

Design:

Designing Pervasive Games for Mobile Phones

Mobile and Ubiquitous Games

ICS 163

Donald J. Patterson

Content adapted from:

Pervasive Games: Theory and Design

Experiences on the Boundary between Life and Play



Designing Pervasive Games for Mobile Phones

- Personal Communication and Computing
- Pervasive Presence in Mobile Phone Games
- Case Study: Insectopia
- Design Strategies



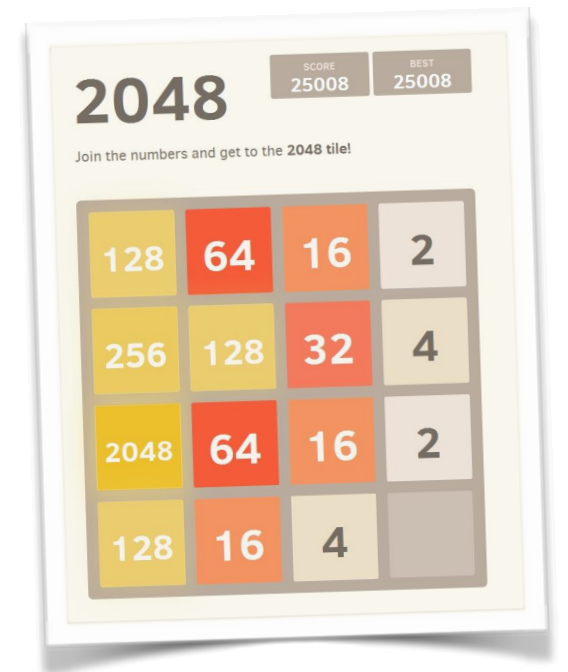
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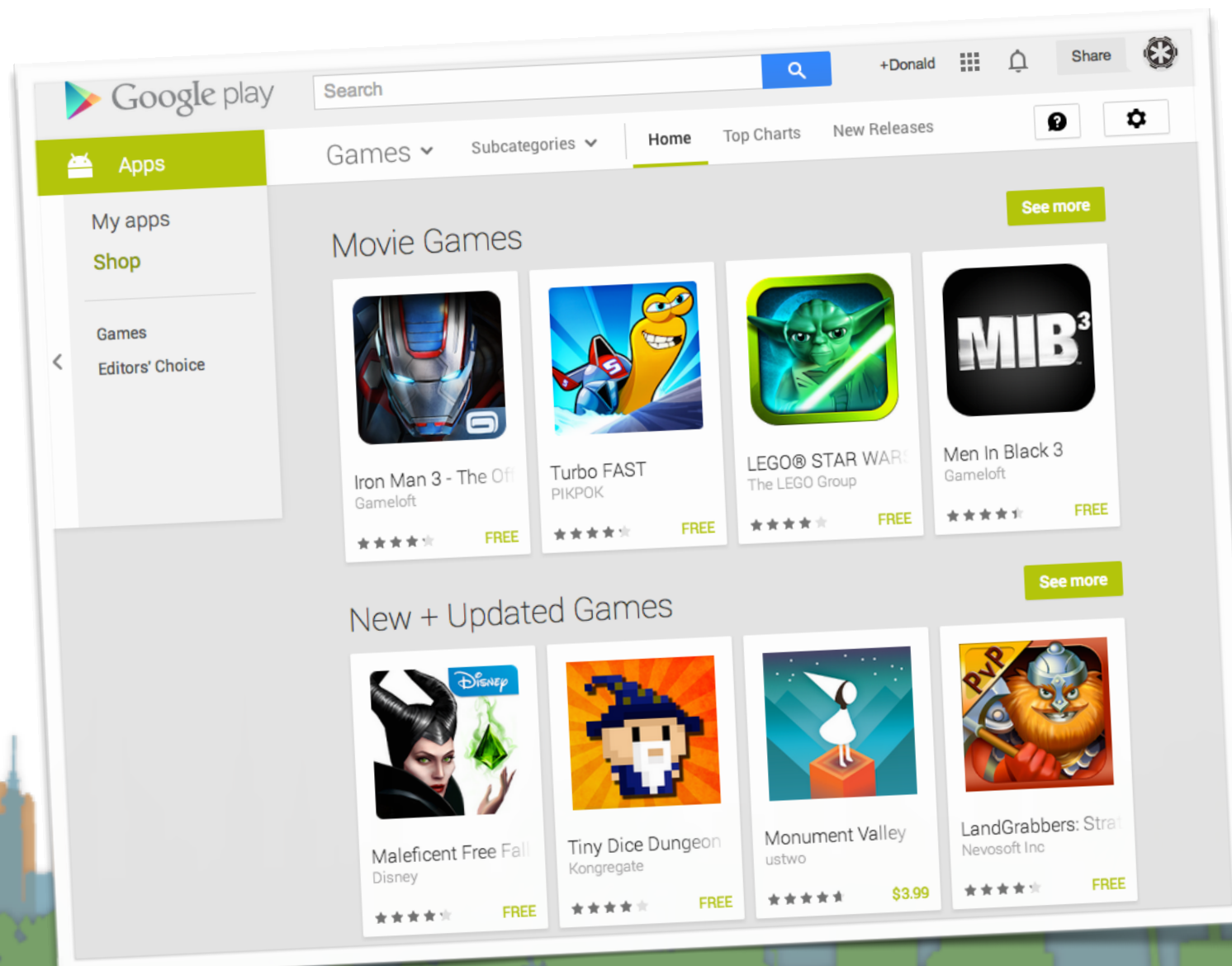
Designing: Personal Communication and Computing

- Mobile phones are the most common gaming device
 - Angry Birds
 - 2 billion installs
 - as big as twitter (monthly engagement)
 - Candy Crush
 - .5 billion installs



Designing: Personal Communication and Computing

- Games on phones
 - Preinstalled games #ftw
 - iTunes Store/ Google Play



Designing: Personal Communication and Computing

- Pervasive games that use mobile phones
 - like technology-supported
- Mobile phone games with pervasive features
 - like technology-sustained
 - this is the focus of this lecture



Designing: Personal Communication and Computing

- Phones are used differently than computers
 - communication is the bottom-line
- Phones are very intimate
 - phones are rarely shared in the U.S.
 - phones are frequently near
 - especially when away from home
- Phones enable people to be reached almost anywhere anytime



Designing: Personal Communication and Computing

- Phones are very intimate
 - We carry them on or near our bodies
 - When we don't have them we feel phantom vibrations
 - If we don't have them we experience panic
 - We feel naked
- They are trusted
 - to connect
 - to be on



Designing: Personal Communication and Computing

- The practice of meeting people has changed because of phone technology
- Consider meeting at a mall
- Consider picking up a friend from their home



Designing: Personal Communication and Computing

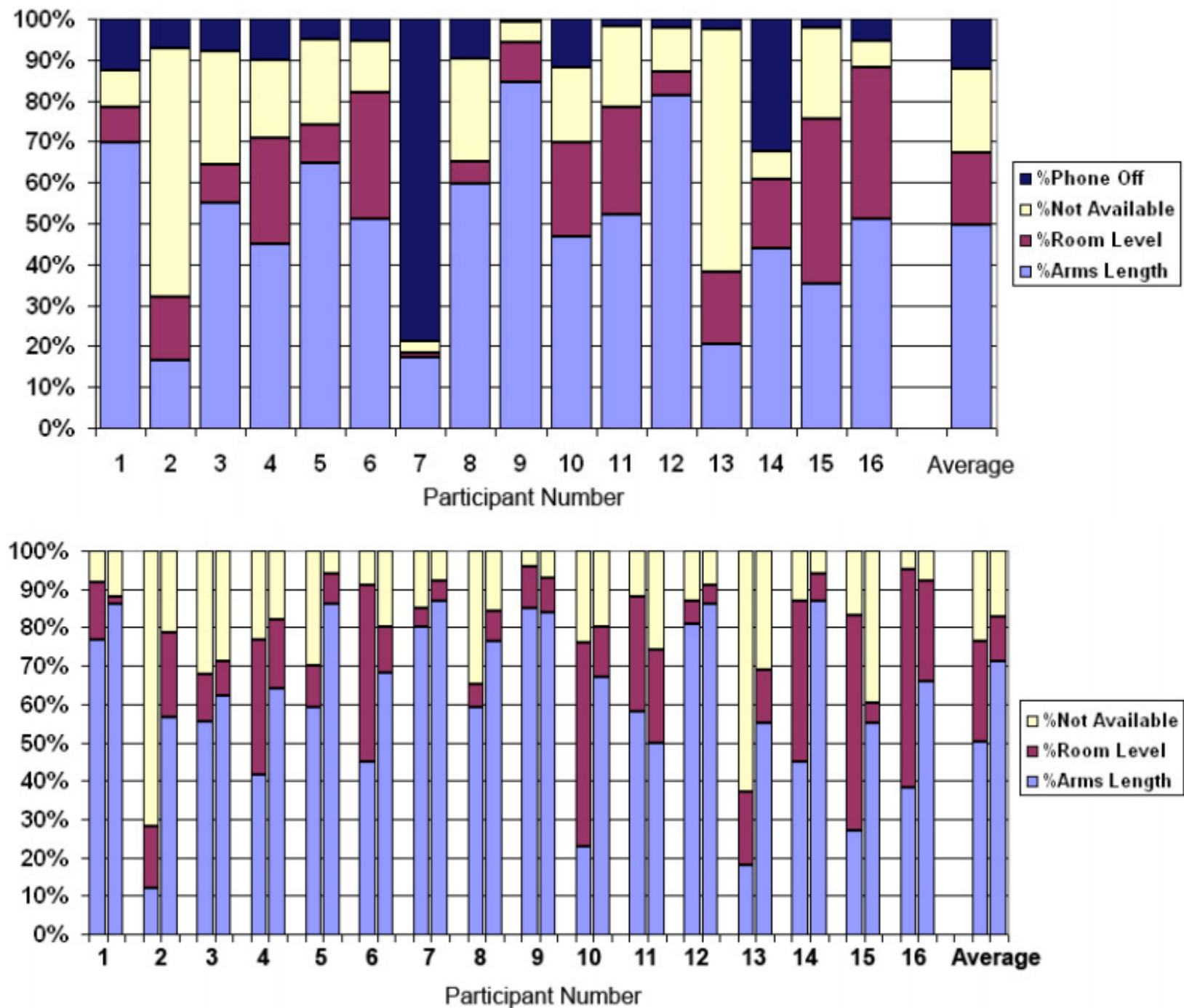


Fig. 2. Individuals varied in proximity levels, but on average people kept their phone within arm's reach half the time (Top). Most users carried the phone close to them at all times when away from home if the phones were turned on (Bottom: Left bar is at home, Right is away).

Designing: Personal Communication and Computing

- Consider the difference between
 - A game that has a chat function
 - A game that sends you text messages



Designing: Personal Communication and Computing

- Phones are computers
 - “tiny” computers
 - form factor matters



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- Discuss

The Superorganism of Massive Collective Wearables

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Abstract

Personalized wearable ICT systems presented in fashionable and appealing lifestyle-designs have gained critical user acceptance, and comprise momentum to bring **wearable computing** to a **socio-technical mass phenomenon** within the next few years. Early indicators for this expected wearable systems "tsunami" are the "spring tide" of 5.3 billion mobile phone platforms (i.e. mobile subscribers) as of the end of 2013, an assessed market potential for 300 million smart watches in 2014, and a possible market for more than 200 million smart eye-wear systems in 2015 [1].

This workshop asks the questions on the potentials and opportunities of turning these massively deployed wearable systems to a **globe spanning super-organism of socially interactive** personal digital assistants. While the individual wearables are of heterogeneous provenance and typically act autonomously, we can assume that they can (and will) self-organize into large scale cooperative collectives, with humans being mostly out-of-the-loop [2]. We may not assume a common objective or central controller, but rather volatile network topologies, co-dependence and internal competition, non-linear and non-continuous dynamics, and sub-ideal, failure prone operation. We could refer to these emerging massive collectives of wearables as a **"super-organism"** [7], since

The logo for UCI.edu, featuring the text "uci.edu" in a white, lowercase, sans-serif font centered within a large teal circle. The circle is set against a black background with two smaller teal circles in the top corners.

Designing: Personal Communication and Computing

- Phone use is different
 - Used in bursts
 - Used while waiting
 - Used in between activities
 - Used in real-life
 - Phones can't control attention
 - Driving
 - Sensors are central
 - Location, cameras, orientation



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Designing: Pervasive Presence in Mobile Phone Games

- It is more difficult to make a game feel pervasive on a phone
- It is hard to expand presence in the game outside of the device
- Integrating the game-world and the ordinary world is hard
- Strategies to do that.....



Designing: Pervasive Presence in Mobile Phone Games

- Player identification
 - How do you figure out who is playing a game?
 - How do you understand your role in the game?
 - How do you understand the role of the device?



Designing: Pervasive Presence in Mobile Phone Games

- Mythical: The Mobile Awakening
 - You have a magic role-playing character
 - The device makes your character visible
 - Other people have similar characters



Designing: Pervasive Presence in Mobile Phone Games

- Mythical: The Mobile Awakening
 - The phone is a probe into an existing world



Designing: Pervasive Presence in Mobile Phone Games

- Game World Identification
 - How does the game world function?
 - What events matter? What actions matter?
 - What is the narrative? How does that impact your player?
- The design constraints of mobile games make this hard
 - you have 30 seconds to sell it
 - the world has to unfold in short interruptible chunks
 - with partial attention



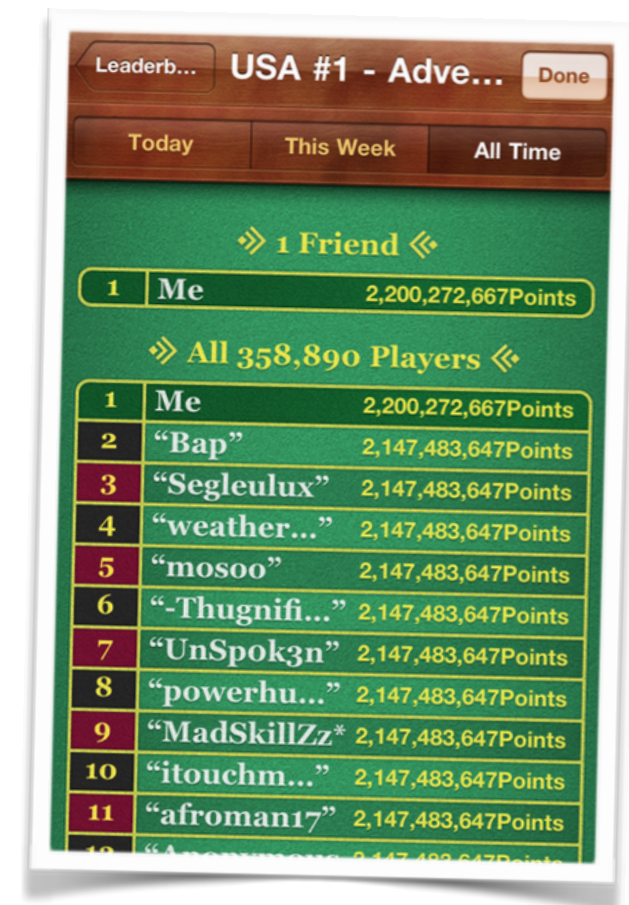
Designing: Pervasive Presence in Mobile Phone Games

- Game World Identification
 - Making the real-world the game world makes this much easier



Designing: Pervasive Presence in Mobile Phone Games

- Player-to-Player Interaction
 - High-scores
 - Leaderboards
 - Casual Communication
 - Tactical Communication
 - Highly synchronized multi-player play



Leaderb... USA #1 - Adve... Done

Today This Week All Time

» 1 Friend «

1	Me	2,200,272,667Points
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» All 358,890 Players «

1	Me	2,200,272,667Points
2	"Bap"	2,147,483,647Points
3	"Segleulux"	2,147,483,647Points
4	"weather..."	2,147,483,647Points
5	"mosoo"	2,147,483,647Points
6	"-Thugnifi..."	2,147,483,647Points
7	"UnSpok3n"	2,147,483,647Points
8	"powerhu..."	2,147,483,647Points
9	"MadSkillZz*"	2,147,483,647Points
10	"itouchm..."	2,147,483,647Points
11	"afroman17"	2,147,483,647Points
12	"Anonymous"	2,147,483,647Points



Designing: Pervasive Presence in Mobile Phone Games

- Player-to-Player Interaction fostered through
 - Game mechanics
 - Trading resources
 - Joint combat
 - Built-in communication systems
 - Joint tasks with no built-in coordination
 - push coordination outside of game
 - SMS
 - email
 - Skype



Designing: Pervasive Presence in Mobile Phone Games

- Communities
 - Doing something together with a shared purpose
 - Critical mass is tough
 - What makes something go viral?
 - Guilds encourage a sense of belonging
 - encourage group play
 - Provide indicators of active play
 - Show traces of other plays
 - e.g., geocaching



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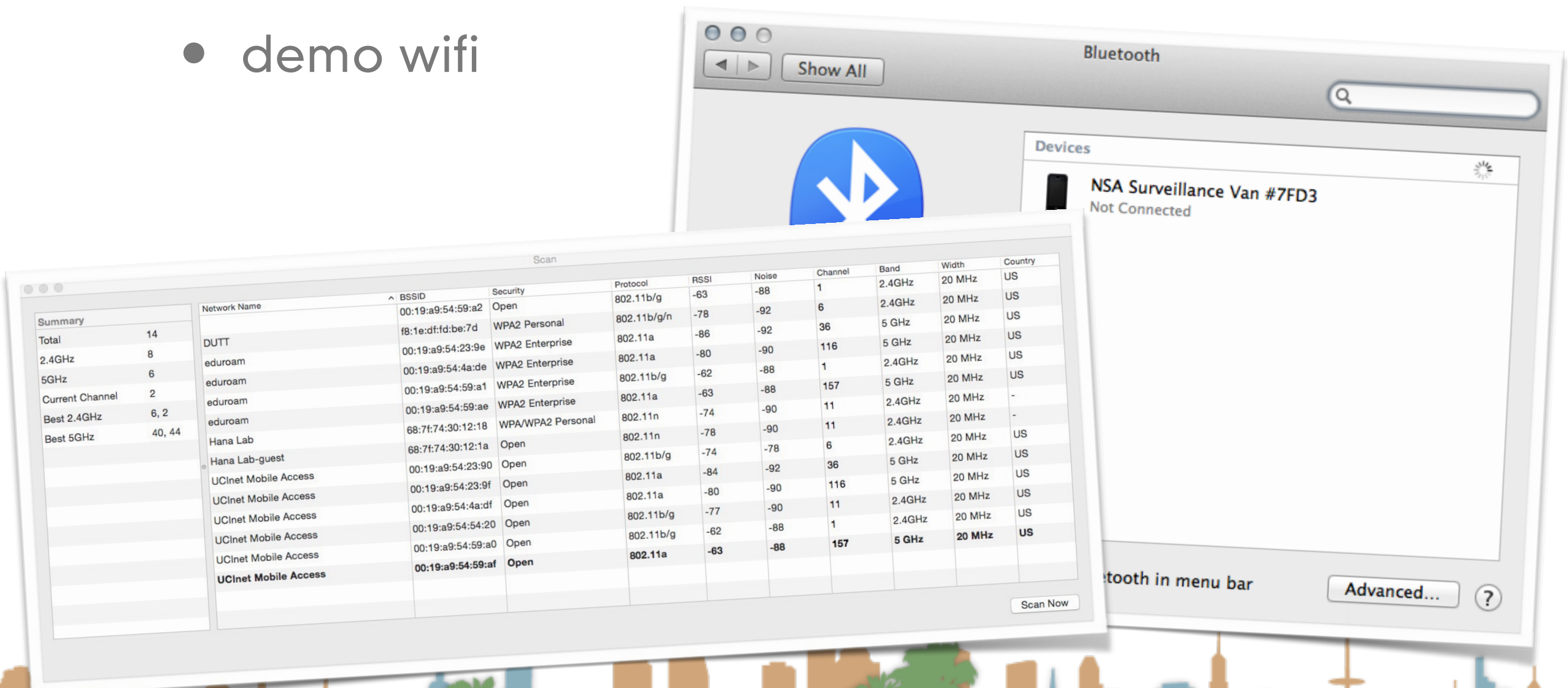
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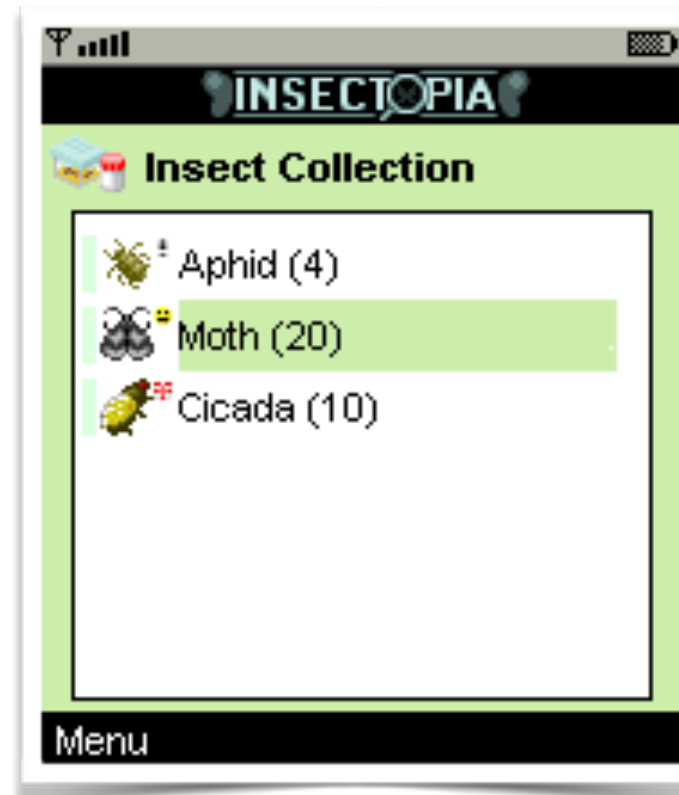
Designing: Insectopia

- Technological Underpinnings
 - The unique MAC Address
 - demo bluetooth
 - demo wifi



Designing: Insectopia

- Game Play
 - Collect insects
 - Recharge insects
 - Leaderboard
 - Team Play
 - Pervasive Gaming Elements



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Designing: Design Strategies

- Using the mobile phone as a context sensor
 - The phone can provide
 - Location
 - Orientation
 - Proximity to some things
 - The phone can support players providing their own
 - Pictures
 - Interpretation of location



Designing: Design Strategies

- Using the mobile phone as a context sensor
 - Hybrid
 - QR Codes
 - RFID scanners



Designing: Design Strategies

- Context can be used to:
 - Unlock game content
 - Cause a game world to change
 - form the infrastructure of the game
 - Treasure
 - Insectopia



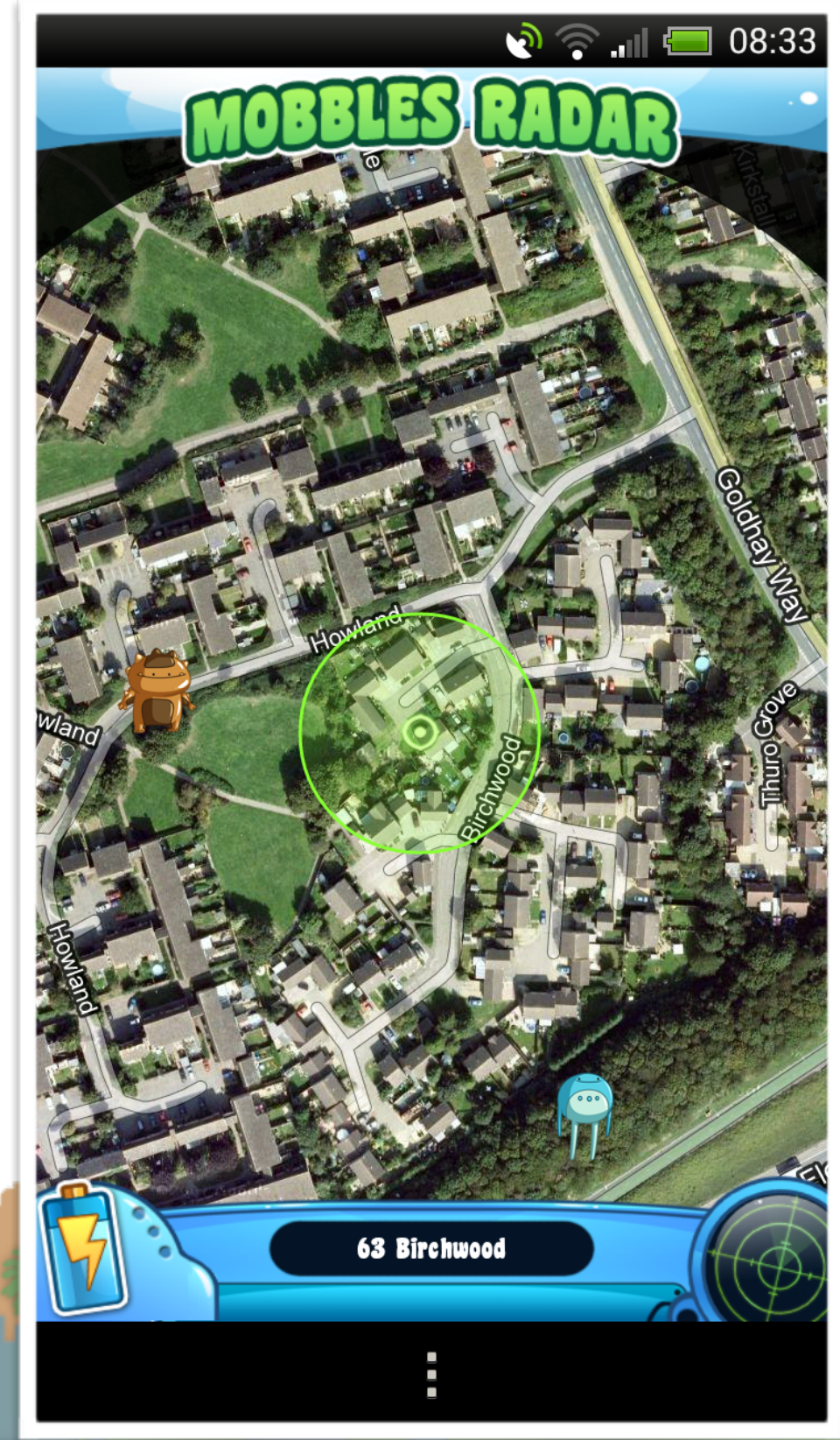
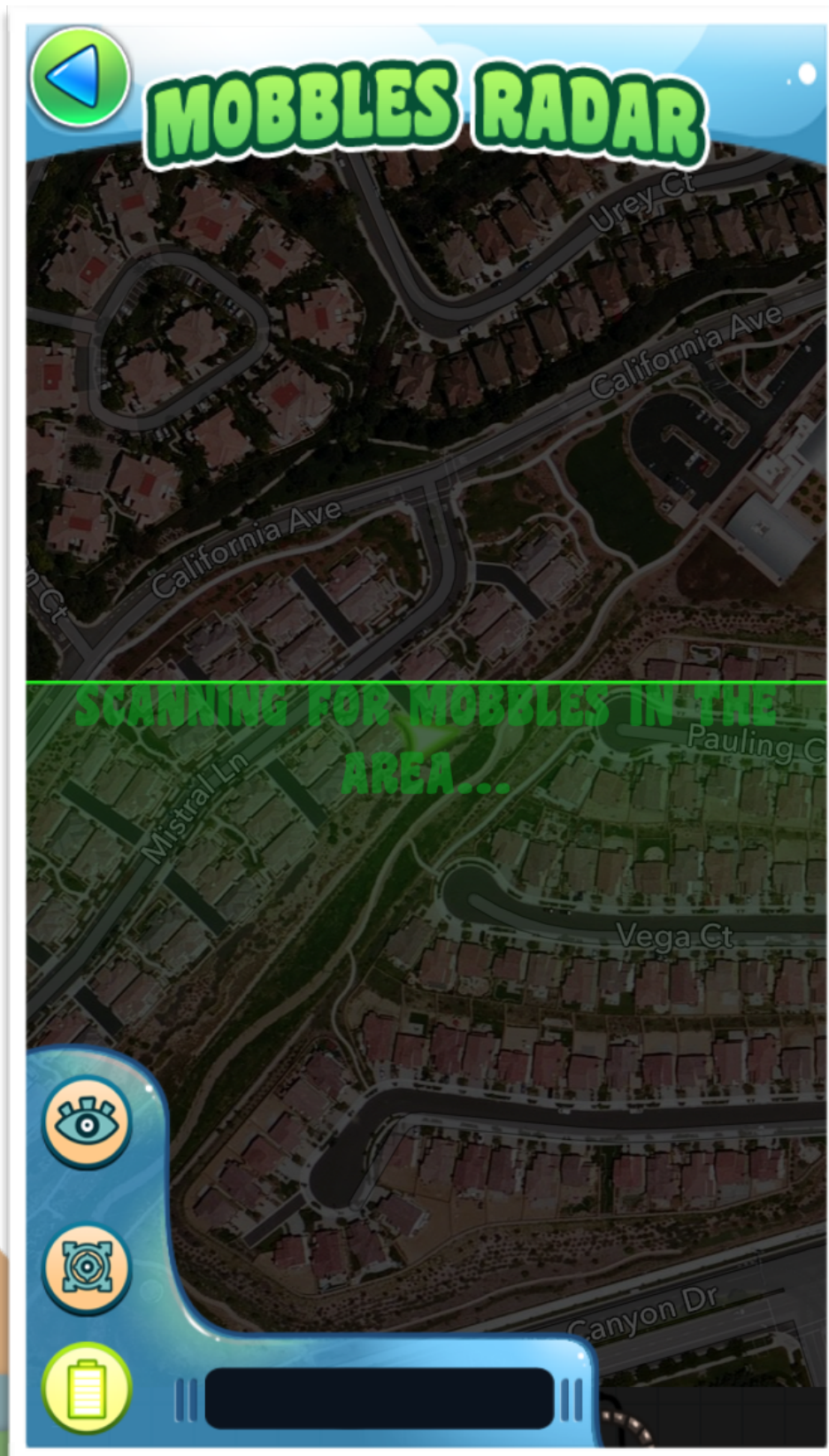
Designing: Design Strategies

- Games of casual exploration
 - Virtual content overlaid on real-world
 - random
 - hard to get right
 - dangerous
 - location-specific
 - Challenge:
 - How do you make the virtual and ordinary world connection meaningful and interesting?



Designing: Design Strategies

- Games of casual exploration



Designing: Design Strategies

- **Mirror world games**
 - Don't tend to leave the device
 - e.g., based on Google Earth (demo)



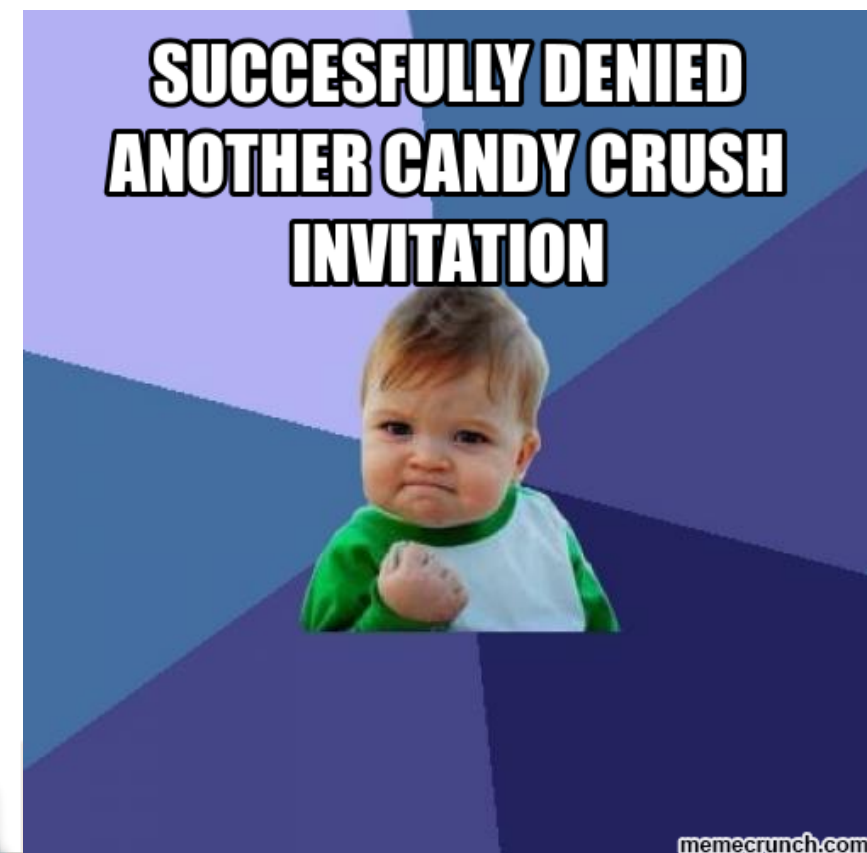
Designing: Design Strategies

- **Communication from the game world**
 - pushed messages from game to ordinary world
 - email
 - text messages
 - can quickly become spammy
 - What should you communicate?
 - Events that require action
 - Game mechanics might require regular check-ins
 - Tamagotchi



Designing: Design Strategies

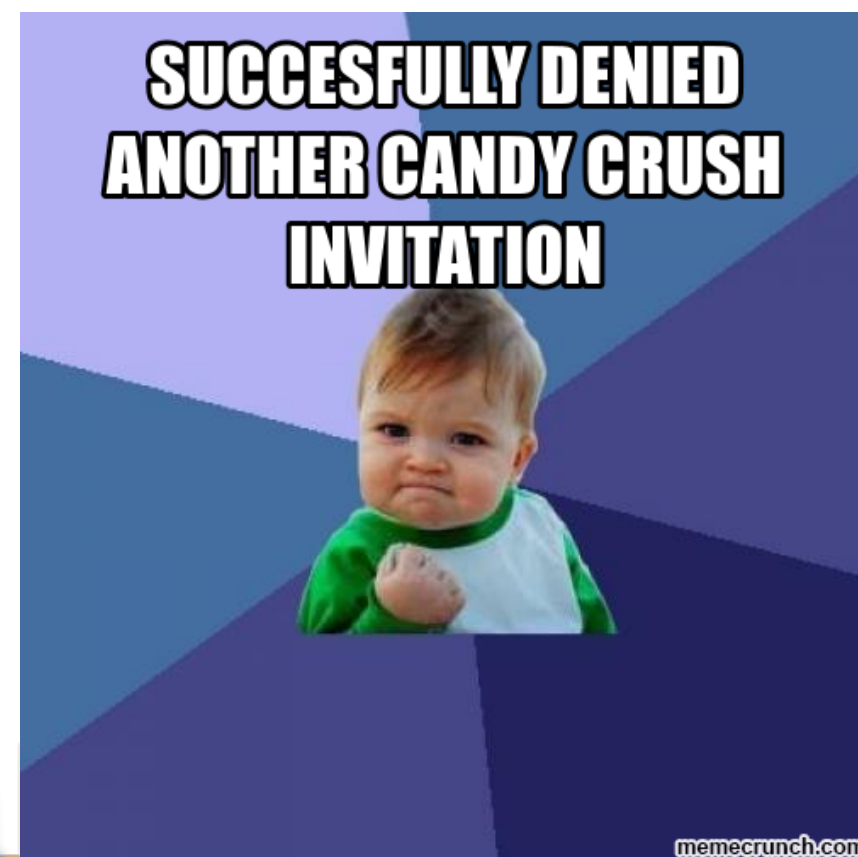
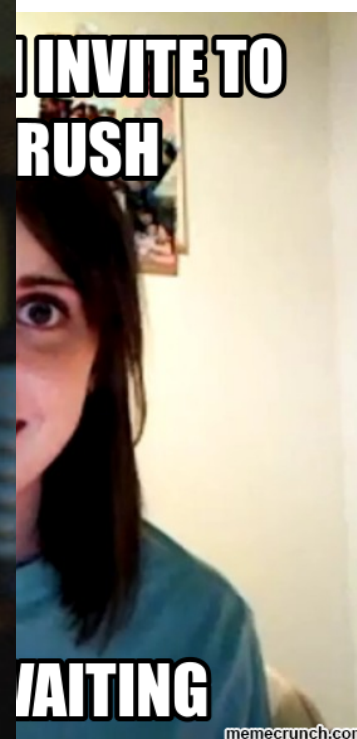
- **Viral Invitations**
 - Can be built into game structure
 - Rewards for recruiting new players
 - Often seen as getting bonuses for connecting to social median



Designing: Design Strategies

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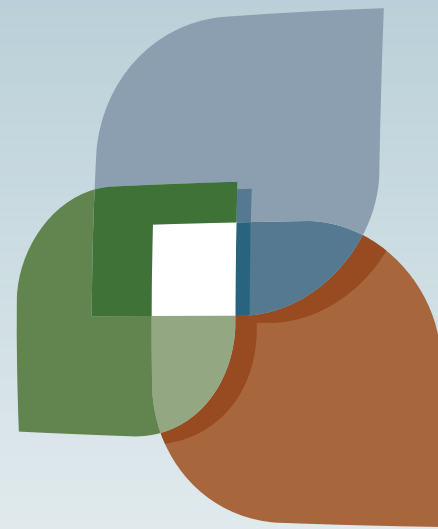
- **Activity Blending**
 - Given the nature of mobile phone usage
 - Design for interspersed activities
 - Turn taking
 - Slow updates
 - Asynchronous Events
 - Automatic responses if player doesn't check in



Summary

- Pervasive mobile phone games are a different genre than games that you simply play on a mobile phone
- Pervasive games integrate into the ordinary world
- Smart phones are pervasive
- Smart phone use is
 - intermittent
 - has social implications
 - interleaved with other activities
- Design strategies must carefully blend game and phone





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