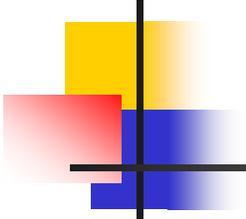


Thinking Like Callers

Gary Wright

Applied Speech Resources

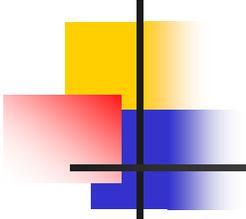
Voice Search Conference, 3/11/08



Are Callers Satisfied?

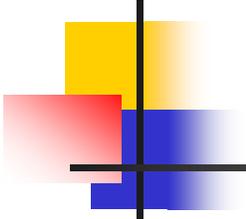
Posted on an Internet Sports Forum:

"... Customer Service is fine if you get someone. I hate these voice-enabled functions. I want to shoot someone."



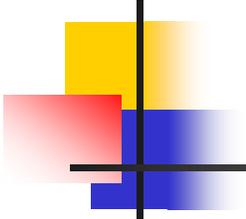
The Media Equation

- Book by Byron Reeves and Clifford Nass based on their work at Stanford.
- When interacting with computers, humans display similar reactions to when they interact with other people.
- For people to have more effective interactions with automated systems, UI designers must tap into people's expectations and their natural ways of interacting.



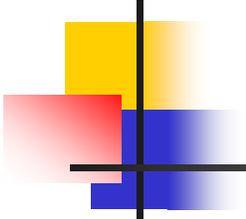
What if a person ...

- Told us what to do instead of asking?
- Constantly gave us instructions on how to talk to them?
- Asked us questions and then interrupted before we could speak?
- Sometimes didn't listen to what we were saying?
- Rambled before getting to the point?
- Couldn't understand a reasonable request?



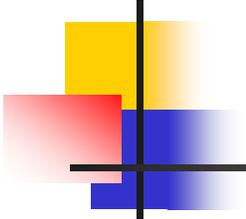
What if a person ... (2)

- Repeated the same things over and over?
- Asked us for the same info over and over?
- Made it difficult for us to speak with someone who could resolve our problem?
- Read information to us really quickly that we had to write down, e.g., a phone number?
- Couldn't give us the information we asked for?
- Used terminology we didn't understand?
- Didn't pay attention to the particulars of our situation?
- Hung up on us or disconnected us?



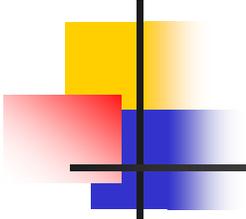
Opinions we might form

- Opinions we might form
 - Rude
 - Self-serving
 - Insincere
 - Not interested in us
- How we might feel
 - Uncomfortable
 - Frustrated
 - Angry



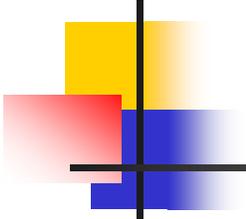
The Media Equation Revisited

- Callers will form the same opinions of an automated system that treated them this way as they would of a person.
- To change these perceptions, the caller's expectations, needs, and natural way of interacting must be taken into consideration at every step of the design and development process.
- Caller satisfaction is the only thing that can turn involuntary users into voluntary users.



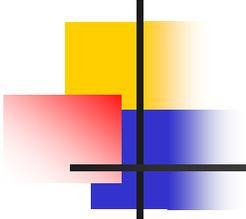
How did we get here?

- Systems not built for caller satisfaction
 - Built to the business requirements
 - Same as the touchtone IVR
 - Similar to the web
 - Built for improving automation metrics
 - Automation metrics may not measure everything.
- Speech technology not used in a way that's natural for humans to interact with
 - Better speech technology by itself may not mean a better caller experience.



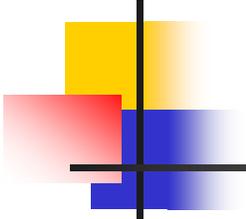
Thinking Like Callers

- Why are they calling?
- What are their expectations?
- What is their perception of the experience?
- Can an automated system serve them as well or better than a human can?



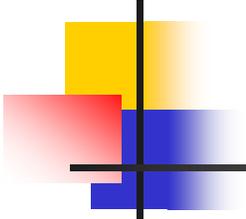
Why are they calling?

- Resolve a problem
 - Billing
 - Product
 - Web-site
- Perform a transaction
 - Place an order
 - Make an address change
- Get product information
- Get account/status information
- Responding to a call, an ad, or a mailer



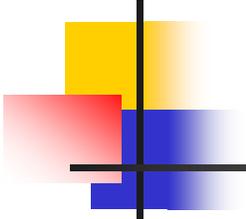
Resolving Problems

- The best customer service call is no call.
- High customer service volumes may represent problem areas within the business rather than problems with the IVR.
 - Billing problems
 - Product problems
 - Problems with the manual or the instructions
 - Customer communication problems
 - Website problems
- Value of SLMs is in alerting companies to these problem areas so that they can be fixed.



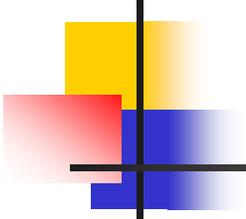
Reasonable Caller Expectations

- Natural interaction
- Focused interaction
 - Don't waste their time
 - Don't make them repeat things
 - Don't be redundant
 - Get to the point and complete their task
- Understandable
- Sincere
- Confidence in the information/transaction
- Success



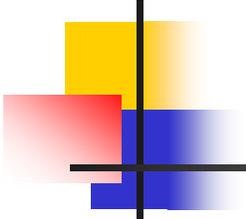
Nature of the Interaction

- Web - Interaction in Space
 - Information persists on the screen.
 - Callers can take time to figure it out
 - Callers can guess about the correct link and easily go back.
- Speech – Interaction in Time
 - Information has a short lifespan in audio.
 - Callers use short-term memory.
 - Disregard unnecessary information as they go.
 - Information and choices need to be understandable the first time.
 - Pacing, order of presentation, wording are all vital for callers to understand the system.
 - Human error correction strategies are still lacking.



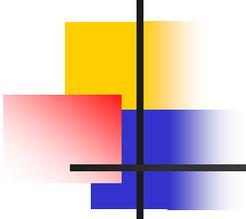
Value of What Callers Hear

- Primary for Task Completion
 - Prompts to Specify their Requests
 - Presentation of Information/Confirmation
- Secondary for Task Completion
 - Prompts for Navigation
 - Instructions on Using the System
 - Error Correction
- Unnecessary for Task Completion
 - Marketing Pitches



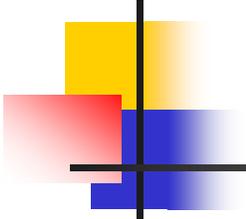
Make it natural

- Ask questions whenever possible.
 - Callers know how to answer questions.
 - What would a soft-serve ice vendor say?
 - “Please say chocolate, vanilla, or swirl?”
 - “Which would you like: chocolate, vanilla, or swirl?”
- Use transitions to link prompts together naturally.
 - For multi-part transactions, use “First”, “Next”, and “Last” to create a sense of place in the transaction.
- Play prompts with a pacing that is natural to listen to and/or write down information from.
- If the entire interaction feels natural, callers are more willing to interact with an automated system.



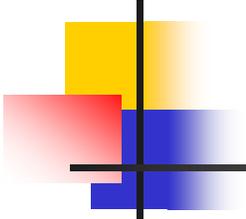
Asking Questions (1)

- Don't ask a question and then interrupt before the caller can speak.
 - "Would you like information on another account? Please say yes or no."
- Instructions should either precede the question or go in the 1st No Input prompt.
- Menus can usually be presented as questions.
 - "Which one of these would you like: ..."
- Handle responses where the caller wants all, some, or none of the choices.
 - "I don't know", "None of the above", "All of the above", etc.



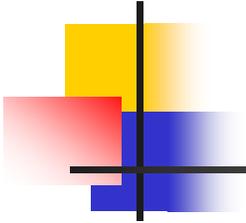
Asking Questions (2)

- Use yes/no questions if it makes the caller's choice or response easier.
- Use open-ended questions with SLM grammars if you can effectively map or respond to a wide range of caller input.
 - Don't use them if you're just going to map the answer to the same old IVR menu choices
 - Need to handle more cases so the response makes sense.
 - The information gathered can have great business value.



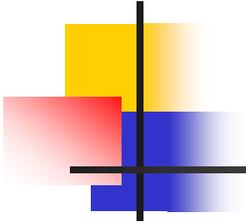
Natural Pacing

- Caller's speech reco needs processing time.
 - Silence at the end of sentences and at commas
 - Don't run menu choices together.
- Group list information logically in time.
 - Don't run separate items together.
 - Don't put a longer pause in the middle of a list item than at the end.
- Read phone numbers & addresses deliberately & repeat them.
 - "Call 972-555-1234; once again that's ..."



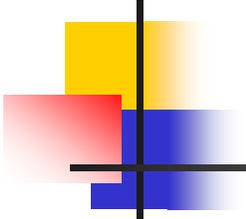
Focus the Interaction

- Keep emphasis on achieving caller's goal.
 - Avoid telling callers about commands before they can be used.
 - Defer navigation commands to the First No Input when possible.
 - Keeps the on-track interaction natural & focused.
- Weigh the time costs of instructions/information.
- Personalize and be caller-specific.
 - Dedicated lines for current & prospective customers
- How open are callers going to be to offers/information that aren't related to their goals?



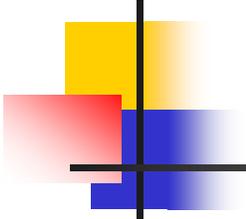
Time Costs

- The time to explain how to skip something or to give the caller a choice may be nearly as long as the time to just give them the information.
 - “If you’re not calling about your upcoming flight, say Main Menu. I see that you are on flight 492, which is scheduled to depart at 9:15, gate C-12.”
 - “Your upcoming flight 492 is scheduled to depart at 9:15, gate C-12.”
- Never give list navigation instructions for a list with only a few items.
 - “You can skip the list at any time by saying Stop or Main Menu. Check number 122 for \$100 cleared on March 3rd. Returning to the Main Menu.”



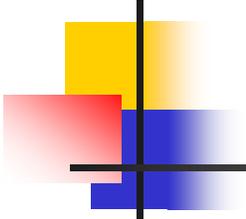
Time Costs (2)

- Don't make the caller make a choice if presenting both pieces of information is just as quick and as effective.
 - "That flight leaves from 2 different cities: San Diego or Dallas. Which one would you like?"
"Dallas"
"Flight 495 is scheduled to depart from Dallas at 11:15, gate C-12."
 - "Flight 495 is scheduled to depart from San Diego at 6:20, gate A-5, and from Dallas at 11:15, gate C-12."



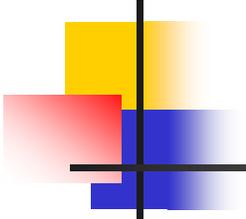
Time Costs (3)

- If all of the caller-supplied information agrees in the database, why ask the caller to confirm it?
 - "First, what's the departure city?"
"San Diego"
"And the arrival city?"
"Dallas"
"And what's the approximate time of departure?"
"6:20"
 - Skip: "To confirm, the departure city is San Diego, the arrival city is Dallas, departing at approximately 6:20. Did I get that right?"
 - "That looks like flight 495, which is scheduled to depart from San Diego at 6:20, gate A-5."



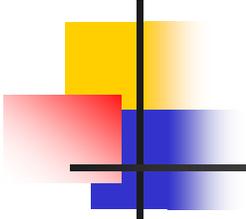
Be Caller-specific

- Personalize
 - Avoid menu options/choices that don't apply to caller.
 - Streamline the system for repeat callers.
 - If the reason for the call can be predicted, just give the information, e.g., automatic flight departure info.
- Don't talk about multiples if there is only 1
 - Multiple funds: "Which fund would you like to sell?"
 - Single fund: "How much of Fund A would you like to sell?"
- Avoid hypotheticals when the info is known
 - Avoid: "If your account has ..., you must ... ; or if ..."
 - Use: "With your account, you must .."



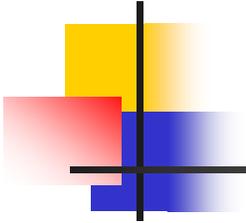
Understandability

- Avoid legalese or industry jargon if possible.
- If a choice or information involves terminology that may be unclear, explain the terms first.
 - “Your retirement account is the money deducted from your paycheck before taxes are taken out, while your savings account is the money deducted after taxes. Which account would you like: your retirement account or your savings account?”



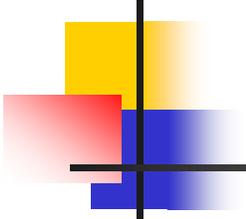
Understandability (2)

- Choose menu names and categories that callers will easily understand.
 - Avoid menu categories that don't clearly describe the submenu choices under them.
 - Don't be afraid of longer menus if they are more understandable.
 - Presenting all second-level options in a No Input prompt can be effective.
- Use yes/no questions if the name of an option would be hard to say or understand.



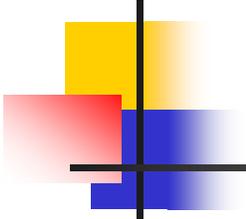
Presenting Information

- For lists, don't repeat the same sentence if the information can be structured naturally.
 - "Check number 123 in the amount of \$57.10 cleared on March 1st.
Check number 124 in the amount of \$25 cleared on March 1st.
Check number 125 in the amount of \$75 cleared on March 1st."
 - "On March 1st, 3 checks cleared: check number 123 in the amount of \$57.10, number 124 in the amount of \$25, and number 125 in the amount of \$75."
- Open-ended questions using SLMs may be more natural & focused, but they can make the presentation needs and/or the back-end processing much more complicated.
 - Did I have any checks for around \$70 clear the week of March 1st?
 - What does around \$70 mean?
 - What if March 1st isn't a Monday?
 - Did I have any checks for around \$70 clear recently?
 - What does recently mean?



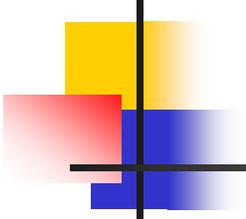
Multimedia Expectations

- New Voice Search applications will generate new expectations for how information can be received on a phone.
- Callers may want more information sent to them in a visual form.
 - Text Message
 - Web Screen
 - Email
- Remember that the screen may be against the caller's ear or may not be lit.



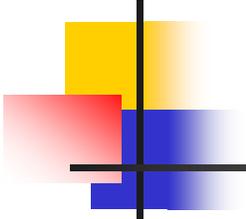
Changing the Process

- VUI Designers should be involved before the business requirements are finalized.
 - VUI design must reflect business knowledge, caller knowledge, principles of human interaction, and the limits and capabilities of speech technology.
 - Easier for a VUI designer to learn the business than for a business person to learn VUI design.
- Focus groups should include callers and call center reps (separate sessions).



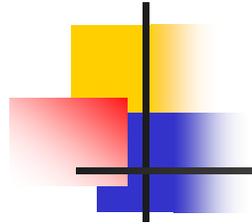
Changing the Process (2)

- Usability Testing
 - Must cover a wide range of situations important to callers.
 - Thinking like callers is key.
 - Flexibility in follow-up questions is vital to understanding the caller's perspective.
 - Should be real-world, not academic.
- System testers and developers should be encouraged to think like callers.
- Ongoing tuning and measurements



In Conclusion

- Making speech-enabled systems more natural and more focused can increase caller satisfaction and meet business objectives.
- Use of advanced speech technology must be accompanied by better voice user interfaces.
- Thinking like Callers should be utilized during all phases of a speech project.



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