

(Co-)Designing for Diversity

Games across afterschool programs



PLAY ♦ MAKE ♦ LEARN

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Overview

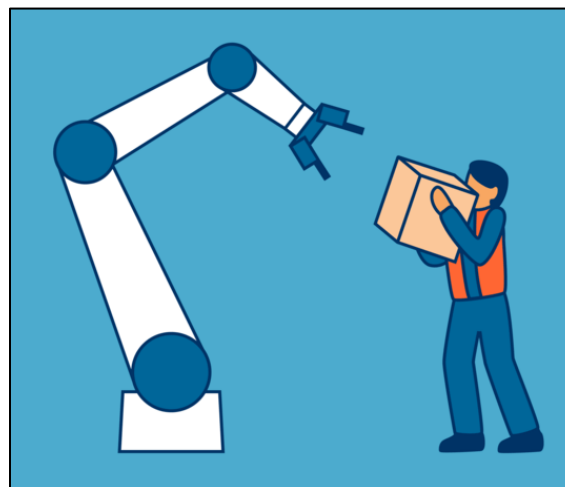


- What is a cobot? What is a cobot game?
- From monolith to collection
- What happened when we tried this approach?



What is a cobot?

- A collaborative robot that works with humans in close proximity and with awareness of the human's intent



What is a Cobot *Game*?



- A game where players program a robot partner to play alongside them
- Our project focuses especially on **low-resource learners in out-of-school-time (OST) environments**

From monolith to collection

From monolith to collection



- **Method combines measures of prior experience with robots, coding, and gaming with co-design ideation**
 - ~20 sessions
 - Activities + Free play + Prototypes

1 GAME SCAVENGER HUNT!

2 WHAT DO YOU PLAY?

1. Look back at Card 1. Pick the item on the list you use or like the most.

2. Think of one game you really liked playing.

3. Tell us what makes that game...

SHARE

- Tell us 3 of your favorite games.
- Where do you play games?
Home? At your friends?
- Do you have to follow any rules when playing games?

From monolith to collection



- **Example: What three games do you play the most?**
 - Establish preference patterns
 - Reference points for co-design conversations



From monolith to collection

- **Within-site diversity of interest**
 - Gendered differences in games reported
 - Interindividual differences presumably by other interests
- **Between-sites diversity of interest**
 - Confirmed through additional sites added later
 - Responses reflect complex cultural influences
 - We'll come back to this later



From monolith to collection

- **So what does it mean for our cobot game design?**

Takeaway #1: No single game is likely to capture broad interest in a free-choice environment, or across sites in different neighborhoods

- **And for our design-based research?**

Co-Designing a cobot collection



- **Hypothesis:** Games codesigned with different learner populations will produce games that are interesting and culturally appropriate for those populations
- **Methodologically:** We should co-design games at purposively diverse sites to explore the design space more completely and enable analysis through contrast

Sites & Games

The Sites



Golden Grove

Gentrifying urban neighborhood
~10 youth, mixed race,
mixed gender

Convenience Sample

Sunnypond

Inner suburban neighborhood
~10 youth, mixed race,
mixed gender

Convenience Sample

West Creek

Inner suburban neighborhood
~20 youth, mixed race,
mixed gender

Convenience Sample

Designing across diverse sites



Takeaway #2: Work with partners to include sites/cohorts that may not be the ones they're used to showcasing. This requires trust on both sides.

Expert-Designed Game

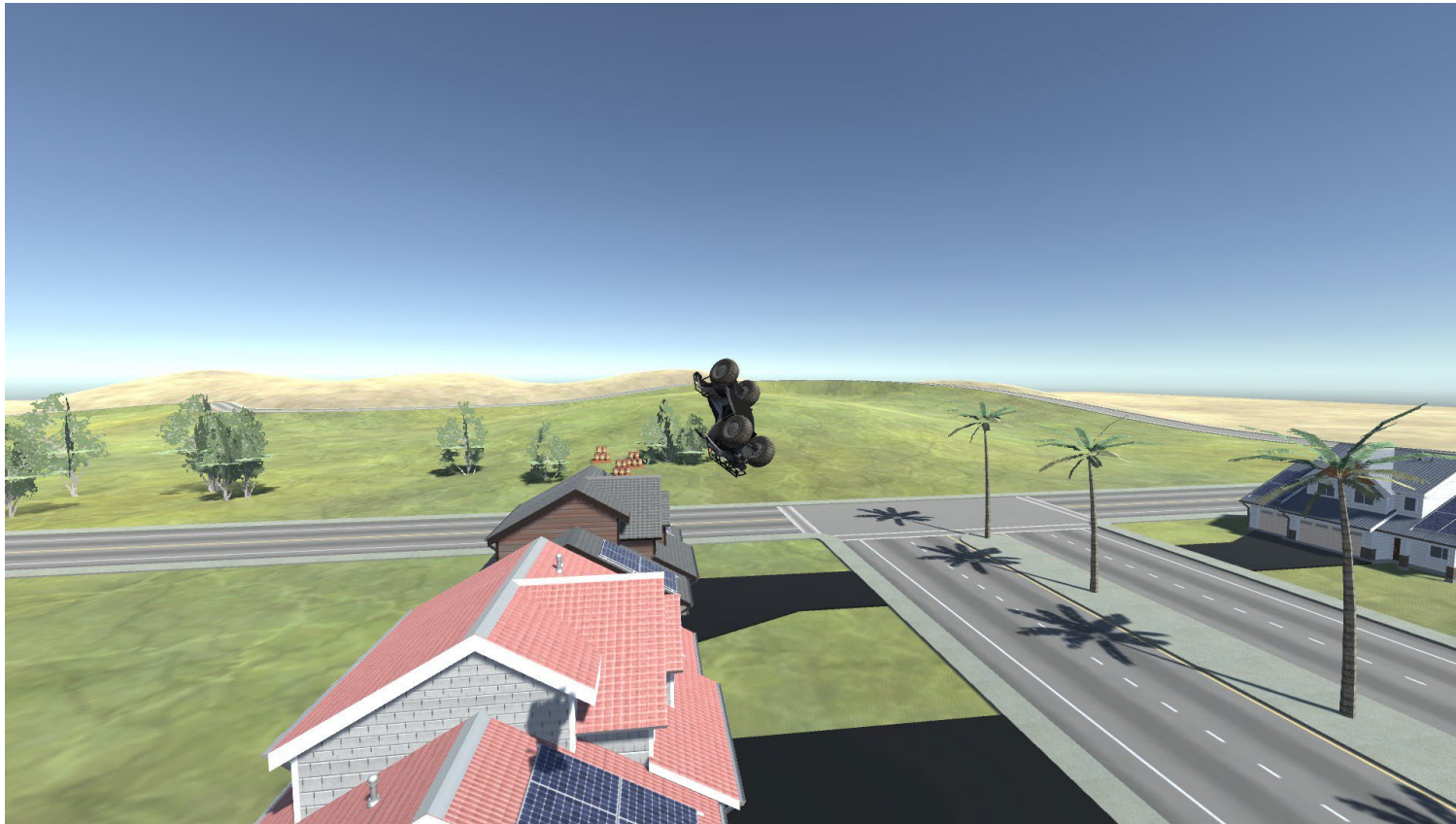


Super Slime Battle



- Role-taking (character and “pet”)
- Base(less) defense genre
- Some prior coding skill

Acceleration City



- Their rules, not ours
 - Playground rules
- Sometimes multiplayer
- Familiar setting
- Role-taking (which car)

Zillah City & Zillah Beats



- Real* setting
 - “Why do we have to do this? The Avengers should do it.”
- Extensive character customization
- “Make money”
- 2nd game in observed genre: Beat & Rhythm

Best Friends Forever



- Horror-puzzle game genre
- Strong narrative & visual aesthetic

Battle for the Hill



- Our constraint:
Non-digital game
- Complex mechanics
- “Take that” abilities

Designing across diverse sites



Takeaway #3: Different sites give input that leads to dramatically different game designs.

- Supports hypothesis about across-sites variance in preferences

Takeaway #4: Expressed preferences are incomplete. Build protocols that allow for *revealed* preferences as well.

- Freedom from external rules in *Acceleration City*
- Hidden genre familiarity leading to *Zillah Beats*

Discussion

Explicit responses are incomplete



- **We don't know the exact cause**
 - Prompt only activated a narrow conception of “games”?
 - Socially acceptable response because we asked out loud?
 - Public vs. Private games?
 - Control scheme confusion?
- **But the explicit favorite-games responses definitely underinformed design!**

Where Do Differences Originate?



- Think Nested Contextual Models
- Local culture around:
 - Digital Games
 - Play in general
 - Site culture
 - Regional culture



Next Steps

- **Test multi-game Cohort Capture Hypothesis**
 - Where is critical mass? Diminishing returns?
 - Is our collection of games enough?
- **Polishing games for release**

Summary



- **Takeaway #1:** A collection of games may serve diverse players *and researchers* better than a single option
- **Takeaway #2:** Work with partners to include sites/cohorts that may not be the ones they're used to showcasing. This requires trust on both sides.

Summary



- **Takeaway #3:** Different sites give input that leads to dramatically different game designs.
- **Takeaway #4:** Expressed preferences are incomplete. Build protocols that allow for revealed preferences, such as free play.

Backup slides

Is it codesign?



- Constrained co-design process
 - Need to include co-robotic elements
 - Need for scalability
 - Our team's expertise

Explicit responses are incomplete



- **Revisiting: What three games do you play the most?**
 - During the design of *Zillah City*, most respondents said they played the same 3 games: **GTA, Madden, 2K**
 - But they rejected sports game designs and themes
 - And when we built a third person game (like GTA), the controls and camera caused problems for many players
 - And when we asked about things they liked about those games, they didn't have much to say

Explicit responses are incomplete



- **But between co-design activities, we noticed participants playing games on their phones...**
 - Games that never showed up on their Top 3 but they had clearly invested time in, and had mastered extensively
 - We built a second game, *Zillah Beats*, as a single-button beat & rhythm game around these observations, which was largely understood and accessible

Explicit responses are incomplete



- In another case, a central design pattern was in the dots between feedback
- **Acceleration City**
 - 6 design concept pitches rejected by codesigners
 - Even though they were made of ideas they had given us!
 - Strong pushback every time we tried to explain the rules of a game during its pitch
 - But the pattern itself, plus watching free-play clued us in

Explicit responses are incomplete



- We concluded the feedback “signal” was that they didn’t want us to specify in-game goals
- So we built a “Playground” instead
 - Fluid individual and small group specification of goals
 - Built attractions, provocations, and things to play with