

# Cooper Careers: Interaction Design **Synthesis** Exercise

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The purpose of this two-part exercise is to illustrate the strength of your synthesis and communication skills, and give us a good idea of how you think about design problems. We're looking for:

- Clear, concise writing
- An understanding of your audience
- The ability to synthesize and prioritize information
- Effective combination of words and images to convey information (we're not assessing your drawing skills—just the clarity of your communication)

Obviously, this is a take-home test, so feel free to use whatever tools you feel you need, but make sure the response is your own. Provide enough illustration and written description of your designs, in whatever medium you are comfortable, to get your point across. Finished art is not necessary.

**Above all: Have fun!** If this exercise isn't fun, this job probably isn't for you.

Spend as much or as little time as you wish, but an hour on part one and no more than a couple of hours on part two should be plenty.

## **Part One**

AT&T has sent you back in time to the year 1850 to help the company create a touch-tone telephone monopoly in the United States. Marketers are already at work selling the virtues of telephone communication; your job is to explain to ordinary citizens of 1850 how to use this revolutionary technology by developing the printed materials to be delivered with each telephone.

You can assume that AT&T has issued the customer a telephone and a phone number and has installed a telephone jack. As is true today, dialing 0 will connect the customer to an operator. Keep in mind that telegraphs have been in common use for about five years, but your customers have never seen or heard of a telephone. What do they need to know in order to succeed with this strange new device?

## **Part Two**

Imagine that your team is designing a desktop application for managing digital photos. Based on the following set of raw user interview notes, your task is to write a summary that helps the product manager and executive team understand the commonalities, differences, and issues you saw during the interviews. Understanding user behaviors and frustrations will help the stakeholders assess what the new product should do. (Note: We are not looking for a persona set or recommended solutions, but simply for an understanding of the interview observations).

### *Teri*

- Late 40's, single, office manager
- Describes herself as a photography enthusiast who has sold a few images
- Uses a 6 megapixel "prosumer" digital SLR with multiple lenses. Wishes the resolution were higher, but since the lenses lock her into a single manufacturer, she can't upgrade without going to a \$2500 "pro" digital camera.
- Puts her "serious photographs" in folders based on content (mountains, ocean, desert), but is frustrated that she has to pick just one way to categorize an image—it would take too much hard drive space to save each image in multiple places. This makes it hard to find a particular image later.
- Lives in a tiny place, so there's minimal room for display—displays only select "art" shots to put up in frames. Chooses minimalist frames for the most part. May choose more elaborate frames if they "speak to the picture."
- Takes photos 12 times/month (sporadic), but when she does, she may shoot 300500+ at a time.

- Includes subject and date in file names (specific names of plants, views, people, if known).
- Half the photos on each card get deleted because they don't live up to her quality standards for composition, lighting, exposure, depth of field, etc.
- Takes some photos at family events such as birthdays—these are saved in folders labeled by event (soandso's birthday) and date. Individual photos are not renamed.
- Organizing a day's shooting takes 23 hours—annoyingly timeconsuming.
- Often looks through to find a specific photo (usually by subject) for her own reference or for a gift.
- May sign a photo on the front if it's a gift.
- May give color prints of "serious" photos away a few times a year, but doesn't otherwise share them the way she shares birthday party photos and so on.
- Never manipulates raw photos—the photo is either good enough, or it gets thrown out.

### Pete

- 50ish accountant
- Describes himself as a "classic sightseer" and "museum buff." Travels by himself a lot for business and pleasure.
- May take 50 photos a day when traveling, especially in a new city. Seldom takes photos when not traveling.
- Most of his photos are stored electronically on his work laptop's hard drive. (Why the laptop? It's portable, so his photo collection can travel with him.)
- Looks at photos when he's cleaning up his hard drive—gets distracted for an hour by his photo directory.
- Likes to share his photos when he comes back from a trip. Shares photos the other person would be most interested in.
- Since he's gone digital, has not added to the photo collection he displays in frames at home.
- Hates the default numbering system for file names (image 001, image 002...)
- Hard to look through a bunch of photos at once and tell if they're any good—tiny thumbnails are too hard to see. Would like something that would let him look at new photos one by one and easily edit name, attributes, description, or decide to toss them. Would minimize the back and forth between Windows and various editing programs.
- Takes pictures of art and displays in museums, airplanes, cars, things that amuse him (e.g., shag carpet walls at Graceland), architectural details.
- Mostly uses a fairly inexpensive digital camera. The beauty of digital photography is he doesn't "worry about the expense of burning through film." He can take photos of placards and things to document a journey, and can take more chances with a photo. The disadvantage is there are lots of photos he has to sort out later.
- His best photos are in albums on Shutterfly.com; this makes it easier for him to see them and to share them with family. Also easier to add descriptive text.
- Photos given to him by others are in one large directory with no organization.
- Does "slide shows" for people on his laptop using Shutterfly—you can use the upload software offline.
- Storage space is not a big issue because he takes fairly lowresolution photos.
- Quality of digital isn't that great, especially in museums with poor lighting, but at least it helps him remember a trip and how he felt on that trip. Misses the quality of film, but the convenience of digital is usually worth the tradeoff.
- Plugs in camera, does upload (often on the road, such as when he's about to run out of camera memory). Later he'll label directories, toss a few truly bad photos, tweak and name the good ones (especially if he'll have a hard time recalling what they are), then goes through them in another session to decide which ones to upload to Shutterfly and share. Uploads photos to Shutterfly from work—faster Internet connection.
- Looking at photos on laptop screen seems suboptimal—peculiar glare at some angles, etc.—screen quality not good enough
- One toplevel photo directory with subdirectories. Directories are usually named by city name and date he was there. Within each city, there may be multiple days in subdirectories.
- Not a pro, but willing to tweak photos a little in Photoshop (such as to reduce glare off someone's glasses or improve contrast in the photo).
- Corrects brightness a lot—w/his camera, photos seem to come out too dark (much darker than on little camera screen).
- Rotates photos in default Microsoft editor.

- Frustration—can't easily label and archive digital photos. He doesn't want to do a bunch of work on Shutterfly and not get the benefit of that on his hard drive. Also, it's a dotcom and could disappear any day. Response time is slow, too.
- Can capture some basic info in the file name, but can't capture other info like location, date, description
- In museums, takes a photo of a painting, then takes a photo of the placard by the painting—would like to associate them somehow
- Would like to retain chronological order in which he took photos, but also track info about them

### Dan

- 30ish software professional
- Married, 1 small child
- Takes photos mostly of his son, also photos of occasional trips and events
- Has somewhere around a thousand old print photos in albums and boxes
- Mostly digital photography now; his wife tends to use a film camera, sometimes to capture the same events he captures with digital camera.
- Dislikes default file names, finds it to timeconsuming to adjust photos with multiple applications.
- Motivated by capturing history, watching his son grow up in pictures, and sharing with relatives.
- Some film photos are arranged in albums—generally a small album with a trip or other major event focus, one photo per page. Some annotation (date, location, comments) on a few photos, but not on most. Also showed us an album he put together as a gift for his wife. 2 photos per page, minimal annotation.
- Seldom looks for specific images; generally looks for groups of photos related to an event or date. Browses Web site for enjoyment on occasion. Likes that he can access it from work as well as home.
- Finds print photos in old box by how the developer envelope looks, may have a notation on envelope.
- Wishes he could find photos in other ways, not just by date—e.g., “sleeping” photos, or “photos with...” specific people.
- Lighting, composition, etc. not a concern for him; many photos are fairly dark.
- When son was born, originally took multiple photos per day. This eventually seemed impractical, so he's down to 23 times per week, maybe half a dozen photos at a time, except for special events.
- Most prints are loosely piled in milk crates (he seems embarrassed by this), some are piled in drawers with receipts and other miscellaneous junk. Recently, they purchased nice storage boxes, so some photos are kept in these, stored in their original envelopes from the developer.
- Sharing is mostly via Web site and is a major motivator for taking photos. Shares new photos every week or two.
- Photos of son are kept on his Web site, arranged by date. Captions on a few early photos, but none more recently except for an event name such as “Easter.”
- Photos sit on the camera until he either needs to clear the camera storage, or he has time on the weekend to deal with them. Often prompted by his mom asking for recent photos on the Web site. Drops images into folder. Renames files, looks at each image, crops and rotates if necessary, may adjust size or compression. Adjusts brightness, fixes redevye, does other manipulation to improve the image. Uses several applications to do this, since one rotates well, while another has better compression, etc. Next, in the same session, he does a page layout for each date. Default arrangement is 2 photos across, with 23 rows. May show a good image very large, with other very small shots along one side or bottom. A few pages with just one image. A few more complex layouts with smalllarge on top row, largesmall on bottom row, etc. (Claims this all takes just a few minutes—he doesn't spend much time—but it's clearly more than this. He uses this time as a way to enjoy photos, though he did not initially identify this.)
- If a day seems incomplete, especially if it's a holiday, he may scan print photos to round out the page.

### Sara

- 40ish technical writer
- Skilled amateur with experience developing her own film
- Takes photos of her dog, scenes, random objects, people, events in her day
- Likes to document what happened that day by capturing just the right moment
- Composition is very important
- Sometimes assembles slide shows for friends (laptop), but almost always enjoys the photos by herself

- Once in a while, will put a photo in a Web page or share via email (few times a year). Adjusts resolution and format for Web—tedious process.
- Uses mostly digital images now (1 GB card in her digital SLR holds 300400 images)
- About 100 photos per week
- Wishes she could assemble a slide show or other set of photos across timeframes without disturbing her organization
- Takes a lot of images to get maybe 1 out of 10 she actually likes
- Tends to look for individual photos based on content, attributes such as what she's done with it, or some visual cue—"I don't remember a photo until I see it"
- Thousands of old print photos mostly filed chronologically "for lack of a better system," though favorites are kept separately (would like to have one unified storage system but doesn't think this is possible)
- Deletes some images directly from camera (that's the beauty of digital). Drops images into folder on computer about once a month—each batch gets its own folder to avoid filename conflicts, since the default name is just a number. She avoids renaming them if possible.
- Looks at each photo individually to decide whether to keep or toss (tedious to do this by opening files, slightly easier in a photo viewer application that starts with thumbnails)
- Wishes it were easier to find files visually, or based on content, etc.
- May crop a photo, but generally does not adjust brightness etc.—the photo is either good enough or it gets thrown away.
- Grew up with a light table, so it's easiest to use a photo viewer to see all the images in a folder as thumbnails, then scans them and picks out the one she wants visually; may need to look through several folders to find it
- Shares photos a few times a year via email and Web site—generally just for specific events such as her brother's birthday. Puts together a "tabloid" layout with a headline, image, and sometimes a paragraph or more of text.
- Naming files should be unnecessary

### Kelly

- 30something physicist
- Amateur wildlife photographer
- Has thousands of images on her computer—recently bought a Mac with over a terabyte of storage because her old PC and external drive were almost full
- Has two digital cameras—one for snapshots of family events, home renovations, other photos to share on her Web site or via email. Other camera is a midrange Nikon SLR with a couple of lenses. She mostly uses a long zoom lens for bird photos.
- Uses iPhoto to store images but isn't happy with performance or organization options. OK for "snapshots" but not for serious images. Wants greater control over how images are stored, easier way to tag images by content (e.g., bird species, location, angle or action description, time of day) without duplicating them across folders. Considering Aperture or Adobe Lightroom.
- Shares a few favorite wildlife pics on her Web site and gives prints as gifts on occasion. Considering selling some images. Wildlife pics are mostly for the satisfaction of making a great image, not for other people.
- Web site is mostly about sharing "snapshots" of old house renovation with family who live elsewhere. Sharing house renovation images was initial reason for going digital, since she's "terrible about developing film. It sits there for a year or more." Likes that she doesn't hesitate to take chances with digital, which helps her learn.
- Wishes she could easily compare similar shots and also see camera settings (e.g., Why did this shot turn out better? Oh, it was the aperture.)
- Throws away a large percentage of images. Seldom does more than crop a little ("It feels like cheating. If I didn't get it right in the camera, that's that.")
- Takes 300+ images at a time, usually every weekend.
- Spends 2+ hours organizing images on computer after each shoot.
- Is less likely to throw out snapshot images since quality is less important—they just have to capture the basic idea of what was going on. Unwilling to share images that are "embarrassingly bad," but will share an imperfect one if it's all she has.
- Stores snapshots by date and event (location of a trip, room she's renovating) but does not categorize individual images