

Groupfoto

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Introduction

Our Motivation:

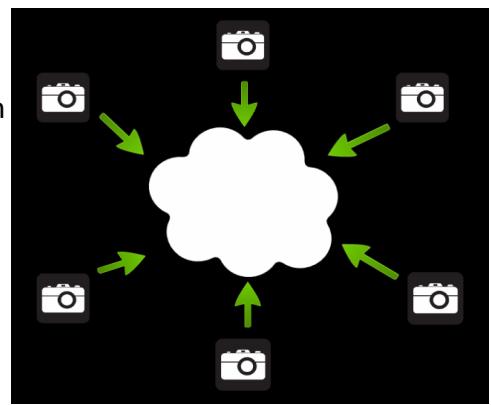


Facebook. Twitter. Instagram. If you look at any smartphone today, it's likely that you will find at least one of these highly recognizable icons amongst a myriad of other social applications. With the prevalence of social media sites and the ever-increasing presence of smartphone technology, people across the globe are leading increasingly public and interconnected lives. There are hundreds of web services and mobile applications that serve to edit, caption, and share pictures. Using these services, we share everything from rants about our day to videos of cats to pictures of our food. We can stay connected with our friends, families, and networks at the touch of a button. However, there are times when we experience a disconnect, like when Aunt Marge doesn't upload that picture of you with your baby cousin at the family reunion or when you and your friends go bowling and the photos are never to be seen again. How can this problem be solved?

Introducing Groupfoto

The App:

Groupfoto has a simple purpose: to create a common digital space where users can share their photos instantly with friends at the touch of a button. The developers describe it as a digital cloud-based photo gallery designed for simplicity and utility from the outset. It was designed to be distinguished from other seemingly similar services by creating a single common space to which several users can upload and share photos. This space would facilitate photo sharing of selected photos and also provide web-based accessibility to unshared photos. The shared album would provide a space for the creation of collaborative photo albums, unlike the unidirectional process of sending photos that



is employed by other social and photo sharing applications.

The bidirectional flow of the shared album mutual contribution concept allows for greater social interactivity in real time. The concept is similar to Google Drive in that multiple people can interact in the same virtual space. Popular photo sharing services like Facebook and Instagram do not employ any features like this, where pictures are shared in instantaneously with people who have access to an album. These other applications require the photo owner to organize pictures themselves into static albums to be seen, but not accessed, by other users. These systems require users to locate the people that they know have the photos they want in order to retrieve them. This process is time-consuming and often frustrating, many times leaving a user without the photos in question. Groupfoto, on the other hand, does most of these things for the user.

Upon opening the application, the user is prompted to create an album. As a Groupfoto user takes new photos, they are automatically placed in the currently activated album. This creates a flow where photos are organized even before they are taken. The upfront investment of the user's time and mental effort saves the potentially tiresome process of sifting through and sorting photos at a temporally remote point out of their immediate context. Many times when people are outside of the context in which the photos were taken they forget who asked them to take a photo, tag them, or capture the moment. Additionally, Groupfoto allows the more traditional retroactive categorization of photos into albums. For any method of sorting, the Groupfoto cloud features provide access to the user's photos everywhere their phone goes and access to friends' photos from anywhere that the phone has internet service. These friends are people who have accepted your invitation to share a collaborative album space, or of course those whose invitations you have accepted.

Why Groupfoto?

We had several reasons for focusing our project on Groupfoto. One of our group members had a personal connection with a co-founder of White Plaza, the company responsible for developing the Groupfoto mobile app and website. We thought that the higher level of communication resulting from this connection would allow our project research to have a more

immediate impact on a real-world application. We also considered the idea that we might be granted access to information and resources available to the developers who have more direct access to the internal working of the app. Both the developers and our research group were excited about the collaboration. We had the opportunity to explore and interact with a novel and very promising application, and the developers were excited to see our findings and potentially implement solutions based on them. The idea that the developers would use our data seemed especially rewarding, and was a significant factor in our decision to take on this project. A final factor that influenced our decision to choose GroupFoto was that our experiences using the app indicated to us that it could be fun to work with, as well as easily testable.

The Process

Our Approach

Determining Our Context:

At the beginning of the quarter, our team conducted a brainstorming session in which we generated as many potential uses for Groupfoto as we could. We encouraged breadth and creativity in an attempt to cover all our user bases. We produced many ideas, including some that were intended by the developers as well as some possible alternative and more-specialized applications, such as using Groupfoto for scavenger hunts. From these ideas, we developed a diverse set of specific scenarios which utilized Groupfoto, each including very brief information about the users we believed would initiate or participate in these app usage scenarios. We consolidated this data into user sets based on age and analyzed the results. We found that most of the use cases were likely to be performed by a young demographic, such as high school and college students.

Despite this, we did not want to limit our research efforts to our largest anticipated audience. We dubbed this audience with the name “Casual Users,” as they used the app in a largely casual social context. In order to get more breadth in users, we planned to collect data

from another user group in a more professional setting after our initial round of interviews with the Casual Users. These users would potentially be members of professional organizations and businesses and would become our “Professional Users”. However, we noticed very few practical professional uses of Groupfoto arose from our interviews with our Casual users. Unsure if this lack of inspiration for professional uses of Groupfoto was indicative of its actual utility or simply due to the demographic we were surveying, we decided that it would be beneficial to investigate whether or not interviewing the professional demographic would be fruitful. Upon questioning a couple of the Professional User candidates informally, we found very little interest in the app in more professional settings. This was not very surprising to our group as it reflected the lack of potential uses that our brainstorming generated for this demographic. It seemed that introducing a new tool into a professional setting was beyond the scope of our project. With this development, we decided to focus singularly on our Casual User group.

Narrowing our user groups to just the younger, casual demographic was advantageous for us because of the accessibility of this user group. We reasoned that we could better relate to these users and understand their needs and meanings during the contextual interviews.

Contextual Interviews:

Our approach during this project was largely exploratory and very experimental. Rather than storm into it with specific ideas and goals, we allowed the users to show us where the application was weakest and guide us to create better solutions. In order to find the “weakest link” in the application, we conducted three official rounds of contextual interviews. Each interview allowed us to further narrow our focus and locate the most troublesome features of the app. For the most part, we watched and listened as users worked with the application and recorded our findings. To understand what the user was doing or thinking, we asked questions as they were navigating the application. But because the users were new to the application, we weren’t able to conform to the Master/Apprentice model entirely - the users were not knowledgeable about the workings of the application and sometimes needed a gentle push in some direction or else they would not understand what we put in front of them. In order to solve this issue while keeping an appropriate level of ecological validity, we approached each round of

interviews in substantially different ways.

Round One: The Users

The Interviews:

Our goal for our first round of interviews was to really step back and look at our users and their social habits online. Prior to the interview sessions, we pooled our ideas and created what we thought was a relatively comprehensive questionnaire / interview procedure. After finalizing our interview procedure, we split into five pairs based on the compatibility of each member's work style and their availability to work collaboratively. Each pair interviewed two users, resulting in ten total interviews. The pairs were to go out and find their own users and present their findings at the following meeting. During each interview, one member of the group acted as the interviewer while the other member acted as the notetaker and recorded the interview discourse on a laptop or in a notebook. The interviewer and notetaker were to switch roles between the individual interviews.

The first interview was composed of two major sections. The first section included demographic and somewhat survey-like questions such as age and which photo sharing services they use. These demographic questions were intended to give us an overview about photo sharing as a whole and tell us about what photo sharing ideas people like and relate to. We used this data to predict where we could look for procedural data on how people already share photos.

The second portion of the interview examined how users explore and utilize the Groupfoto app on its own. If the user did not have a device capable of running the app, the notetaker was to lend them a device that could for this section. Because our users were completely new to the application, we presented a brief introduction about the app and provided some guidance, but most of the learning was done by the user. The user was given a brief period of time in which they could freely explore the app in order to familiarize themselves with it. After approximately five minutes, each user was asked to perform various tasks within the app, such as create an album, add someone to an album, take pictures, and make sure they are uploaded to the album. While they were completing these tasks, the interviewer asked

procedural questions regarding the user's actions. The interviewer and notetaker also paid close attention to the particularities and nuances in the user's behavior during various problem-solving tasks. We tried to stay as true as possible to the Master / Apprentice model, where the user was the 'master' and would show the interviewer how the app works. The interviewer could then ask questions about why or how a user did a certain action while performing that task.

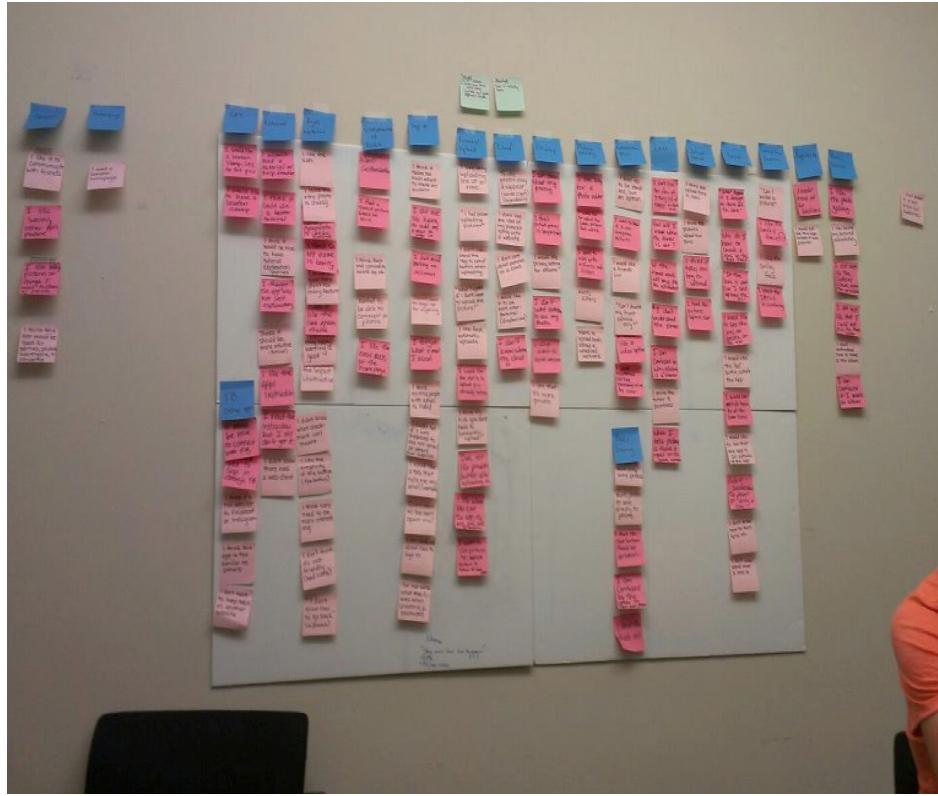
Interpretation Sessions:

Our interpretation session was done in two separate rounds to satisfy the time constraints of the group. Each group read from their interview notes and valuable data was extracted and discussed briefly. Individual notes were written by several members of the group on pink post-it notes in first person. Writing these notes in first person allowed for the data to reflect the user's complaints as closely as possible. If the point of the note was unclear, context and clarification was provided by either the interviewer or notetaker from that note's interview. In the case that the note was deemed too ambiguous, the note was thrown away and rewritten to better reflect the data.

Because we were trying to get broad general data about the app, the scope of accepted notes was generally very open-ended. An array of notes including those about aesthetics, functional desires, concerns, and positive comments were all deemed pertinent at this stage. This led to a very large, but very dense, affinity wall.

Affinity Diagram:

After collecting our affinity notes, we shuffled them and handed out a stack to each member of the group. We began by placing a few distinct notes on the wall and proceeded to post similar and related notes underneath them. During this process, we took care not to move any notes around until they were all posted. We then walked the wall to figure out what our categories were and moved Post-its accordingly to fit them under proper categories. We also labeled the categories our notes fell under with blue Post-its which were later categorized by a third level of green Post-its.



Results:

After we finished categorizing and sorting the notes, we found user opinions were very mixed. Some "[thought] of a ton of different ways you can use this" (U03) while others don't like the app because they "don't know what it's doing" (U04).

The demographic information revealed that many people use a phone as well as a laptop for social networking and photo sharing. All of our users prefer their cell phone as their primary device, often noting that it is "more convenient" (U04). All users at least mentioned Facebook as something they used, even if it wasn't their main choice for photo sharing. Other services of note were email, Instagram, and Tumblr. It was also revealed that users share not only pictures that they take themselves, but also photos that they find interesting or funny (U01) for the purpose of sharing with their friends.

Much of our data was placed under one of three categories: social factors, features, and the "I don't know" categories. The social factors category included data about privacy, interactivity, and integration with other apps such as "It would be a hassle to upstart it with my friends" (U09). The features category included any ideas that the users would like to see

integrated or change about the app. For example, “I would like a photo editing option” (U03) and “I would like a better home screen” (U10). The “I don't know” category was where most of the Post-its were sorted into. This was a broad category that reached into nearly all features of the app. These notes represented each breakdown and failure to understand. Notes ranged from simply, “I don't know what make a new lens button means” (U01) to general feature confusion like, “Why do you need a timer?” (U02). This “I don't know” category was especially salient and led us to ask ourselves what the users really needed.

Takeaway

After constructing and walking the affinity wall, we began to get a greater sense of the users' opinions and concerns. We realized that our approach to the assignment wasn't focused enough and that the scope of the project was much too broad for us to effectively address all of the issues in less than 7 weeks. We discussed each of the categories that emerged in our affinity, but because an overwhelming portion of our data reflected that users don't know how to use or understand many features of the app, we quickly accepted this category as our focus. Aside from focusing our scope, what this round really provided us with was a broad list of breakdowns that the users encountered when using the app as it was. These breakdowns implicated the tutorial function as the source of some of these app issues due in part to their number. In addition to being the most significantly represented category of breakdown in our analysis, there was also a system in place that affected this aspect of the app: the initial tutorial.

With our narrower focus on the tutorial we decided to look at what people didn't understand. We had some data on the subject but not nearly enough to go through with a redesign. We had identified a hole in our data, and we had a new direction of inquiry to pursue. We felt this would expand our data on the subject, inform how and ultimately the content of a future redesign.

Round Two: Narrowing Our Focus

The Interviews:

The second round of interviews added 10 interviews to our data set, giving us a total

pool of 20 user interviews. Again, the ten of us split into pairs based on the compatibility of each member's work style and availability. Each pair was independent in their choice of interviewees, with the requirement that one boy and one girl must be interviewed per group. During the interview session, one person took notes (with the aid of a laptop or paper notebook) and the other person acted as the interviewer. For this round, one pair chose to make a video recording to supplement their written notes.

As in the previous round of interviews, the interviewers introduced the user to Groupfoto in terms of its basic capabilities and where to get it. We excluded questions regarding which type of social websites and apps users use to share photos and gathered less demographic information. We were careful not to reveal too much of the app in order to allow them to explore it themselves. For this round, there was a set of topics that served as a guide to conducting the interviews rather than a set of explicit questions to ask the users. These topics were inspired by the most-commonly cited issues we encountered in the first round's data. We focused on gathering data that expanded upon the trends we saw in the first round of interviews, such as the storing of photos on the cloud, editing of general photos, and signing in to the application. Thus, during these interviews, we focused less demographics and more on the "I don't knows" that arose from the first round of interviews.

As the user explored the app, we also asked them to perform various tasks such as creating an album and sharing it. We also asked more explicit questions when they were contextually relevant; for example, when the user was signing in, we would ask whether or not they minded creating an account. These questions were asked in order to fill in the gaps on the affinity wall. We wanted to determine whether certain notes were under-investigated or simply anomalous outliers. During these tasks, we asked the user to elaborate on what they were doing and why they were doing it. Through these questions, we hoped to better understand the users' experience and the steps they took; some, like "What would you do next?", "Is that what you were hoping for?", and "Can you show me how you do that?", encouraged additional narrations and explanations from the interviewees. The interviewees were also told to voice their opinions, concerns, questions, procedures as they used the app naturally; they were encouraged to be critical about the app and were asked to elaborate on anything of interest.

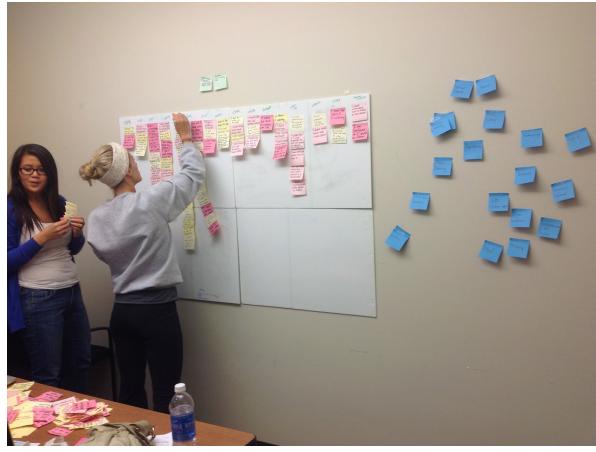
These procedures were necessary because the aim of the second round of interviews was to narrow our scope and fill in holes in our data from the first affinity wall. We found that the nature of people's response was most frequently about how the user did not understand an aspect of how to complete a task in the app, what an icon meant, or why a clock was always present. Once we saw that most of our users' comments concerned how to do things, our scope shifted to evaluating and creating a better help functionality for the app. Thus, during the interview process, we sought to find out more of what our interviewees did not understand about the Groupfoto app, and we created this interview structure to accomplish that goal. During this round of interviews, we gained a better understanding of the users' experience and the steps they took in order to achieve different goals.

Interpretation Sessions:

For the second round's interpretation session, we split up into two groups again and worked in parallel. Each group consisted of one member from each interview pair. The member that collected the data presented their findings to the other members of the interpretation groups. The other members could listen and repeat back to clarify the content of the idea originally communicated by the informant. We deemed information to be pertinent if both people agreed it demonstrated a lack of the user's ability to comprehend an aspect of the application. For example, in one interview response, (U14) the informant said they did not think that the color scheme and font were appealing. This did not directly correlate to the route users take to use the application or the speed at which they comprehend it namely because it was an opinion on the superficial aesthetics. We were looking for information from users that involved how they understood and navigated the app. The relevant information was captured and reworded into first person statements such as "I don't know what the lens* is."

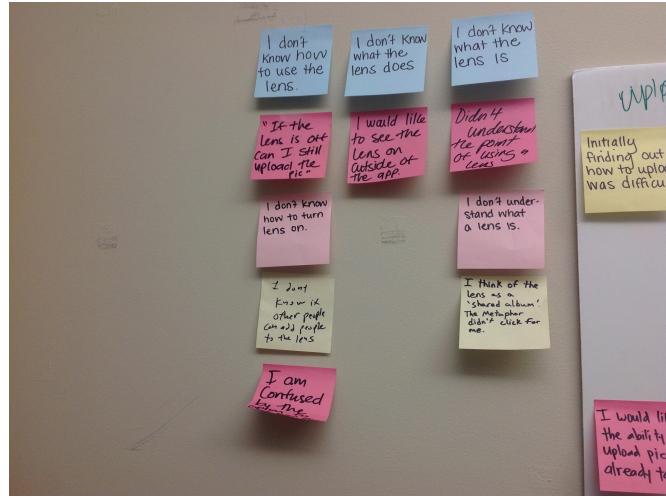
*A 'lens' was a feature in Groupfoto version 1.3.5 which is now equivalent to the 'shared album' in version 1.3.6 .

Affinity Diagram:



After our interpretation session, we had a group meeting in which we compiled all the notes from the interpretation sessions. In order to better distinguish the second round from the first, all the second round notes were written on yellow post-its. We shuffled the post-its and redistributed them to the present members. Each member was to put notes under the categories that they saw fit. This was how we started to expand and re-categorize our affinity board. At this stage, we realized there were emerging categories that did not exist in the first round's affinity, so we finished combining the relevant second round post-its with the first round of post-its and placed the rest of the notes to the side. Once the intrinsic structure of the data was captured, we placed the remaining affinity notes that did not fit within the preexisting categories into new categories. Afterwards, the results were evaluated and irrelevant post-its were taken out.

At a later session, we regrouped the categories by removing the second level of labels that had titles such as 'intents', 'uploads', 'privacy' etc.; the categories that didn't have a label already were given new ones as well. They were replaced by 1st person statements on blue post-its that best averaged out the type of sentiment shared by the informant such as "I don't know how to use the lens".



This prevented us from projecting our biases as to whether or not the user had trouble with a feature onto the users' data. We examined the larger scope of their ability to complete a function. In other words, the categories emerged from the data and not the data from the categories. As we were modifying existing categories and creating new ones, a lot of notes were pruned from the board. The end result came with the addition of the highest level green post-its. By then, we had outgrown our original affinity board and notes sprawled out around the original groupings. The new affinity board took up the entire wall even after we trimmed vague affinity notes that were superfluous in that they were not distinct enough to contribute any design implications. There were many new notes added, making the second round of interviews a productive one.

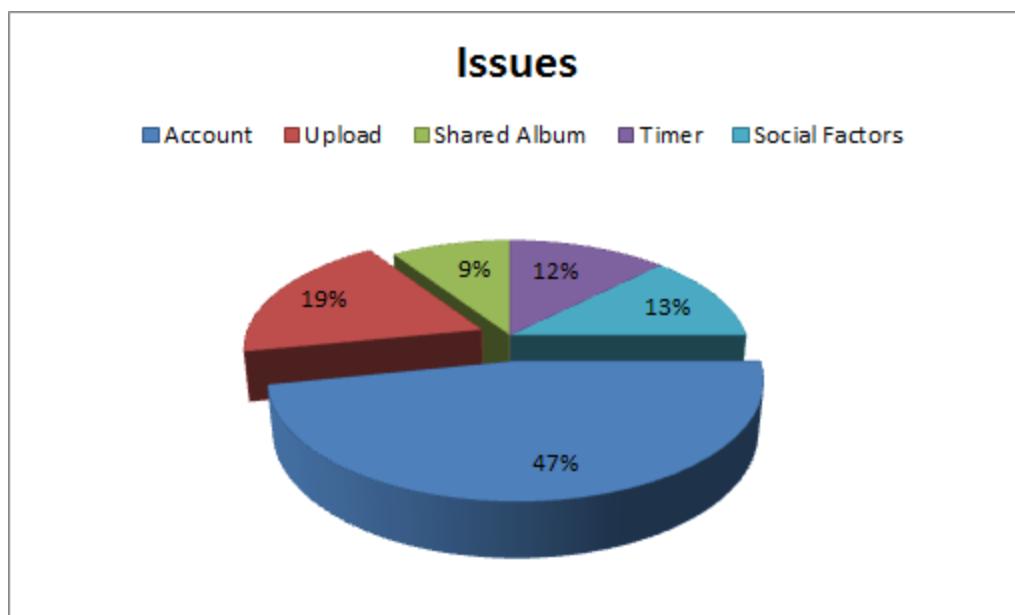
Results:

We captured a lot of data from the second round interviews. As for the in-app tutorial itself, the reception was mixed at best - that is why we decided to investigate the help functionality. Even the more positive reviews noted the tutorial as lacking: U13 said that the tutorial was easy to get, but not detailed enough, and it still took him five minutes of exploring. U21 also found the tutorial to be a little lacking; even after the tutorial, they were still confused about the purpose of a lens*. When asked if they would replay the tutorial if they could, U21 affirmed. In addition, U12 and U27 and U16 were unable to even find the tutorial, since none

popped up for them; this suggests that the tutorial should be implemented in a new way; preferably easy to find. U17 was also unable to find the tutorial, but for another reason - he just skipped right over it. Lastly, U16 noted that they would like for the tutorial to be optional and accessible later. This data directed us to look at the existing tutorial critically during the design and implementation of the new help function.

Other user actions were relevant to the construction of a new help function as well. Throughout the process, many of our interviewees voiced confusion during some tasks. Some of the users' comments, like U16's, were general - for example, he said that the upload process was weird, which suggests that information about uploading should probably be addressed in the new help function. He also thought an explanation for a timer would be important. Lastly, he had issues with forgetting that a lens was on, which means that there should be a note in the new help function. The timer seemed to be something that really frustrated people like U17; he just didn't like it and wanted to bypass it altogether (note: he could now with the latest version). From U12, we learned that the storage location of photos may need to be elaborated on; she doesn't trust the cloud, and U13 is also slightly uncomfortable with cloud storage.

Since we noticed that there were a lot of issues, we made a pie chart to see what specific issues were present.



We based our pie chart data on the number of the blue notes within the green notes. Account issues took up almost half of all the issues we found. At this point, it became clear to us that a large proportion of the feedback received from and observations made about our users reflected issues that they had while using the app. Some of these difficulties appeared to arise from another significant pattern wherein a subset of users would skip or otherwise ignore the tutorials.

Takeaway:

There were obvious deficits reflected in our data that convinced us to narrow our focus to issues pertaining to the help functions. Help functions are a broader and more accessible way of instruction and guiding users, and could potentially encompass the tutorial as well. This is especially pertinent since many of our users skipped over the tutorial.

We uncovered many user grievances that needed to be addressed in the help functions in order to improve usability of the app. Since a majority of issues we found pertained to account information and uploading, we decided to look at other apps with similar functionalities to analyze and compare how they handled such issues. This led us to our third round of data collection.

Round Three: Filling in the Holes

The Interviews:

After the second round of interviews, we encountered a significant amount of data that showed the users having difficulties with different aspects of the app. This major outcropping of data led to the narrowing of our focus and the third round of interviews. From our data, we learned that there was little to no user assistance for situations when the user is confused and needs help within the application. In order to gain a better perspective on the user's needs when it comes to employing new help functionality, we set out upon a third and final round of interviews in which we investigated specific aspects of our users' behavior during problem solving and usage of the application.

In the process of generating the third set of interview questions, we brainstormed different applications that had corresponding features that were comparable to Groupfoto so that we could monitor how users conduct their given tasks among Facebook, Dropbox and GroupFoto apps.

While putting the users through confusing and unfamiliar set of tasks we focused on the "I don't know" questions while monitoring the users' actions on the device. This allowed us to get insight on their process of thinking, while seeing how they move intuitively across the icons in the app.

The tasks given to the users were highly important as each task had useful data to apply to our research. We would note things like what given task came most naturally to the user, what routes did they go first to look for the information, what was commonly pressed first. Observing user performance in these tasks, such as one where the users simply create an album, allow us to understand how certain control placements feel more natural to them. They also shed some light onto the questions of how the users seem to already know how to create an album, along with the approach the users take to figure out something that shouldn't require going to a 'help menu.'

Interpretation Sessions:

As we walked the affinity board, we made notes on the prevalent topics and comments made by the users. What was very interesting about this third round of interviews is what the users did, where they looked, and what they expected from the app and icons when they were confused or stuck at a certain step while attempting to complete a task. When users were confused or stuck, they intuitively looked to the top left of the screen to go back to the previous page or start all over from the home page (U25).

Results:

As we observed users interact with Groupfoto and the similar photo sharing applications Facebook and Dropbox, a significant number of users consistently looked to the top and pressed controls in the upper right hand corner. While using Dropbox, at least one user reported that this expectation of

button location was based on their familiarity with the corresponding web browser version of the [Dropbox] app (U26). As most users are accustomed to the Internet browser, they inevitably connected the features and layouts of the internet browser to the interface of the app. Because most icons are at the top of all Internet browsers, the users found it intuitive to look to the top to perform whatever task they needed to (U29). User 23 said it was easy to add a new album because it's an "intuitive picture of a photo album with a plus". And with the back button in the top left for all Internet browsers, users automatically looked to the top left to go back to the previous screen or to refresh and restart their task from the beginning. In our data we found that U25, U26, U27, and U29 had each noted that the users clicked the top left corner of the application in order to go back to their previous page. Further, users returned to the homepage of whichever application they were using when they became confused. This was apparently because the homepages were the most reliable places to look for access to a help function.

Our data exposed some gulfs between what the user expected to happen and the actual app functions. Sometimes, our users would find a control that looked like a button, but there was no apparent response when it was pressed (i.e. account info in Groupfoto). This sort of confusion would often lead to the user frustratedly pressing the offending control repeatedly and rapidly, despite the continued absence of the expected response. This act of rapidly clicking an icon or area was common across users trying to guess and figure out to access certain functions of the app (U25, U26).

There were users who decided to figure out what needed to be done without using the explicit help functions. They used the context of the function they were looking for to intuitively identify certain icons as the automatic "go-to" places for accomplishing certain tasks. For example, when asked to create or add a picture or album, they intuitively started by looked to the top right of the main screen. Furthermore, when they looked for icons that symbolized the add feature, the "+" symbol seemed to be the most intuitive for the users.

During the interpretation session, one of the partners read aloud their notes from the interview and created affinity notes to be added to a new affinity diagram. We then shuffled the affinity notes into a big pile and grouped them on the wall. We decided to start off on the opposite wall of our old affinity diagram because we felt like there was not enough space on the old one. The focus of our new affinity diagram was also subtly different in that our notes

concerned other apps; we felt like it was necessary to distinguish that fact in the form of a new affinity diagram. Below is a digitized summary of our second affinity diagram:

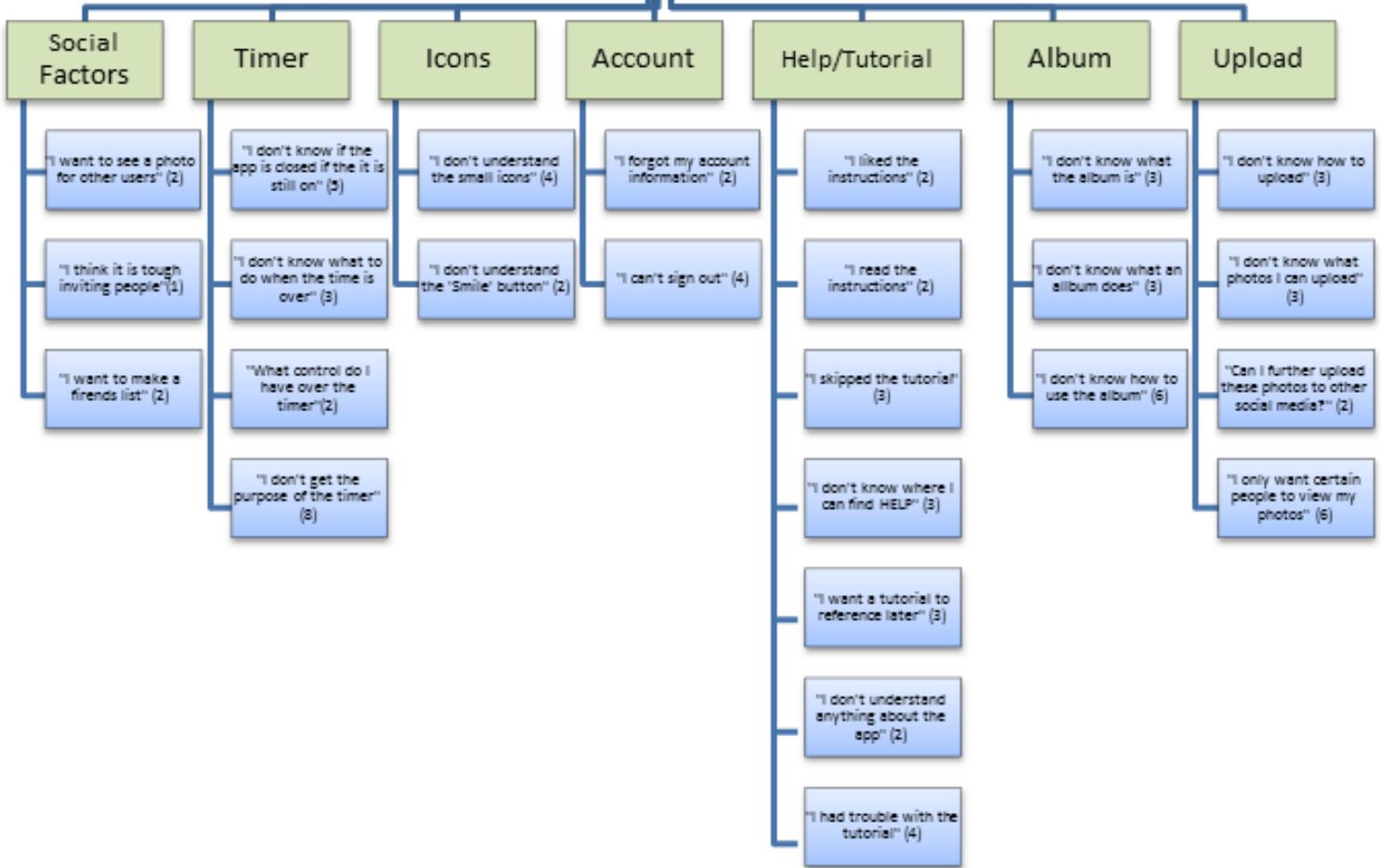
Takeaway:

For this third round of interviews, we looked at a lot of how the users respond and navigate through general photo sharing apps. Through the data, we saw the general areas: areas in which users automatically look and refer to in order to conduct the basic necessities of the app. Further, as users explored and clicked around the app, they had a positive response when a helping popup automatically appeared to convey relevant information that would not have been obvious otherwise. Also, when there was only one correct way to proceed, users appreciated the app only showing one control that allowed them to do the correct action.

Results & Models

Walking the Affinity Diagram

Groupfoto Revised Affinity



Process

There was a dynamic shift in the affinity wall after the second round of interviews. Once we discovered users were asking questions and getting confused about how to use the app, we restructured the wall into categories that represented the functions and procedures users were having a hard time with. From the new wall we asked ourselves what the data was telling us. Did the users' data guide us to address breakdowns in features? We determined we **Affinity**

Diagram:

Round 3		Problem Solving Actions				Location/Route				Timer		Intuitive Icons		
Green Notes	Blue Notes	When I read the pop-ups, it was useful	I try pressing things until they work	I go to the homescreen to start uploading a photo	I found account info in 'settings' on left	I like the top for info	I expect things to be on the top right	I don't know what the timer is for	I found the timer easy to change	I don't know how to change the timer	I found the 'new album' icon intuitive			
Number of Pink notes directly under blue note (see board for all notes)		2	4	4	3	4	6	2	3	1	4			

still needed even more data. From our first and second rounds' data, it was clear that almost users of Groupfoto didn't read the tutorial in version 1.3.5 and still had trouble operating the app. This gave us an idea for how to narrow our scope for the third round of data collection. It was apparent that users needed guidance to know what icons mean, how to add photos not currently in an album, and what the timer meant. In the beginning of the class, Professor Hollan advised us to look at how people shared photos across multiple applications, not just in our own. So we decided that we needed to investigate how people learned to share photos and the processes they use to share photos. We wanted to investigate whether it was thought experience, intuition, guessing, reading information, or something else altogether. So we turned to user behavior of not just how users seek to understand and resolve these matters in Groupfoto but also in Dropbox and Facebook. This perspective that drove the 3rd round of interviews also motivated us to create a temporary new affinity diagram on a wall on the other side of our small work space room. This affinity diagram was globally labeled as the 'How people successfully figure out how to share their photos'. The original wall was the content people were sharing about what they had trouble with.

At our current stage we are preparing to integrate the 'how' underneath the 'what'. We believe there is a natural flow in originating with what people don't understand to how people attempt to resolve it. When walking the Affinity wall everyone was encouraged to do it silently. In Rapid Contextual Design (Holtzblatt et al) wall walkers are separated into two cognitive styles of 'networkers' and 'bouncers'. Networkers are said to delve deep into introspection to see a large web of connection between data to generate hot ideas and key issues. Two of the contributors in our group, Zach and Kendall, appeared to be just this type. They needed no

superficial labels as they crawled about the wall to find solutions that were more than just 'One Offs', solutions to lower level issues. Bouncers on the other hand are those who focus on one topic and find their thoughts orbiting around that. Micah and Joel seemed to fixate on individual issues that users had difficulty with in understanding the application. Their ideas mainly more local in unconnected clusters of the wall. The group encouraged itself to try to solve higher level issues rather than

Consolidation of Sequence Models

Sequence Models

The *sequence model* shows the detailed steps performed to accomplish each task important to the work. It shows the different strategies people use, the intents or goals that their task steps are trying to accomplish, and the problems getting in their way. Our first sequence model arose from a recording of a user's progress through the app with no particular goal but to use the app. We wrote a twenty step process which included things ranging from the places that the user glanced to the buttons that they pressed. During this phase, the user would vocalize what they were doing and why they would press a certain button including their reasoning behind those actions. The third wave of interviews that focused on the use of tutorials within photo sharing apps inspired the structure of the sequence models. In some of the interviews we step by step recorded the user as they progressed through the three intents of Facebook, Dropbox, and Groupfoto. The remaining data for our sequence models was gathered directly from our third round of interviews. In total, we gathered 3 sequence models (since several sequence models were thrown out due to poor records or uncooperative users).

Consolidated Sequence Models

Consolidated work models bring together each different type of work model separately, to reveal common strategies and intents while retaining and organizing individual differences. Together, the affinity diagram and consolidated work models produce a single picture of the customer population a design will address. They give the team a focus for the design conversation, showing how the work hangs together rather than breaking it up in lists. They

show what matters in the work and guide the structuring of a coherent response, including system focus and features, business actions, and delivery mechanisms. Our consolidated sequence model was built using the template from Rapid Contextual Design (157, Holtzblatt et al) used for Agilent analytics lab. We favored this because samples from the actual data are used in the chart. It juxtaposes the 5 different routes that our users took to accomplish their intents within the Groupfoto application. The three intents people had in the app were to find account settings, create a shared album, and change the timer duration. We chose this particular sequence model because we believe it is most concisely arranges all 5 user methods and provides the highest degree of comparison.

The data in our sequence model allowed us to outline a causal comparison table that then led to our ability to employ general narratives called personas that creatively walks the reader through the experience of the user.

Personas

In order to clearly personify our users and illustrate the key issues experienced by users of Groupfoto, we created four user personas, each with different intents. These intents were selected from the most common features our users employed or misunderstood during interviews which fall under the general goal of making sharing photos easy from a contextual basis. We wrote four personas to flesh out the instances of how people accomplished these three intents. Each persona is an example of the fictitious character flowing through our 5 sequence models where we integrated actual statements that our users made. They exhibit the attitudes, behaviors, and motivations of our interviewed users. On average 5 to 7 informants gave rise to our personas that were constructed from qualitative data based on routes the informants took and their personal demographic information. The personas highlight the most common experiences users had when encountering the timer, navigating the app for various functions, solving the problem of when they were stuck, and perceiving the icons as intuitive mechanisms that enhanced their use and understanding of the function at hand. We built personas who were most like our baseline users. Persona 4 was fashioned in part with influence from some comments made from U10 in their experience where they would press buttons

repeatedly to see what happens. Their personality and perspectives on aspects of photo sharing apps are reflected and the following descriptions quickly present a little of who each persona is and what some of their main goals are:

Persona One: Klarissa Johnson

Persona one, our core persona, represents the majority of our users. These users want to first explore and figure the app out for themselves, but would often get lost and confused without guidance, causing a breakdown. While learning to use the app, these users are thinking, “I don’t get it, I’m frustrated”. Our first persona, Klarissa Johnson, likes to go to new restaurants and try new dishes with all of her friends. They all capture the best and worst of their culinary adventures as they share the photos with each other. Klarissa is concerned that not a lot of her friends know about the app or use it and she is confused by a lot of the icons on the screen. She wants to spend less time figuring out how to share the app and more time with friends.

Persona Two: John Miller

Persona two represents a fair amount of our users who want to see what the app does and investigate the layout before they do anything. While learning to use the app, these users think, “I want to explore.” After exploring the application for themselves, these users would like to be able to access a help function to learn more about the app. John Miller is competent with technology and is aware of the latest social media trends. He doesn’t like instagramming and feels that he spends too much time on Facebook and would like to cut some time out. He wants to easily share pictures with people he is with on a trip. He is also concerned about sharing photos in a more private way.

Persona Three: Luz Iglesia

Persona three represents a very small portion of our users. These users want to be presented with an in-depth introduction to the application before they start to use it, i.e. a tutorial. Luz is a professional photographer but doesn’t have a smartphone and is tasked with

taking scouting photos from a company Ipad. Her goals are to download Groupfoto, use the application, and understand concept as first time user who is uncomfortable with smart devices. Luz wants a little more guidance with the app's functionality and grasping the meaning of the icons. She is thinking, "I want to read a tutorial".

Persona Four: Mark Robinson

Mark Robinson is our persona who best captures the needs and characteristics of the last portion of our users. He is a dj from New York who wants to keep up with friends from high school and capture events with other djs, including an upcoming event called DJGOD that was requested by the DVC group here at UCSD. Thus, his goals are to create an account and share albums with friends. He thinks the icons are bland and doesn't want to be spammed via the contact information he provides. Mark is thinking, "I get the app".

Analysis

Visioning

Walking the Data

We began our visioning session by walking the updated affinity wall with a focus on the 3rd round of data. Our team members silently walked the wall and produced key issues and design ideas on orange stickies they then posted next to supporting data. We chose to not evaluate holes since this was our last round of data before visioning. The group then reviewed these orange stickies and drew stars next to five of these ideas which we then designated as our hot ideas.

As can be seen in our data from the third round, when some users were confused, they looked at the top of the screen for help. Other data shows that users look for icons that relate to what they wish to perform at any given time. Yet another part of our wall indicates that users do not want too many buttons or clicked the only button that was available.

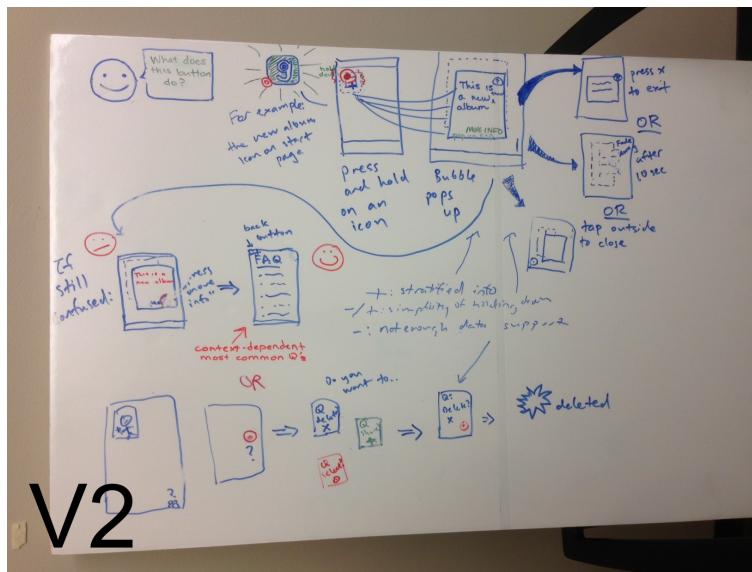
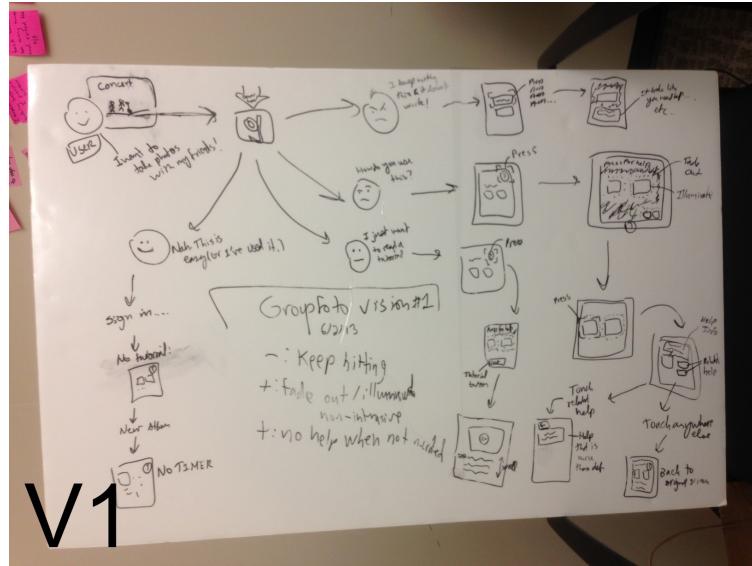
With the data in mind, we developed hot ideas that provided users with help while being

non-intrusive in order to satisfy our users' desires. One such hot idea was to include a universal help button. The idea was that an easily recognizable button - a question mark - would be located at the top of the screen and could be pressed to access helpful information based on the context it was used. Pressing the button darkened the screen but illuminated elements on the screen that could be touched for more information.

Another hot idea based on similar data was the "press and hold" feature that would make a help blurb pop up. If a user had trouble with something in the app, they could press and hold the element that was giving them trouble and a similar help bubble would appear explaining the selected feature. This hot idea was also supported by data indicating that some users would press repeatedly or hold buttons down when they had trouble using specific elements of the app. After we had our hot ideas we were ready to begin the visioning process, the group arranged to meet the next day and jotted down important notes based on our walk so we would not forget.

Visioning Process

We began the visioning process by briefly reviewing our notes, affinity wall, and sequence models. During this time, we discussed the hot ideas briefly in order to set the tone for the visioning period. Then we divided into two groups of five. Each group selected a hot idea to focus around and assigned two of their members as the pen and the poker. As per the textbook, the pen drew and wrote what their teammates provided as input. All ideas were recorded and none of them were debated - only clarification of ideas was permitted. The groups initially focused on illustrating the main concept of their hot idea and then added other design ideas where they could. The two visions as labeled and indicated below are the products of our process:



V1

V1 is based on the “universal help button” hot idea. In this vision, the users find themselves in one of four situations based on their user types. In the first situation, the user does not understand a specific part of the app and repeatedly presses the buttons on the screen in an attempt to figure out the next step. This scenario is based on the fact that 4 of our 9 users for the 3rd round of interviews repeatedly pressed buttons on the screen when they did not understand what was happening with certain elements on the UI. In this situation, a text

blurb with help information would appear after a user presses a button multiple times. Based on what we found in our data, this would be a satisfying outcome for these users as their actions were often paired with the comment, “it doesn’t *do* anything” (U26).

In the second situation, the “universal help button” situation which was at the root of this vision, the user is not frustrated but wishes to better understand a specific part of the app. This universal help button would take the form of a “?” icon which can be found at the top of the screen. The “?” icon was chosen for this function because our data reflected that users found distinct icons attractive (U17). Because the question mark is a universal symbol for help functions, this seemed like the best choice for our universal help button as well. When the “?” icon is pressed, the screen darkens and elements on the screen that can be pressed for help are illuminated. Pressing one of these lit up buttons provide a similar blurb to that produced by repetitive pressing.

In the third situation, the user wants to read a tutorial and understand the app fully. By pressing the “?” button, and pressing the tutorial button at the bottom of the screen, the user is able to access a video tutorial of the app as well as a set of frequently asked questions based on the context of usage. This data is backed up by a few users who read the tutorial and said it “was useful” (U07) or that they “wanted a tutorial option”* (U10, U16).

The fourth and final situation is the “I understand” situation in which the user finds the app intuitive and/or has used the app in the past. For this type of user, the. Our data indicates that some users had no problem using the application without aid and would not like any sort of help function interfering with their use of the app. For this user, we made sure the help feature was an aside that could be accessed if needed, but not required. Because there is no help or tutorial immediately when the app is first loaded, the user is not bombarded with unwanted information. Essentially, the help functions created in V1 would remain largely invisible unless the user wants or needs them.

*Note: the tutorial was removed from the application for our second round of data

V2

V2 had many similar features but focused on the “press and hold button” hot idea instead of the “universal help button” idea. Some of the important aspects to note from this vision are the use of a back button at the top left of the help pages as well as the inclusion of a further info button on the help blurbs. Our data shows that some users find their way in apps by hitting the back button repeatedly until they reach a familiar screen. We also have users saying they expect a back button in the top left of the screen.

Visioning Results

After completing the visioning process, we regrouped and looked over the visions together noting pluses and minuses. At this point, we had the option to consolidate both visions into one or add the aspects we liked from one vision to the other. After further discussion, we agreed to use V1 as our framework and add what we liked from V2 to V1. The reasoning behind this decision was that the “universal help button” used for V1 was supported by the same data as the “press and hold button” used for V2. It was unnecessary to include both visions in our final product since they were simply different approaches to the same data. Therefore, we selected V1 as our approach because we felt it resolved more user issues such as the frustrated response of repetitively pressing buttons which V2 did not. We did not scrap V2 altogether, but instead incorporated the pluses from V2 such as the use of back button at the top to navigate from help blurbs back to the app’s main pages. With this consolidation completed, we had a functional vision that resolved many of the key issues our users had as well as incorporated many of the design ideas we produced during our three rounds of interviews.

Design Changes

For The Frustrated User

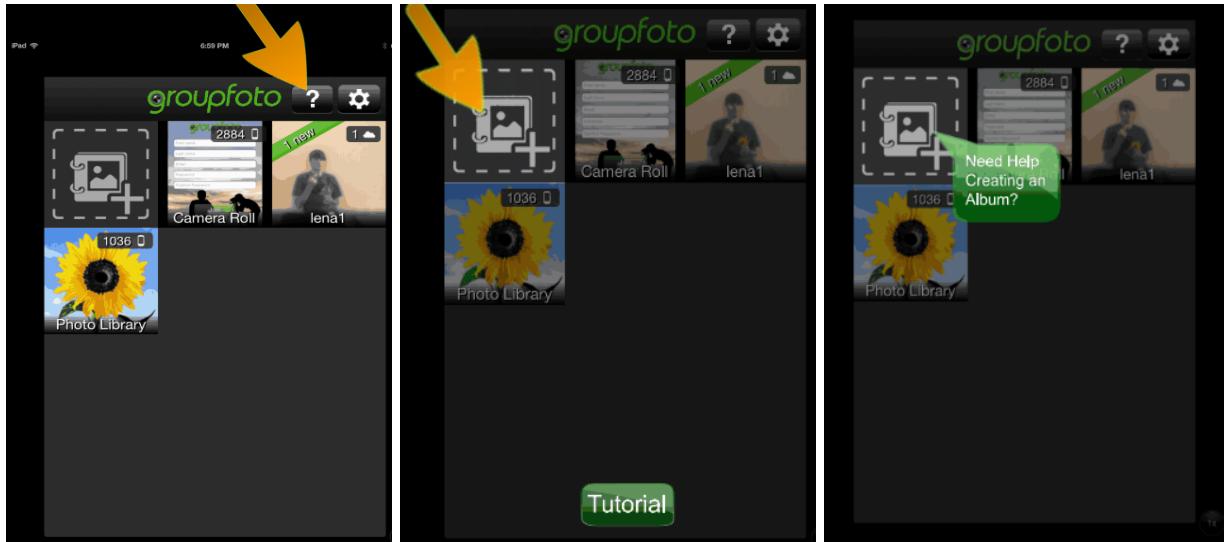
For the majority of our users who think, “I don’t get it, I’m frustrated” when they are stuck, a translucent

comment bubble was crafted to appear in an area that is repeatedly tapped or held down by the user who has tried tapping or going back and forth between this screen. We found in our data that users will press and hold a button to see what happens and we decided that, instead of having an event happen such as the creation of an album, timer change, or any other function we would instead have an interactive help bubble that would not detract from the users focus but instead non-intrusively aid them by inviting them to discover more about the function they are probably inquiring about given their position in the sequence of using the app. This feature is for the user that wants to try the application with no immediate help of a lengthy tutorial or video but then gets frustrated and is ready to learn just one aspect of the application instead of being overwhelmed by the entire instructional environment.

This solution is semantic in nature and presents a conceptual answer through describing an aspect of use that addresses their immediate context.

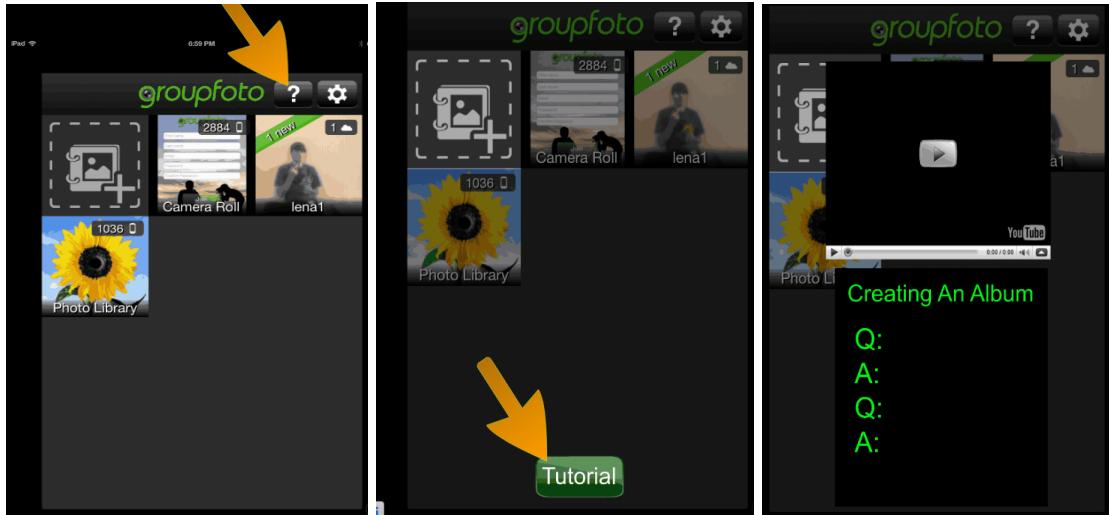
For The Explorative User

For the user who thinks, “I want to explore” we implemented a change captured from the hot idea that there would be a permanent help icon at the top right hand corner of every screen. This is a centralized help area that doesn’t initially overwhelm the user with any sort of text. Once pressed, translucent bubble emerges stating, “Click on an area where you need assistance...”, and a context-dependent help blurb would appear asking if the user would like more information regarding the area pressed. This bubble is accentuated when it becomes brighter and the rest of the screen dims in contrast. Attention is brought to the place clicked and the user is not distracted by other icons, colors, or visuospatial features. There is a strong semiotic influence here that directs the users’ attention without using words. Words aren’t brought into the picture until the user has fluidly navigated to the specific area troubling them. It solves the same problem but from a totally different psychological perspective. Whereas in change 1 there are fewer steps, here there are a couple more that give the user more control to select the spatial segment they don’t understand. This solves the perceptual breakdown for our graphic-minded users by letting them choose the context.



For the Curious User

Our 'Curious User' thinks "I want to read a tutorial". For them we have designed a holistic systemic response as opposed to the first two fragmented approaches. This was designed for users who want to see the bigger picture along with the instructions of use at nearly every function and level. The same arrow that points to the universal question mark highlights the first step that the user has now learned nearly instinctively. The same darkening effect takes place only this time over the tutorial button that was present in the previous route but not highlighted. This time everything but the tutorial is highlighted once they click the button. After clicking it again a introduction video appears with clear and concise directions about how to use group photo. Below the video is a contextual display of FAQs that at any time the user can click to jump to the most relevant video section and thus not feel overwhelmed by having to wait and listen to parts that they may already understand. This would lessen the amount of redundancy that our informants described in our interviews.



For the Confident User

A small handful of our informants said “I get the app”. They are a know-it-all user and don’t need their hand held with cumbersome tutorial based features. Our integrated help features allow this very type of user because it is as if the features aren’t even there. A user has to press and hold a button for a bubble to pop up before any visual cues appear. This means if they truly understand the application then they would never see a help bubble. In the off chance that they do then immediately they would recognize that feature based on their self-purported level of savvy. They would know not to press and hold the button but would also be mentally primed to get help the second they might feel that they need it. A video tutorial, whole or fragmented, would never appear to bother them because the user has to press the question mark for this to happen in the first place, which they wouldn’t typically be inclined to do. Even if they did accidentally press the button nothing happens unless they click the tutorial button or a region of the screen. So, the help feature is presented in a contextual way both semantically and semiotically. It is presented in a classic and holistic manner, and it is also not presented at all. It truly invites users to discover the help functions in a non-intrusive way through being a layered systemic response to their frustrations with any breakdowns in fluidity of use.

Discussion

A Wrap Up of Our Process

Our contextual design process was primarily one of iterative investigation. We had seven weeks to launch and execute an investigation into who potential users of Groupfoto are, what they want to accomplish, how they share photos, and more specifically, how they share photos via mobile applications. Our first interviews were highly structured in a way that didn't entirely lend itself to revealing exactly what our users' habits were or their reasons for interacting with their devices depending on the context. We did scratch the surface but adapted our process in the successive rounds of interviews. We delved deeper into their context by discovering what kind of actions they did in the second wave of interviews and how they resolved their problems in operating the application in the third. Before our visioning process, we generated lower-level key issues and hot ideas. From these key issues and hot ideas, we created our visions. From the onset, it was paramount that our design process should be an acute response to the issues our users were actually experiencing and not just what they reported. These responses are aimed at being direct solutions to their photo sharing needs.

In Conclusion

Our project redesign was truly a ground up experience. It started with us selecting a viable application that could be tested by users. From there we collected rich data from contextual interviews in three distinct waves. Careful attention was given to the means by which people shared photos. Then we dug deeper and found what people didn't like about using Groupfoto. Further into our interviews, we discovered that when users encountered sections of app usage procedures that they found difficult to understand, or other aspects of the app that they disliked, they were less likely to have an enjoyable experience with GroupFoto. Our group decided to strongly narrow its focus onto just this part of that data so we could perform targeted visioning that would give way to a storyboard that was practical in scope and painted a picture of the steps a user took to use this promising but unwieldy application.

As we cycled through our contextual interpretations sessions, we found that employing the Master/Apprentice interview model helped us mine richer and more relevant data than more structured interviews provided. Our emergent data required us to read between the lines. Our process pertained not just to having or not having a tutorial, but also unearthing the intents and desires of several different types of users. For example, it did not take U9 very long to get frustrated at the mobile application because it made no sense to him. On the other hand, U30 had little trouble sharing an album on the Facebook application. It just clicked. We scrutinized the affinity wall as we walked it and found that it wasn't something the app had or didn't have that lead to the users level of comfort in working with it, but instead how quickly they could get systematic help if they need it. So, using what we knew about photo sharing and our users, we set out to fix that. We aimed to create and integrate hot ideas into our visions and our personas. From there we generated design changes that makes it seem as if someone is actually there to help you if you request it. We may not have been able to make Groupfoto perfect, but we hope that our findings will help to eliminate some major obstacles hindering it and help reveal its full potential.