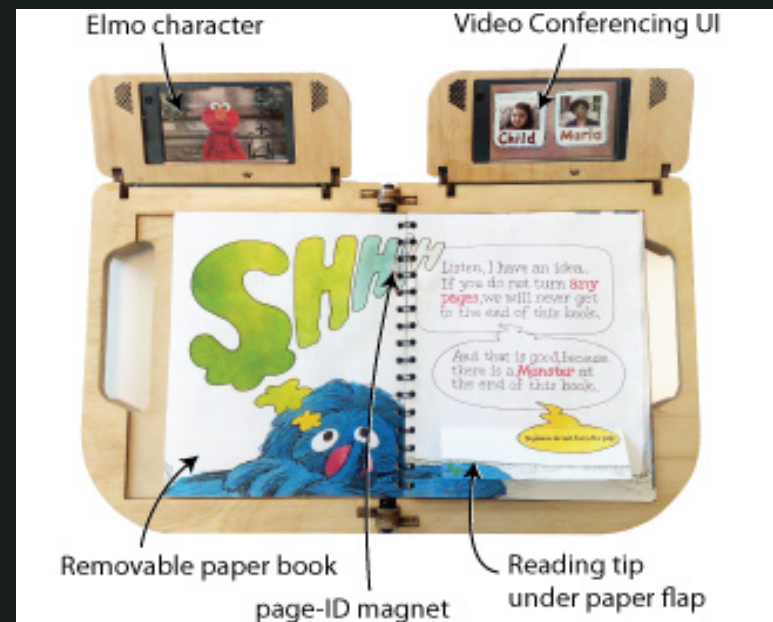
# Summary

*Storytime over a distance...*

Children and parents read books with distant grandparents, over mobile videochat.

Elmo helps children talk about the books, and helps families to connect.

Supports children's learning and family togetherness.



# Longitudinal studies

New form factors

Different modes: co-located, asynchronous

Refined control of Elmo



# Opportunity: intuitive interactions

Modify the **rules of exchange**

*Simplify*

*Easier to initiate*

*Elicit sharing or storytelling*

Replace the **one-to-one model**

*Enabling shared group communication,  
parent scaffolding*

Make interactions more **engaging**

*Opportunities for silliness and play*



# How might we?

Create products for the *family*, not for an individual *user*  
*you can't make things for children without including parents*

Support cooperative play and learning  
*co-located as well as remote*

Focus on *relationships*  
rather than *media, devices or services*  
*help people create connections, stories, and memories*

# Family Story Play

## *Reading with Young Children (and Elmo) Over a Distance*

Hayes Raffle, Rafael "Tico" Ballagas, Glenda Revelle, Hiroshi Horii, Sean Follmer, Janet Go, Emily Reardon, Koichi Mori, Joseph "Jofish" Kaye, Mirjana Spasojevic

hayes.raffle@nokia.com



**Nokia**  
Research  
Center

