

The kiosk is a “walk up and use” system for making prints from photographs, digital cameras, or negatives. Customers can crop photos and order them in a number of sizes. The interface went through five iterations and ten customer tests.

Lesson 1: In ecommerce systems minimizing sales catastrophes is critical

Nielsen defines a sales catastrophe as “any issue that prevents a sale, or discourages a customer from returning.”¹ Of the 28 observed usability problems in iteration two, 53% occurred on the order screen and more than half would have kept customers from successfully buying. (figure 1) For example none of the five customers tested in this iteration noticed that the quantity could refer to more than 1 print (e.g. a page of eight 4 x 6 photos). One customer purchased 128 prints when he only wanted 16 and exclaiming “How expensive!”

Lesson 2: Visually grouping related functions is a powerful cue, use it with care

To show that each photo size could be ordered in different amounts the three quantity values were aligned vertically and placed within a highlighted blue strip. (appendix B: order iteration 2) Unfortunately this vertical grouping was so powerful it over road any horizontal association with a specific size photo. For example customers 1 and 2 read the quantity as 100 and not 1, 0, and 0. After changing the quantity and seeing the total cost change customer 1 commented, “I haven't told you the size yet, how can you know the price?” This issue was resolved by strengthening the visual grouping of elements associated with each picture size. (appendix B: order iteration 3)

Lesson 3: English speakers read left to right, top to bottom

In designing the screen flow it was important to consider the direction in which customers would be scanning the page, so that they would see information in the correct order. Overall this was done successfully but on the order page the directions were in the lower left. As a result customers 2 and 6 saw the size and quantity options, which were in the upper right, before reading the directions and became confused. In future iterations the directions were moved to the top right above other options.

Lesson 4: Don't try to second guess the customer, leave them in control

In the first version of the photo crop page the system restricted the customer's ability to move or grow the crop box outside the range of the image. (appendix B: crop iteration 2) This was a conscious design decision intended to prevent errors, however this feature was poorly implemented. When a customer tried to move the crop box outside the photo area their input was ignored and a silent error occurred. All five customers in this iteration attempted to move the box partially outside the photo area and were confused when the box failed to move. This restriction was removed from future iterations and the next customer who tested it commented, “Hmm, I wonder how big I can make this?” After growing the box very large she laughed out loud and said, “Ha! Fun with boxes.” This is consistent with Spolsky's observation, “controlling your environment makes you happy.”² (appendix B: crop iteration 4)

¹ Nielsen, J., Molich, R., Snyder, C., and Farrell, S. June 2001. *E-Commerce User Experience*. Nielsen Norman Group. Pages 26 – 29.

² Spolsky, J. 2001. *User Interface Design for Programmers*. Apress. Pages 1 – 6.

Lesson 5: Keep it simple

The order page is the most information dense screen in the program. (appendix B: order iteration 2) Three out of 5 customers tested on iteration 2 were overwhelmed by the layout and number of decisions. I went through three design iterations to try to simplify the visual display while retaining important information.

Lesson 6: Sometimes words are better

In the service of simplifying the order screen I removed the cartoon pictures since customers 1, 2, and 5 did not use them as they were intended, to determine the number of photos per page, but instead mistakenly thought they referred to print orientation. I used the free screen space to increase the font of the 'size' and 'prints per page' labels and offset it with color and type style. (appendix B: order iteration 3) However, three pilot tests suggested customers did not read 'prints per page' and ordered 4 to 8 times more photos than intended.

Lesson 7: Sometimes pictures are better

I returned to a picture based approach, as visual comparison of relative size and prints per page is easier. I changed all photos to the same orientation. I removed the 'size' and 'prints per page' labels and replace them with the more user relevant terms, 'large', 'medium', and 'small'.³ This resulted in a visually simpler interface with 80% less observed usability problems. (appendix B: order iteration 4)

Lesson 8: Feedback can help users disambiguate between multiple interpretations

After the fourth iteration 3 out of 5 users still made errors when trying to order multiple pictures. The difference now was that customers were aware that they might be making a mistake. While trying to make a purchase customer 10 asked, "Are there eight little pictures or does it mean it's 8x smaller?" To help the customer resolve this ambiguity I made the quantity value for medium and small prints increment by two and eight pictures respectively. This visual feedback helped customers resolve the ambiguous situation. Additional pilot testing (three users) revealed no additional errors.

Conclusion:

After five iterations and ten customer tests the program's usability improved dramatically. A 61% reduction in usability problems was observed from iteration 2 to iteration 4, and the number of problems reported by more than one customer fell from 11 to 3. In the last round of testing, 4 out of 5 customers made unprompted positive comments, "It was easy, fast, and self explanatory".

³ The simple labels tested well but with a more realistic task e.g. 'make a picture for this frame', they may have been less successful.

Appendix A: Problems found in Iteration 2 & 4

Figure 1

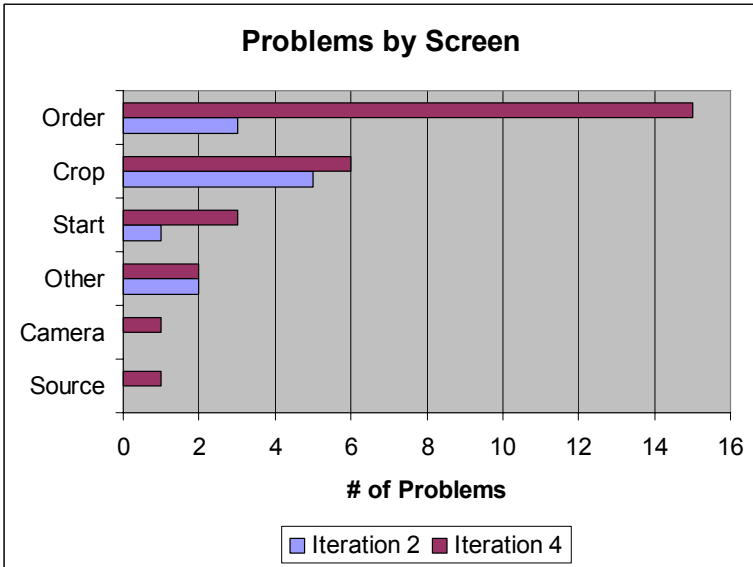


Figure 2

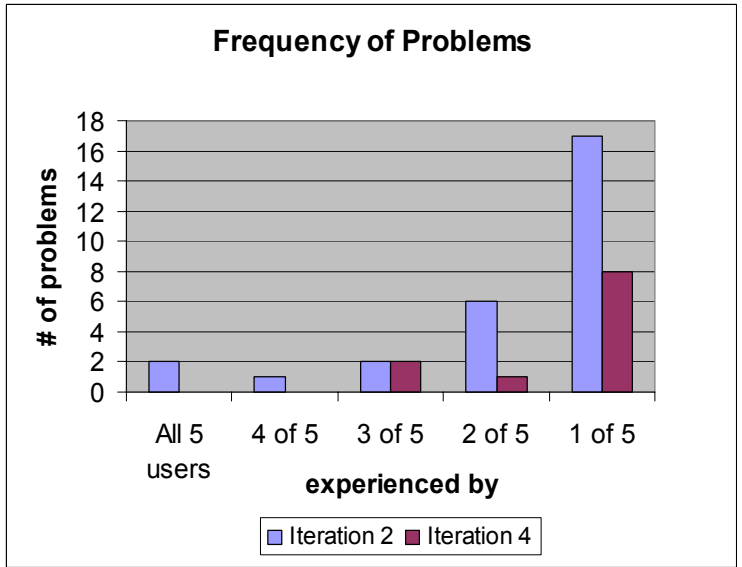


Figure 3

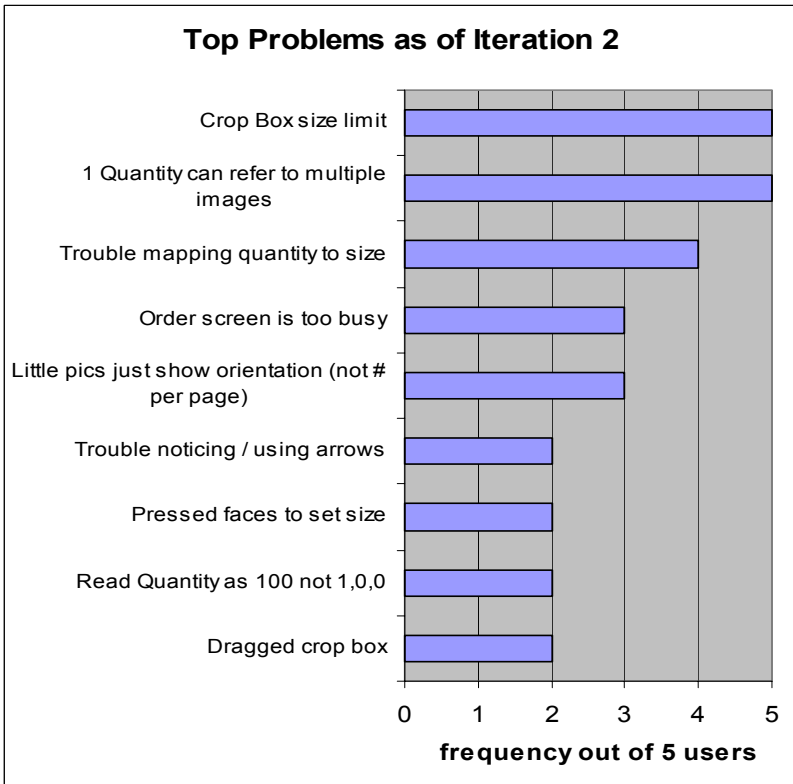
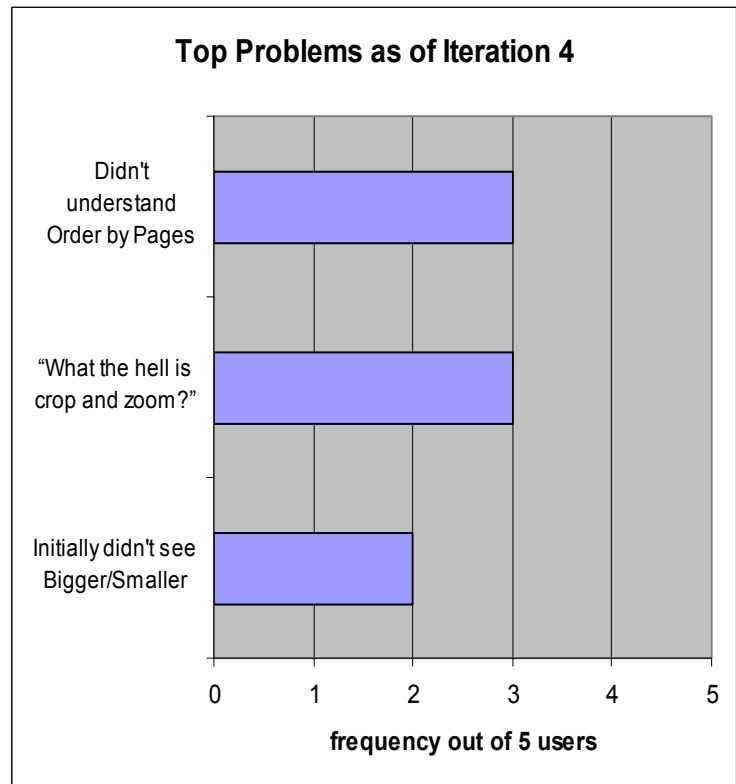


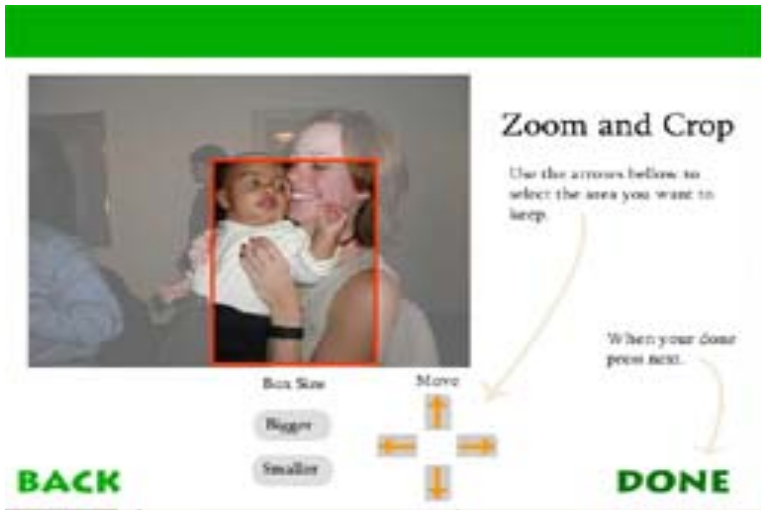
Figure 4



* Top problems are those experienced by more than 1 customer

Cropping

Iteration 2



Iteration 4



Order Screen

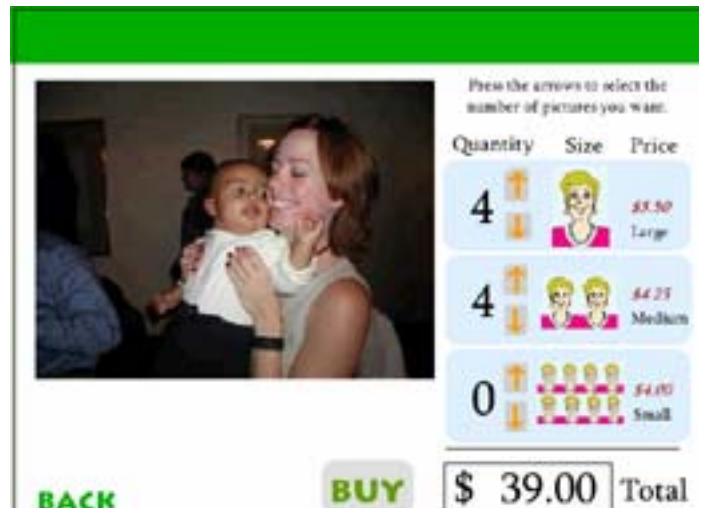
Iteration 2



Iteration 3



Iteration 4



Appendix C: Customer Test Log Summary

Tasks for Iterations 1 – 3:

Task 1: Given a photography make four 8 x 10's and sixteen 4 x 6's

Task 2: Given a negative select the photo you want, crop it, and order two 8 x 10's and four 5 x 7's.

Tasks for Iterations 4 – 5:

Task 1: Given a photography make four prints that are this big (drawing of large print) and sixteen that are this big (drawing of small print).

Task 2: Given a negative select the photo you want, crop it, and order two prints that are this big (drawing of large print) and four that are this big (drawing of medium sized prints).

Customer #	Iteration #	Date	User Profile
1	1	Nov 25, 2001	Male age 56, never used a photo kiosk
2	1	Nov 25, 2001	Female age 54, has used a photo kiosk, but had to ask for help
3	2	Nov 25, 2001	Male age 25, never used a photo kiosk
4	2	Nov 25, 2001	Male age 54, never used a photo kiosk
5	2	Nov 25, 2001	Female in 50's with daughter in 10 th grade, Never used photo kiosk
Pilot	3	Nov 26, 2001	Female age 25, never used a photo kiosk
Pilot	3	Nov 26, 2001	Female age 26, never used a photo kiosk
Pilot	3	Nov 26, 2001	Female age 26, never used a photo kiosk
6	4	Nov 26, 2001	Female age 23, never used a photo kiosk
7	4	Nov 26, 2001	Male age 29, never used a photo kiosk
8	4	Nov 26, 2001	Female age 30's, never used a photo kiosk
9	4	Nov 26, 2001	Female age 27, never used a photo kiosk
10	4	Nov 26, 2001	Female age 26, never used a photo kiosk
Pilot	5	Nov 27, 2001	Male age 20's, never used a photo kiosk
Pilot kiosk	5	Nov 27, 2001	Female age 30's, never used a photo kiosk
Pilot	5	Nov 27, 2001	Male age 20's, never used a photo kiosk

* all Pilot tests were with HCI masters students