

Toys That Listen:

A Study of Parents, Children, and Internet-Connected Toys

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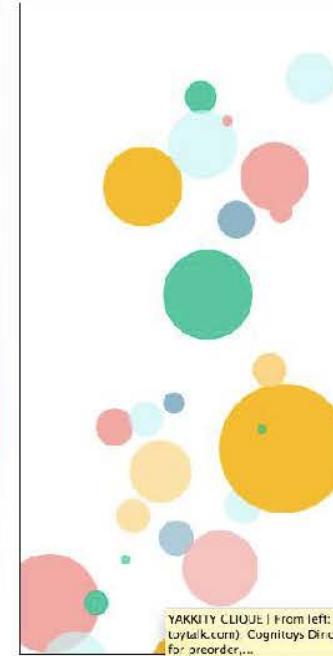
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Talking Toys Are Getting Smarter: Should We Be Worried?

Internet-connected talking dolls like Hello Barbie that can actually converse are bewitching kids but unsettling parents. Are they really the menace critics have made them out to be?



YAKKITY CLIQUE | From left: Hello Barbie (\$75, toytalk.com); Cognitoy D'no (\$120, available for preorder, cognitoy.com); and My Friend Cayla (\$60, myfriendcayla.com) PHOTO: F. MARTIN RAMIN/THE WALL STREET JOURNAL



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The Original “Smart” Toys



One of the Largest Hacks Yet Exposes Data on Hundreds of Thousands of Kids

WRITTEN BY LORENZO FRANCESCHI-BICCHIERAI

November 27, 2015 // 11:08 AM EST



THE INTERNET OF HACKABLE THINGS

Internet of Things Teddy Bear Leaked 2 Million Parent and Kids Message Recordings



LORENZO FRANCESCHI-BICCHIERAI

Feb 27 2017, 1:00pm

ECONOMY

Banned In Germany: Kids' Doll Is Labeled An Espionage Device

February 17, 2017 - 11:51 AM ET

BILL CHAPPELL



Research Questions

- What are the **privacy expectations** and **concerns** of parents for connected toys?
- What are **children's mental models** of their privacy when interacting with the toy?
- What **parental controls** do parents wish to exercise?

User Study

Hello
Barbie



Cognitoys
Dino

User Study Methods

- Parent-Child pairs
- Recruited by sharing announcement with local parent groups, emailing listservs, Facebook
- 9 Interviews conducted with 2 researchers

| | | |
|---|---|---------|
| Child & Parent introduced to both toys | Parent sets up Barbie through app, experiences web interfaces + interview | wrap up |
| | Child plays with Dino and then Barbie + interview | |
| ~15 min | ~30 min | ~5min |

Microphone, speaker, and tri-color LED lights embedded in the necklace

Press and hold down belt buckle to activate speech recognition. Note: Speech recognition is not 'On' unless pushed.

Hello Barbie

Microphone, speaker and tri-color LED lights embedded in necklace.

Turn the doll on with the power button on her belt.

Press and hold down belt buckle to activate speech recognition.
Note: Speech Recognition is not 'On' Unless Pushed.

Doll cannot stand alone.

Flat feet for charging stand placement.

ONE TIME APP DOWNLOAD AND WIFI CONNECTION REQUIRED FOR 2-WAY CONVERSATION.
Disclaimer: Compatible smart device required.

PARENT CONSENT REQUIRED

CHARGING STAND INCLUDED
Note: Playtime on the battery life is about an hour.

DOLLS AVAILABLE IN THREE SKIN TONES

Your privacy and product experience are extremely important to us. For questions or concerns, please contact us: msdell.com/hellobarbie@a and 1-888-206-0224. ©2015 Mattel. All Rights Reserved. ToyTalk and the ToyTalk logo are trademarks of ToyTalk. Apple, the Apple logo, and iPad are trademarks of Apple Inc., registered in the U.S. and other countries.

ToyTalk **NOTE**



Recommended All

Play All ▶

Hello Barbie website interface:

- Organized in “Conversations”
- Contains recordings of all interactions
- Encourages sharing on social media (Facebook, Twitter)

Do you ever have one of those days when you're supposed to go out somewhere with friends or your family and you just can't figure out what to wear?



How would you feel about going on an imaginary horse ride with me?



Gender
neutral



Mouth
lights up

cognitoy's

Activation
button

Interview Questions



Parent

What do you expect to be in the toy's manual and privacy policy?

How do you feel about the ability to monitor what your child says to the toy?

Would you share what your child said to the toy on social media?



Child

What would you talk about with the toy?

Do you think the toy can remember what you say to it?

Would you tell the toy a secret?

Findings: Privacy

- Focuses on “Permission” giving
- Explains how they use recordings
 - To share with parent
 - Test and improve services and technologies
- Reassures: Do not use these to contact or advertise to children

Permission to play with **Hello Barbie™**



The **Hello Barbie Companion App** and the speech processing services for **Hello Barbie** are operated by ToyTalk, Inc. We need your permission for your children to play with **Hello Barbie**. Please read the explanation below for more details.

I give permission.

Information for Parents

We asked for your email address so we can get permission for your child to use **Hello Barbie**. **Hello Barbie** involves the recording of audio.

We use these recordings so your children can talk with **Hello Barbie**. We also use these recordings to share the great stuff your children create with you, to test and improve our services and technologies in areas like speech recognition, and for other research and development and data analysis purposes. We do not use these recordings or their content to contact children or to advertise to them.

For children under 13 to enjoy **Hello Barbie**, we need your permission to collect, use or disclose such information. To give your permission, please click the "I give permission" button above. This permission will apply to all **Hello Barbie** dolls that are added to your ToyTalk account. ToyTalk will not collect, use or disclose any personal information from your child in connection with **Hello Barbie** if you do not give your permission.

Privacy: Parents on Recording

“I would want to be present when they used it. I don’t think it’s something I would let my child use with somebody else unless I knew a lot more about it because it seems like it’s a little interactive, and I don’t know where this **recording stuff is going**. It **feels permanent** when you’re speaking into her, like is she recording me and **who can see or get this information?**”

PARENT-2

Privacy: Parents on Recording

“My initial response is **I don’t have time to go through all these**. Like I’m not going to click and listen. I have to be sorting through all the photos she took of herself on my phone because my phone is always full. This is just **one more pile of media** I would have to determine what’s useful, should I save it, should I get rid of it, where should I put it? I think my initial inkling is **don’t even look at it** so you don’t have to make any decisions about what to do with it.”

PARENT-8

Privacy: Children on Recording

“Hey, did you know that Barbie doll, when you’re all done, **everything that you share with her would end up on the computer** so we could talk about it? Would that make it fun for you?”

“That’s pretty **scary.**”

PARENT-9

CHILD-9

Privacy: Parents on Sharing



Editor's Picks Conversations Settings

Recommended All

Play All ▶



“I think past a certain age you need to **respect your child’s privacy** and idea that they might not want what they say to be shared amongst your gaggle of friends. I think for some people it works, for me personally it’s not something that I would use.”

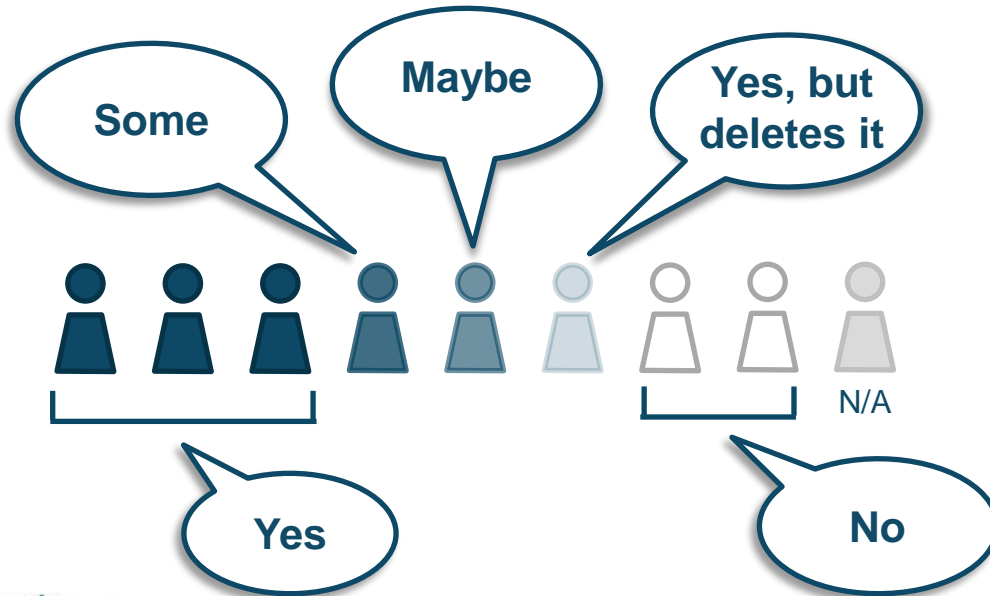
PARENT-4

“The **child is not consenting** to the questions they ask Barbie to be shared on Facebook.”

PARENT-6

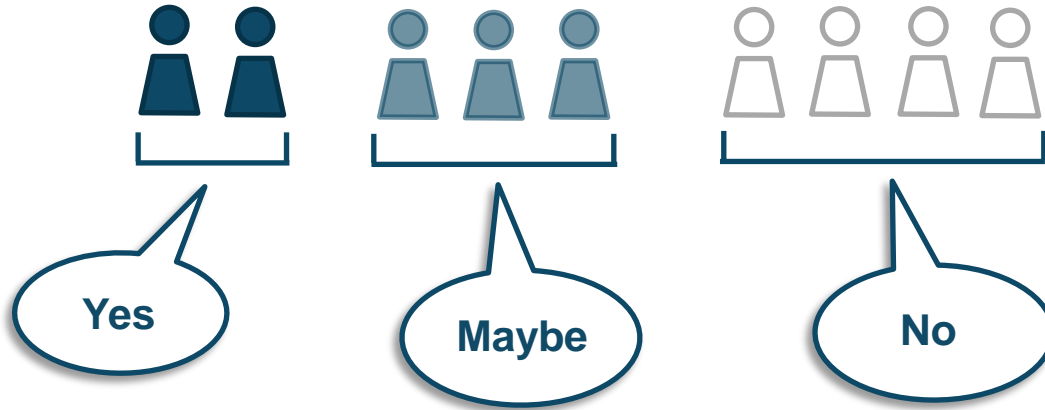
Children's Privacy Expectations

Do you think the toy can remember what you told it?



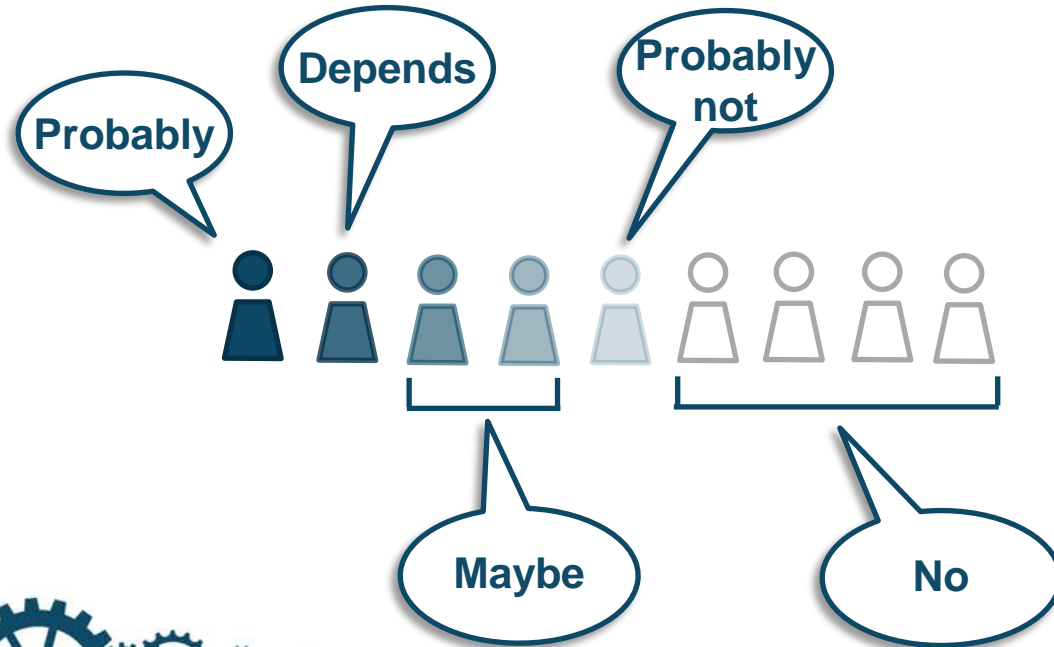
Children's Privacy Expectations

Would you tell the toy a secret?



Children's Privacy Expectations

Do you think your parent could hear what you said to the toy?



Toys vs. Other Connected Devices



INTRODUCING
amazon echo

Always ready, connected,
and fast. **Just ask.**



Recommendations

Security & Privacy



Recommended All

Play All ▶



➤ Providing recording indicators

➤ Reevaluate the need to record and store

- Data deletion practices
- Local storage

Recommendations

Consider non-toys with child users



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With Thanks to:

Rose Foundation for
Communities and the
Environment, Consumer
Privacy Rights Fund
UW Tech Policy Lab