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Lessons in Multimodal Interaction Design
The Coexistence of IVRs and Small Screens

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Agenda

- Multimodal Interactions in Everyday Life
- Differences between IVRs and Small Screens
- Design Challenges
- Creative Solutions
- Take-aways
- Q & A

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Multimodal Interactions in Everyday Life

- Jill has agreed to pick up Jack from the airport
  - Email
  - Smartphone
  - IVR (inbound)
  - IVR (outbound)
  - SMS
  - Car
  - GPS
  - Touchscreen
  - …

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Differences between IVRs and Small Screens

- Security and privacy
  - Speaking out loud, shoulder surfing, hackers, etc.
- Limitations
  - time, screen size, character length, etc.
- Temporal vs Spatial
  - Speech is linear and temporal, visual is spatial
- Costs
  - Agents costs ($1.50) > IVR costs ($0.15) > Mobile solutions ($0.09)
- Help Expectations
  - Over the phone, users expect to be able to press 0 and talk to someone. On the web/mobile, users don't run for the "live chat" link, they give self-service a chance!

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Design Challenges (I)

- Data Usage Charges
  - On the phone, we can send/receive data at very little cost. On mobile devices, users most of the time have to pay for bytes sent/received, and providers network have to deal with coverage, data connections, etc.

- Connectivity
  - IVRs tend to have permanent connections to the backends, allowing for seamless data exchanges. Mobile platforms require push/pull approaches at sending/receiving information, so they can only have intermittent connections. This is somewhat related to Data Usage

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Design Challenges (II)

- Behaviors
  - Sometimes, the exact same functionality, implemented the same way on each platform, yields very surprising results as users react in very different ways. For example, an ad over the IVR had conversion rates of 1/333, whereas the mobile implementation only had a conversion rate of 1/50,000

- Device variability
  - There's a myriad of devices out there in the market, so mobile solutions have to account for different OS, screen sizes, input modes (full keyboard, keypad, touch screen, stylus, etc.). Telephones on the other hand (IVR) work the same everywhere

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Design Challenges (III)

- Functionality & Handoffs
  - Sometimes, different platforms don't have the same access to backend systems. For example, an IVR might have direct connectivity to a DB system yet there might not be a webservice for the mobile platform to use.
  - This causes that sometimes systems have to switch back and forth between platforms (e.g. start on your phone, finish on an IVR, or viceversa), so designers have to be careful about how they handle those transitions, and making sure there's consistency amongst platforms

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Creative Solutions (I)

- Flow adaptation
  - To solve the problem of data usage charges, designers can implement the same functionality but in two or more different flows, each optimized for each platform's data access and backend limitations

- Data management
  - To solve the connectivity problem, designers can take data needs into account throughout the entire experience, so they can plan in advance when to retrieve the data, what data to retrieve, how to store it, etc. so that the data is available when needed
  - Retrieval and storage for future display is something IVRs don't have to worry about too much

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Creative Solutions (II)

- Data analysis
  - When behavior differences are observed, designers should look at the data to try to understand the underlying reasons for those differences
  - Designers should also be open to other factors other than human factors or usability as the explanation for those differences, such as social behaviors or even psychology

- Categorization
  - To solve the problem of device variability, designers can strive to group handsets into "families", and then group those families further by finding reference designs that can work on similar families

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Creative Solutions (III)

- Hybrid systems
  - To solve the problem of functionality limitations, designers can explore systems where the functionality of two or more platforms is combined to overcome single platform limitations (e.g. data collection on one, payment processing on another one)
  - With that in mind, designers need to be conscious about platform handoffs so that there's consistency throughout the interaction, and that certain elements are designed on purpose to support those transitions, such as custom screen messages, visual indicators or earcons

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Top 5 (practical) takeaways

1. Screens don't translate to menus and viceversa
2. Optimize data retrieval and display
3. Consider social factors
4. When overwhelmed, group and conquer
5. Plan transitions carefully and consistently

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Questions?

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" Design is not just what it looks like and feels like. Design is how it works. "

- Steve Jobs

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