

VT Cornhole

Usability Report

Unit 2 English 3764

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Table of contents

	Pages
Abstract	
Predictions	2
Test 1 Summary	2-4
Test 1 Revisions	4
Test 2 Summary	5-6
Test 3 Revisions	6
Conclusion	6
Appendix A	7

Abstract:

Because of the ambiguity of the English language, we conducted usability testing for the effectiveness of a set of instructions for the construction of a cornhole set. This report is intended to describe the intentions, methods, and results of usability testing for the set of instructions. We used a combination of questionnaires and proctor notes to assess the quality of the provided instruction set. Each user was given a set of instructions and a set of parts. The intent of the questionnaire was intended to allow for the user to provide feedback on their experience and comment on specific problem areas they had. The proctor was to be a resource for the user and an observer noting unforeseen issues and mistakes the did not recognise. The user was expected to complete the board in a reasonable time frame. We conducted two rounds of testing with revisions to the instructions between the first and second round. We found that the majority of the issues in the first instruction set were related to unclear pictures. Because every user in the second round of testing successfully completed the board, we submit that the instruction set is ready for distribution.

Predictions:

Construction of a cornhole board is a low difficulty task. We expect that the steps four and five will take the longest to complete because of the multiple screws the user must place and insert. Each user should be able to complete the board in a reasonable amount of time, under fifteen minutes.

Description of phase one testing: 17,19 OCT 2016

For our first usability test we used a Likert Scales Test (LST)(**Appendix A**) in combination with test proctor comments. The user was given either the materials for either the A board or the B board and he or she was asked to construct using a screwdriver and a set of the first instruction draft. Upon completion of the individual board the user was asked to complete a Likert Scales questionnaire. Although encouraged not to, users were permitted to ask questions. The test proctor quietly took notes on the user to include steps done incorrectly, questions the user asked, and specific areas with which the users had trouble. These notes were compiled into the summary of results.

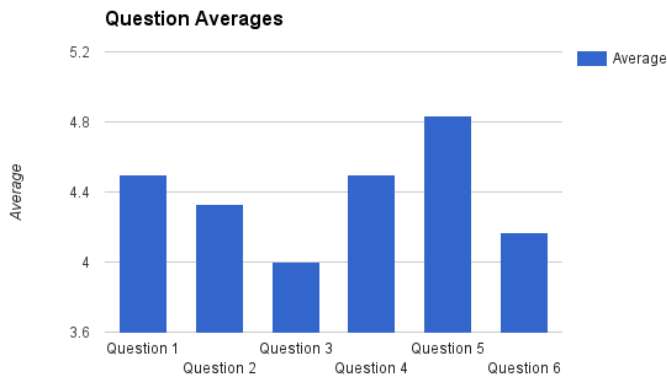
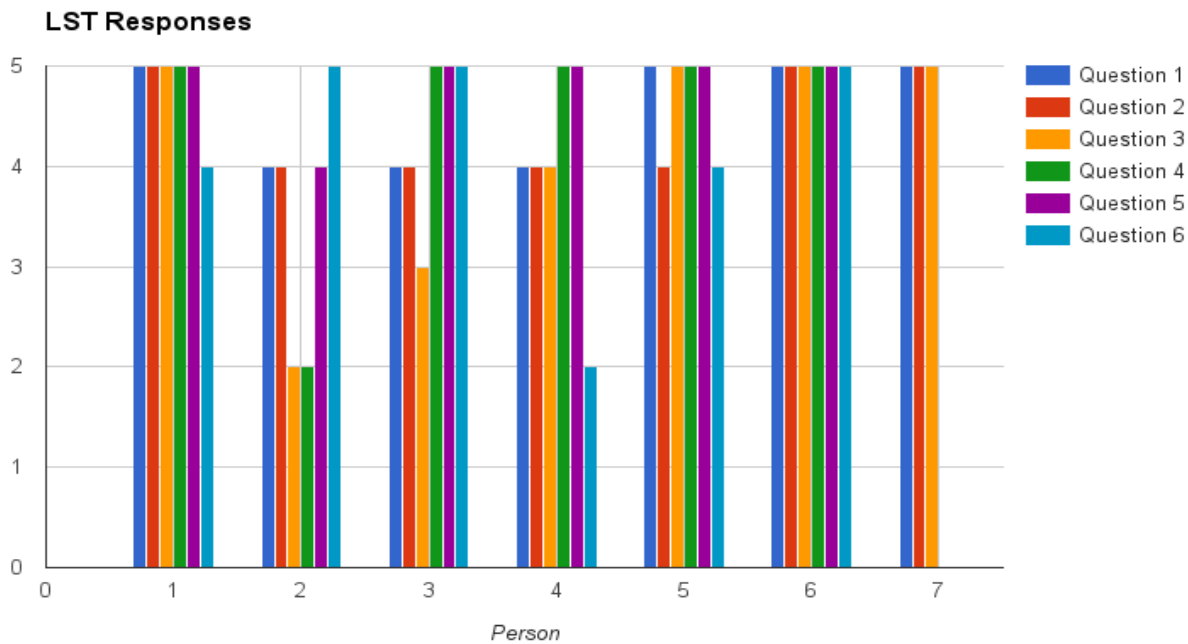
Demographics:

All users were college aged males consisting of varied race and ethnic background.

Testing conditions:

Both rounds of testing were conducted in the late afternoon in a classroom environment. The users were given no time limit to complete the board.

Summary of results



Both test one and test two were hampered by small sample set and time constraints. However some valuable data was recorded in the testing. From the LST Question Averages we can see that the worst scoring question was number three. Question three pertained to the quality of the pictures. The question asked if the user could “clearly tell where each of the parts went from the

pictures.” Obviously the users had trouble orienting the parts from the information in the pictures. This is supported by the proctor notes section. The remaining questions all had positive responses indicating only small improvements are needed. We failed to to explicitly keep track of the users who finished the board without mistakes. However we found that even though many of the users gave positive responses to the questions they actually put the board together incorrectly. Either the bolts or some part would be assembled backwards.

Test One Proctor Notes:

The majority of users could not identify, either through the instruction text or pictures, which way parts were orientated in relation to the others. Specifically for parts 1, 4 and 5. For part one, half of the users completed the board with the wrong side of the plank, the side with its alpha numeric code, facing out. For parts four and five, each person attempted rotating the part 180 degrees to get the holes to line up with the holes in the top board.

Several of the mistakes the users made can be attributed to the quality of the pictures augmenting the instructions. Three of the six users who finished the board placed the threaded side of the bolts facing out. The picture related to this instruction was taken from far enough away that the nut on the bolt could be mistaken for a screw head. In one specific case, user seven, with us prompting him, choose to not read the instruction text, only using the pictures as a reference, resulting in a spectacular failure. He may of chose not to read thoroughly because english was not his first language. He screwed all ten screws into part 1 sans parts 2-5. This can be attributed to the picture for step four only showing the screws and part 1. The picture did not show to also place the struts backing the screws. This was included in the instruction text.

Revisions:

Step 4:

- **Problem:** The picture in step four did not clearly indicate where the struts(parts 2,3,4,5) went in relation to part A1.

Remedy: Take another picture from the reverse angle.

- **Problem:** The step did not clearly indicate which side of A1 what the top.

Remedy: State in the instruction text that the side with the alphanumeric is down.

Step 6:

- **Problem:** The majority of the users had trouble properly orientating parts four and part five.

Remedy: Clearly identify the left and right of each part by the position of the alphanumeric.

Step 7:

- **Problem:** Several users completed the set with the bolt in the incorrect orientation.

Remedy: Take a new picture clearly showing the correct bolt orientation.

Description of Usability Test 2: 24OCT2016

Test two used an online google questionnaire in lieu of the LST in test one. Other than that the protocol was the same as test one. The user was given one of the cornhole boards, a set of the instructions and the screws, bolts, and screwdriver required to put the board together. While the user was constructing the board a test proctor would take notes on the progress, questions and mistakes that the users made during construction. Because the majority of the revisions made to the first draft included changes to the pictures, our goal in round two was to test the quality of the pictures we added to the new draft.

Demographics:

All users were college students consisting of varied race and ethnic background.

Testing conditions:

The tests were conducted in the late afternoon in a classroom environment. The users were given no time limit to complete the board.

Summary of results:

We were only able to get a sample of three users in our sample set and the data received was conflicting. It would be irresponsible to make any large conclusions from our data. However every user completed the board properly with only one user's minor mistake with bolt orientation.

Test Two Proctor Notes:

Test two produced much more successful results. All of our testees accomplished the final task in much less time and seemed much less confused during the process. One of the main problems from the first round of testing was that users were not placing the legs (A2 & A3) in their correct position with the correct orientation during step 4. Adding the red outline of the legs eliminated this error for all of our tests, which produced more successful results later on. All of the testees also placed the bolt in the correct orientation during step 7 with the addition of a new picture. The addition of the clarification for the orientation of A1 also eliminated the error where testees had the board itself flipped the wrong way. Overall, the additions and changes produced much quicker results with much less confusion.

The few errors that did arise during the second round of testing were minor. The main concern was during step 5, when the legs (A4 & A5) did not fit, the testee simply tried forcing the leg into place. Step 5a states that the best way is to sand them down first before trying to fit them. However, most users seemed to think that due to the separation between steps in the instructions, 5a was the next step rather than a

sub-step, so they tried finishing step 5 by forcing the leg in rather than checking the instructions. Modifying the instructions to make this more clear is necessary. One testee still tried to screw the screws into A1 before placing the legs underneath during step 4. Bolding the text telling the user to place the legs under first could solve this. Finally, some testees who had never built anything before were confused as to what a bolt vs. screw was, so clarifying this with a small image may help.

Revision

Step 5:

Problem: The user would assume that step 5a did not pertain to step 5.

Remedy: In step 5 text, the user was referred to 5a if step 5 was giving them trouble

Conclusion:

We submit that our usability testing was a success and the instructions are ready for distribution. Phase one identified many faults in the instructions specifically related to orienting the parts correctly and the quality of the pictures. These issues were not extant after the revision. We are confident in the quality of our work.

Appendix A. Test One questionnaire

1-2	Disagree
3	Neutral
4-5	Agree

Instructions: Score your level of agreement with each statement and please comment.

#	Question	1	2	3	4	5	Comments
1	The instruction set was helpful in completing the task.						
2	The language in the instructions clear and precise.						
3	I could clearly tell where each of the parts went from the pictures. (if not, state which ones in the comments)						
4	The parts were clearly marked and could be identified from the pictures. (if not, state which ones in the comments)						
5	I understood where and when to use the different types of screws.						
6	Each instruction pertained to one task or step. (if not, state which ones in the comments)						

Final Comments: