

Designing Voice User Interfaces

Evidence From The Field

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Tellme.

Agenda

- My Goals Today:
 - *Share information from a user- and task-based perspective*
 - *Address some of the design-related challenges that impact the success of a deployed speech recognition system*
 - *Address some of the additional influences (beyond design and technology) that may impact success*
 - *Discuss areas that can illuminate opportunities for improvement*
- Background
- Voice User Interface (VUI) Design Best Practices
 - What makes a great phone experience?
- Additional Considerations in Building Successful Applications
 - More than just adhering to design best practices!

Tellme Overview

Mission: Fundamentally improving how people & businesses use the phone

World's largest network for accessing internet content over the phone

3K applications, 2B calls per year

Founded in 1999, 320 employees, located in Mountain View, California

Committed to superior user experience



Context For Today's Examples From The Field

- Enterprise customer care space
 - Additionally, Tellme designers consider:
 - Carrier service applications
 - Consumer products
 - Multimodal interfaces (*"the phone is no longer just a phone"*)
- US-centric
- English language focus
- Static grammar directed-dialog

VUI Best Practices: Some Guiding Principles

- The phone is not the web *[go to next page]*
- Focus on the caller's goals and tasks
- Anticipate the caller's needs
- Speak in the caller's language
- Less is more
- Write for the *ear*, not the eye
- Provide feedback and allow correction

Designing for the Web vs. the Phone

The Web:

- Persistent
- Can browse and scan
- Visible boundaries
- Limited by real estate

The Phone:

- Ephemeral
- Taxes short term memory
- Invisible boundaries
- Serial presentation

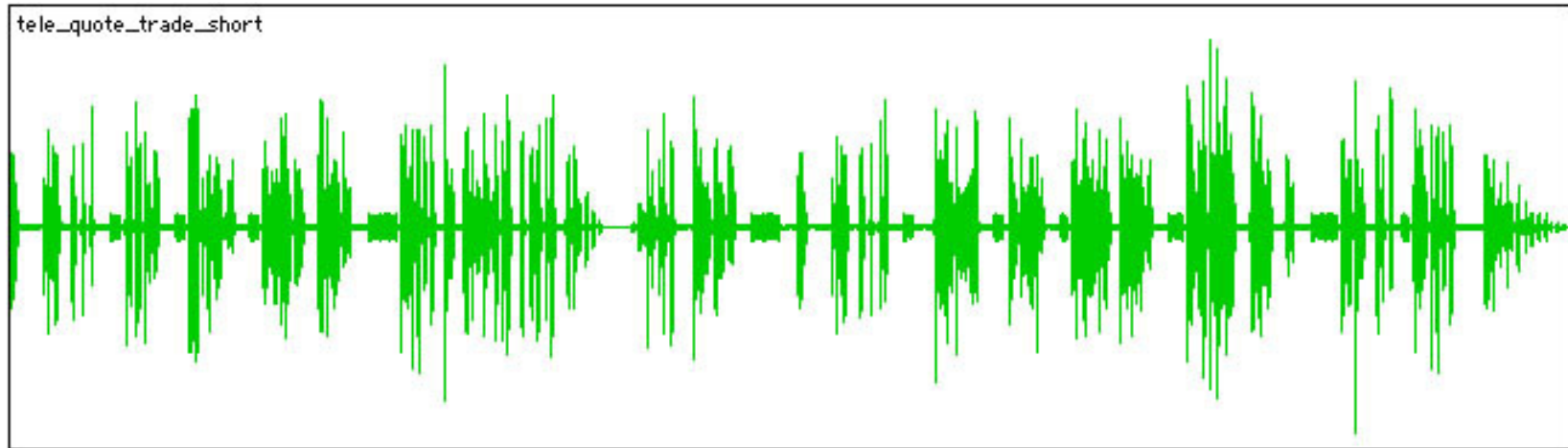
The screenshot shows the Fandango website interface. At the top, there's a banner for "Charlotte's Web" and "Happy Holidays" with a pig image. Below the banner is the Fandango logo and a search bar for "Movie Tickets & Theater Showtimes Search". The search bar has two input fields: "By City or ZIP" (with "94134" entered) and "By Movie" (with "Enter Movie" entered). There are "GO" buttons and a "Select a Movie" dropdown. Below the search bar is a navigation menu with links for HOME, THEATERS, BROWSE MOVIES, TRAILERS, FANDANGO BUCKS, and LIVE EVENTS. The main content area is divided into sections: "Opening This Week" featuring "Eragon" and "Charlotte's Web", "The Pursuit of Happiness" (with a large image of Will Smith and Jaden Smith), "Now Playing" featuring a "TOP BOX OFFICE" list of movies, and "Browse Movies" with filters for "By Title" and "By Genre". There are also links for "Your FAVORITES" and "Click Here to Begin!".

VUI Best Practices: Some Guiding Principles

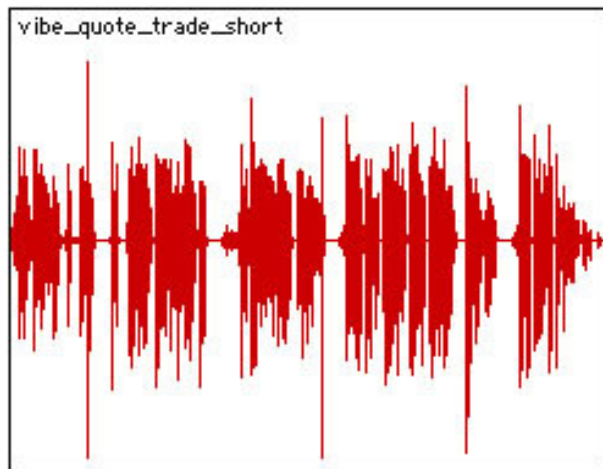
- The phone is not the web
- Focus on the caller's goals and tasks *[FedEx menus originally based on LOB's]*
- Anticipate the caller's needs *[Task-based E*Trade quote → trade design]*
- Speak in the caller's language *[Marketing terminology often fails to resonate]*
- Less is more *[Reduced E*Trade time-to-task] [go to next page]*
- Write for the *ear*, not the eye
- Provide feedback and allow correction

Less Is More: Help callers achieve goals efficiently

Time-to-task in original design:



Time-to-task in redesign:



Respect callers' time!

After Tellme's redesign,
trade volume increased by **18%**

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- The phone is not the web
- Focus on the caller's goals and tasks
- Anticipate the caller's needs
- Speak in the caller's language
- Less is more
- Write for the *ear*, not the eye *[Grammatical norms vary between written & spoken lg]*
- Provide feedback and allow correction *[Landmarks, elegant error recovery]*

Building Successful Phone Applications

Additional considerations beyond technology, design principles

- **Understand the holistic goals of the system** *[go to next page]*
- Understand the emotional context / motivation of the call
 - Customer care domain – where can pain be alleviated?
 - Consumer app domain – how can the system delight?
- Recognize that some things CAN'T be automated
- Consider user perceptions of system
 - Customer feedback
- Audio quality – cognitive load, brand perception, etc.
 - Voice talent coaching, TTS integration, smart concatenation
- Leverage knowledge about user acceptance of automation
 - Regional variations across the U.S.
 - Experience prior to automation – expectations are everything!
 - Rollout planning and support is KEY!

Planning: First things first – Understand Goals!

- Understand the Business
 - Business drivers, brand, integration with other touchpoints, competition
 - *Success metrics!*
- Understand the Callers
 - Goals, scenarios, tasks, profile, characteristics
- Understand the Application
 - Vision, roadmap, requirements, challenges
- *To accomplish this, you need to:*
 - Conduct user research, visit call centers, interview representatives, listen to calls, study traffic stats, fully engage business teams, etc.

Building Successful Phone Applications

Additional considerations beyond technology, design principles

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- Understand the emotional context / motivation of the call
 - Customer care domain – where can pain be alleviated?
 - Consumer app domain – how can the system delight, entertain?
- Recognize that some things CAN'T be automated *[go to next page]*
- Consider user perceptions of system
 - Customer feedback
- Audio quality – cognitive load, brand perception, etc.
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You Can't Automate Everything!

Diverse customers have complex issues – phone is often back-up channel

Some tasks are simply difficult to automate

- *AUDIO SAMPLE – call segment highlighting a banking customer who's experienced fraud and wants to confirm that he's taken all necessary steps to safeguard account*

Web / phone are not exclusive

- *AUDIO SAMPLE – banking customer complains that the online bill-pay functionality has changed, she can't figure out how to complete her transaction online*
- *AUDIO SAMPLE – banking customer complains that she doesn't know her online password, so can't access her accounts via the web*

Information requests

- *AUDIO SAMPLE – banking customer asks for clarification about when certain transactions will post to her account based on account cycle schedule*

Task alone is not the only predictor

- *AUDIO SAMPLE – banking customer who wants to make a \$20K transfer between accounts to purchase a new car – task is automatable, but due to large amount she prefers the reassurance of a high-touch agent-handled experience*

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Considering Customer Feedback

- Don't dismiss customer feedback
 - Users' perceptions about the system are very "real" to them
 - Behavioral evidence and recognition performance provide a framework to evaluate this qualitative feedback
- References to speech application
 - *AUDIO SAMPLE – call segment highlighting a banking customer who's delighted with the new IVR speech reco technology*
 - *AUDIO SAMPLE – banking customer complains that the new IVR "never recognizes" what he says, and that he wants the old system back*
- Sample Feedback to Representatives – often highlights areas for review, improvement
 - **SOAK:** *"Please do away with your automated talking phone person. It is very confusing. You do not get any information. This new system is terrible."*
 - **DESIGN – ACCESS TO REP:** *"It would be nice if the first choice allowed me to talk to a person. Not the end of a bunch of questions."*
 - **DESIGN – AUDIO TREATMENT:** *"The initial person that answers the phone speaks too quickly. I am 80 years old. It would be better if they spoke a little slower."*
 - **BIZ / DATA RULES:** *"The phone recording system puts in pending balances with no explanations. You do not have the proper dates when they are reported that way."*
 - **BIZ / DATA RULES:** *"I can never understand the confirmation numbers since you changed it to letters. Some of the letters sound the same."*
 - **TECH – BACKEND / MIDDLEWARE:** *"My first call today I was hung up on. I never got to a banker. I had to call back. It was very frustrating."*
 - **TECH – CTI:** *"I am totally dissatisfied with your automated system. I am frustrated because after I enter all my personal information I have to give it again to the phone banker."*

Building Successful Phone Applications

Additional considerations beyond technology, design principles

- Understand the holistic goals of the system
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 - Customer care domain – where can pain be alleviated?
 - Consumer app domain – how can the system delight?
- Recognize that some things CAN'T be automated
- Consider user perceptions of system
 - Customer feedback
- **Audio quality – impacts cognitive load, brand perception, etc.**
 - Voice talent coaching, TTS integration with recorded prompts, smart concatenation
- **Leverage knowledge about user acceptance of automation**
 - Regional variations across the U.S. *[e.g., East Coast reviews of automation tend to be more negative]*
 - Experience prior to automation – expectations are everything! *[Replacing all-rep handling is difficult]*
 - Rollout strategy, planning and support is KEY! *[Biz, Reps, Users must all be on board to insure success]*

In Closing...

- Follow design best practices to create a great user experience
- Be aware of influential factors beyond technology, design
- ALWAYS focus on the user, their needs, and the task at hand!
 - Desired task / goal
 - Context for call
 - Expectations for the automated experience

Thank you!

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