Examples: Tactile Output

- 3D game phones (SCH-G100 and SPH-G1000) with built-in vibration
- Siemens 3D-Ralley car race that vibrates if you leave the track

It is expected that Mobile Gaming is becoming a huge market (2)

- "6 November 2003 - Mobile gaming will be key in driving the growth of mobile content and entertainment services, according to a new report from Analysys."
- "Mobile Content and Entertainment Forecasts and Analysis predicts that the total Western European market for mobile games will grow more than tenfold from its 2002 value of EUR0.2 billion to nearly EUR3 billion in 2008 - representing just over 19% of total revenue for mobile content and entertainment services."
- "Nearly 80% of gaming revenue (EUR2.4 billion) will be derived from downloadable games."

Mobile Games Market Forecast

- Jupiter Research http://www.juniperresearch.com/
Mobile Games Market
Total Market Value 2009 estimated US$18.5 billion

• Jupiter Research
http://www.juniperresearch.com/

Playable games
• usability of mobile games ≠ usability of a desktop environment
• Main issues
  • fun to play
  • and challenging
• Playability refers to a user’s overall experience with a game.
• Playability = the degree to which a game is fun to play, with an emphasis on the interaction style and plot-quality of the game; the quality of gameplay.

Playability is affected by the
• quality of the storyline
• responsiveness
• pace
• usability
• customizability
• control
• intensity of interaction
• Intricacy/complexity/difficulty
• strategy
• the degree of realism
• quality of the graphics and sound.

Usability and Mobile Gaming
• Fun is a main factor game usability
• Mobile games are typically played for brief time periods, so there is no extra time to learn how to navigate inside the game.
• Playing should be as intuitive as possible and the challenge should be in the game play, not in the interaction with the game user interface.
• Usability provides the framework and tools for playability
• The interface is the essential factor a game’s success
• If usability problems get in the way of intense game playing, the game probably will not be played again.

Basic design Issues for Games
• When playing a game, users should experience the game world
• the game navigation structure should support the experience
• Use of high-level UI components should be avoided
• Game menus should look and feel like the game.
• Mobile games are played in a context where interruptions often occur:
  • somebody might call or send an SMS message,
  • the player might need to pause the game to buy a bus ticket.
  Therefore, the game design should support saving and pausing.

Experience
• Immersive experience
• Adequate experience
• Broken experience
10 Usability Recommendations for Games

1. Provide a Clear Menu Structure
   Use only one main menu, accessible with the left soft key. Keep the menu short. In general, use the left soft key for OK, select, and menu; use the right soft key for cancel and back.

2. Simplicity is Key
   If two solutions are equally valid, use the simpler. Make sure each entity in the game is unique, and not easily confused with any other. Provide different game modes only if they are truly different and valuable.

3. Provide Help When Needed
   Keep help text short. If feasible, scroll text one screen at a time, not one line at a time. Display short text on the screen to explain new items, characters, and situations in the game. Provide a setting to disable in-game help. Provide a graphic representation of which keys are used for which functions. Do not expect players to read help text or force them to do so.

4. Be Relentlessly Consistent
   Use the mother tongue of the user. Be consistent with the phone’s UI, with game industry conventions, and within the game itself. Use the left soft key for OK, select, and menu; use the right soft key for cancel and back.

5. Don’t Waste the User’s Time
   Keep help text short. If feasible, scroll text one screen at a time, not one line at a time. Display short text on the screen to explain new items, characters, and situations in the game. Provide a setting to disable in-game help. Provide a graphic representation of which keys are used for which functions. Do not expect players to read help text or force them to do so.

6. Don’t Waste the User’s Time
   Provide a simple save-game feature. Have the game auto-save when the user presses the end phone button. Use the destroyApp() method to do this. Provide a setting to disable auto-save, and menu; use the right soft key for cancel and back.

7. Conform to Real-World Expectations
   Real world analogies
   - The user has expectations of how his/her surrounding environment works.
   - The game world should match that model.
   - Movement and moving objects in the game world should be intuitive, and obstacles and possibilities should be easy to detect.

8. Use Natural Controls
   Use the 2, 4, 6, and 8 keys for horizontal and vertical movement as well as the arrow keys for horizontal and vertical movement. If enabled, use the 1, 3, 7, and 9 keys for diagonal movement, since many mobile devices (and all Series 40 devices) do not support simultaneous keypresses.

9. Context as Input for Games
   Context as Input for Games
   - Phone’s UI
   - PDA’s UI
   - Game industry conventions
   - Game itself
   - Use the left soft key for OK, select, and menu; use the right soft key for cancel and back.

10. 10 Usability Recommendations for Games
    Real world analogies
    - The user has expectations of how his/her surrounding environment works.
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    - Movement and moving objects in the game world should be intuitive, and obstacles and possibilities should be easy to detect.
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    - The game world should match that model.
    - Movement and moving objects in the game world should be intuitive, and obstacles and possibilities should be easy to detect.

   Match functionality and outlook. Things should do what they seem like they are supposed to do.

   Do not force the player to learn new things if s/he can utilize his/her prior knowledge. Implement a realistic physics model.
ContextSnake

- Projektarbeit, Nora Zelhofer
- Interactive Institute in Göteborg and LMU München
- Virtual Pets on phones
- Basic ideas
  - Environment in the game changes with the users real environment
  - Offsprings interaction
  - Pet sharing

Example of a mobile location aware game (Interactive Institute, Sweden)

- Backseat GAMING

Example of a mobile location aware game (Interactive Institute, Sweden)

Problems with real world gaming

- Law of the physical world are not forgiving!
- Action required in the game may be different from actions appropriate in the real world
- Real world resources may become thing to fight for


Mobile/Mixed reality Game in Action

Video: Can You See Me Now?

Matt Adams, Ju Row Farr, Nick Tandavanitj
Blast Theory
Unit 43a Regent Studios8 Andrews Road London
Steve Benford, Martin Flintham, Adam Drozd, Rob Anastasi
The Mixed Reality Laboratory School of Computer Science and IT
The University of Nottingham
(8 min)