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DATE: 2/23/2025
SUBJ: Instructions Assignment Memo

Technique Analysis

To make instructions for assembling a Lego set we decided to make it as close to how Lego does it as we could. We used the Lego Studio app to both make the model as well pictures for our booklet (more about this in the Document Genre section). To make it very clear we first built the full model in Lego Studio, then we went to the "Instructions" section of the app. This section generates Lego-like instruction pictures based off how you assembled the model. For us the pre-generated pictures did not work since they would combine steps and be far too confusing for someone to follow. So instead of using the pre-generated pictures we sliced each step manually in the app to make sure each step and picture was clear.

While we could have done the instructions in plenty of different ways, we opted to use manual slicing in Lego studio because we knew the pictures that we would get were good quality Lego style images, and we would not have to worry about lighting or anything else if we built a physical Lego set and took pictures of that.

Document Genre

Our instruction document style is a booklet. We designed it by using slides, one step per page. Before showing the exact steps, we include an attention page to provide reminders and suggestions to the user before they get started. The instruction mainly consists of images. It is very close to a real LEGO instruction design. The document is friendly and readable digitally and physically because the step image is big enough. The instructions are also clear, indicating each step with its unique page. Another important benefit is that our instruction not only includes the overall material requirement at the very beginning but also includes the type and number of parts needed for each specific step highlighted in a small blue box on the top left. It can draw the users' attention when they first look at each step page. The instruction image also highlights the newly added parts in this step with a red border line. It is straightforward and visual to indicate where the parts should go. Except for the finished digital product, we also include an image of a finished physical product because our design is highly practical. The finished physical product can stimulate user interest in building a real watch stand.

Instruction Methods

As mentioned, the majority of our instructions are pictures in a similar way to how Lego makes their instructions. Initially we only had pictures (exactly how Lego makes their booklets), but after some testing, we did add some text for each step that Lego does not include. The main text we added to each instruction was the name and quantity of each piece used in that step. Before we simply had a list of all the pieces needed at the start of the booklet and a picture of the piece(s) on each step. But after some feedback from the first few testers, we included the exact piece name on each step so they would be able to use the search tool since the UI for Lego Studio isn't great for someone that is just looking at it for the first time. On step 16 we also had to add an extra picture to clarify the step after users reported that step to be too confusing.

The photos themselves are of course very important to have clear because there are no written instructions to go with them. Because of this we got our photos from Lego Studio directly, so they are clear and in a very similar format to the actual Lego pictures that we know work well.

Usability Testing

Benchmark:

Completed Steps	Speed	Accuracy
15	20 minutes	1 error

UX Record:

User	**User 1**	**User 2**	**User 3**	**User 4**
Name	Jade	Yinglin	Harrison	Isabella
Major	Computer Engineering	Statistics	Electrical Engineering	Biology
Completed Steps	20	20	20	20
Speed (Min)	15	23	15.5	20
Accuracy	2 errors	0	0 Errors	0
On a scale of 1-10, how difficult was the instruction to follow?	2	2	1.5	1
Did you feel any instructions were missing or unclear?	Maybe step 16 since we couldn't see the other 2 blocks	The step 16 is unclear.	None (this was after step 16 was updated)	Step 10/16 is hard to see the other side of the design

Were there any steps that felt unnecessary or could be combined?	no	no	No	no
On a scale of 1-10, how did you enjoy the building experience?	8 do not like the software but instructions clear	7. b/c the software is hard to handle as a new user. It's even worse since I used it through remote control.	8.5 (The software was still hard to use but being able to search for parts helped a lot)	5/10 - they felt this way because the software wasn't user friendly enough, but they liked the design.

Our user pointed out that the other side of the design is unclear to see in step#10 and step#16. It is hard for them to see where the rest of the two bricks should be placed in step#16. Based on their feedback, we decided to add notes and extra images of the hidden side to clarify these two steps. Our user also reflected that the software is not friendly for fresh users. We decided to highlight the "search tool" on the attention page and added a "search" image to draw the users' attention to notice it. Overall, our instruction is easy to follow for the user.

Roles of all Participants

Manling Yu:

- Built the design sample and generated the instructions steps
- Collected and organized numbers and specific names of all the required parts to put in the instructions
- Collected the UX data of user 1 and user 2 and modified our instructions based on users' feedback
- Edited/Wrote the UX memo

Joseph Lodato

- Organized photos from Lego studio and assembled them in our slideshow to make the booklet style instructions.
- Connected UX test data from user 3 after changes were made to our instructions based off users 1, 2 and 4.
- Edited/Wrote UX Memo.

Abigail Rockwood:

- Created a slide show to present our Lego instructions. Started to organize the instructions and the layout of what we wanted the instruction to look like.
- Collected the UX data for User four and implemented their data into our table.

- Looked over the final UX memo for any errors