Writeup of Team Pop Lock and Drop It

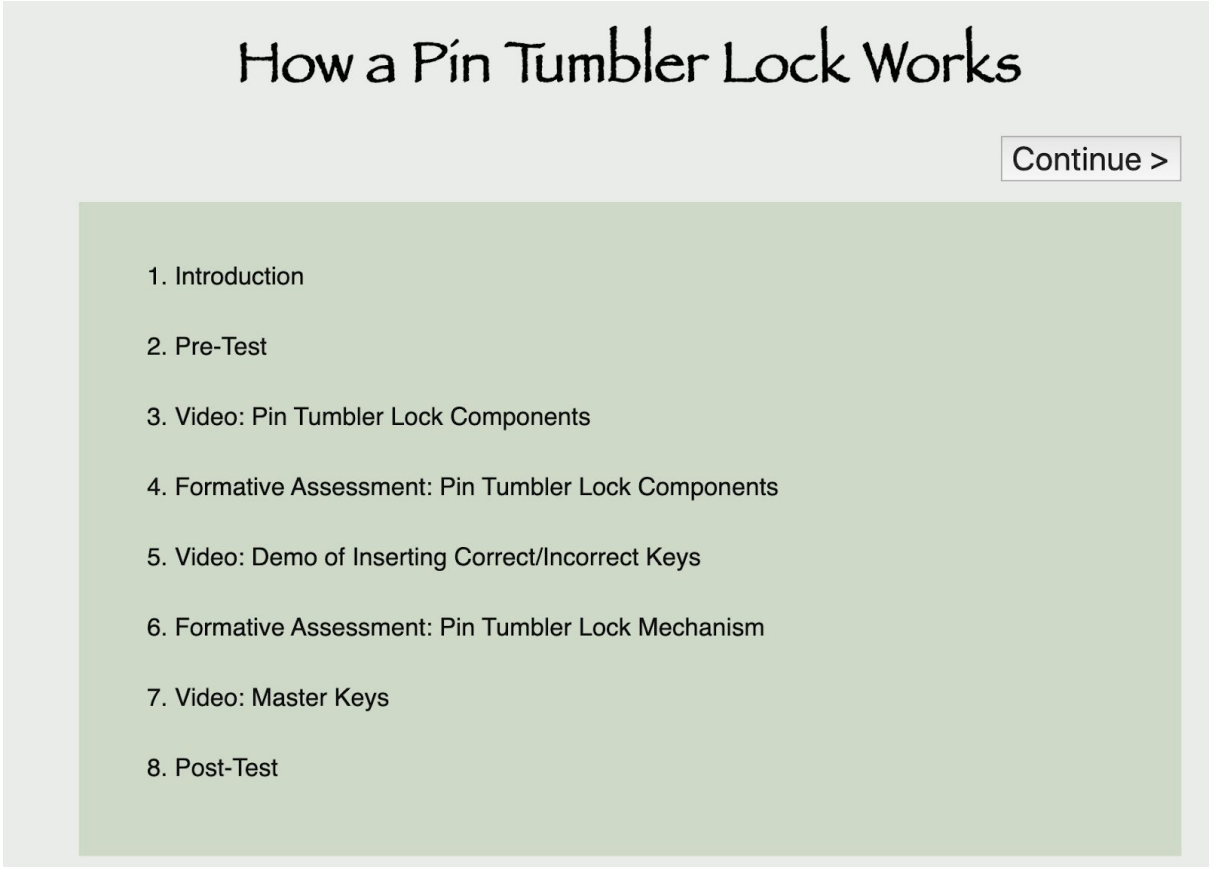
Before it was collaborative

We reused all the video modules and tests from the last version of this instructional module. In the previous design, we had three videos:

- Pin Tumbler Lock Components (Conceptual knowledge),
- Demo of Inserting Correct /Incorrect Keys (Conceptual knowledge and misconception), and
- Master Keys (Knowledge transfer).

The prior design has a pre-test in the beginning, tests after each clip, and a post-test at the end. In this design we used **Scaffolding (Modularization the knowledge)** and **Pretraining (Pre-Test)**.

A potential **limitation** of reusing the material was that after using the Jigsaw, the learning experience was not sufficiently scaffolding knowledge and it might be harder for people to learn.



Collaborative Learning Design

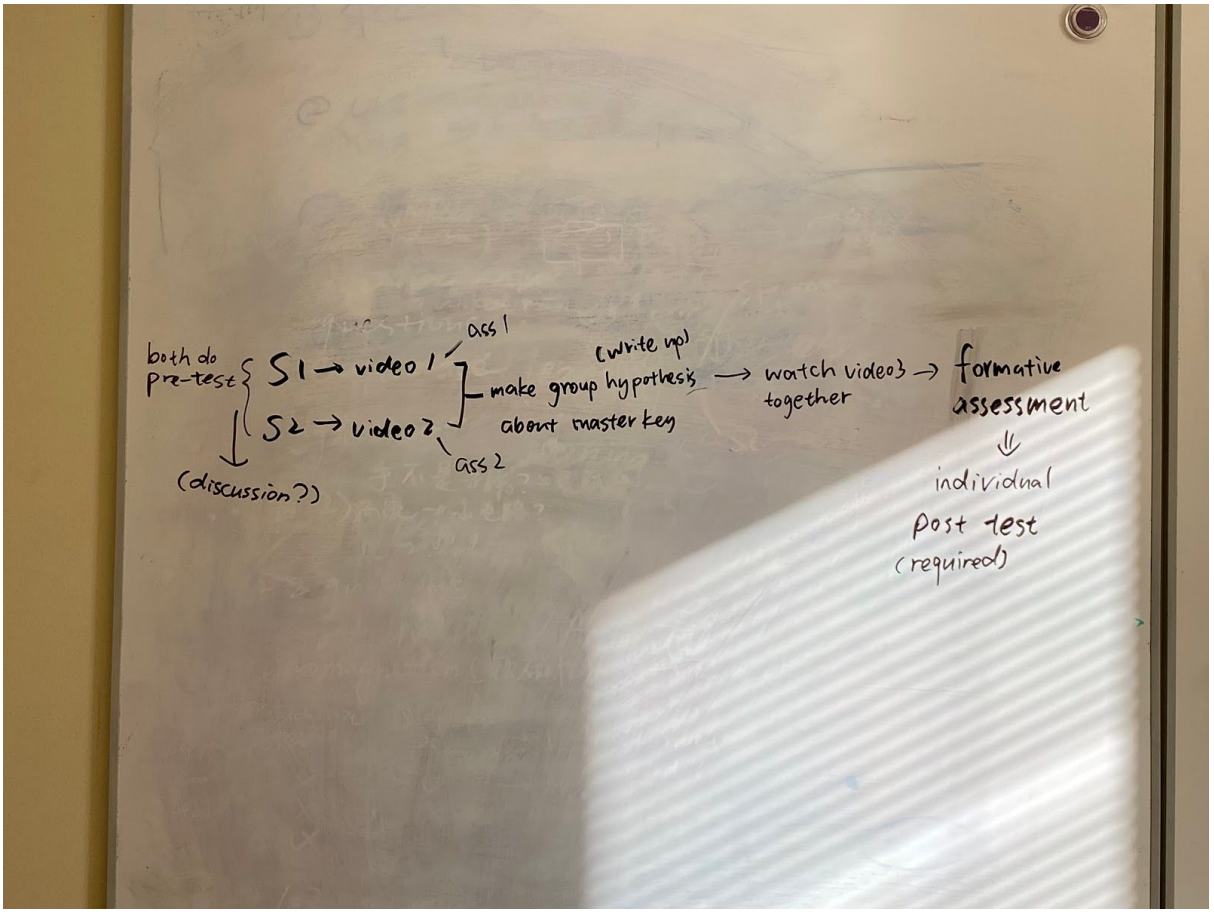
In the prior project, both video 1 and video 2 were about conceptual knowledge and only the last one tested knowledge transfer. We decided to combine **Jigsaw** and **Invent-and-Tell** in this project.

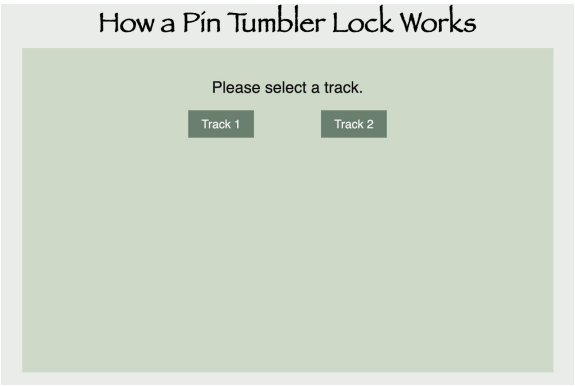
To complete this module, we need two people in a group. The process is:

1. The two learners do a pre-test in the beginning.
2. They watch video 1 and video 2 separately. Then they do the test for the video they watched.
3. After that, they are taught the concept of the Master key and do a group hypothesis about how it works. They need to share what they know and write down their hypothesis.
4. Then they watch video 3 together.
5. Then, they need to submit a group formative assessment about their hypothesis, the answer and why their idea is right/wrong.
6. Finally, they take post-tests individually.

Steps 3 & 4 are Invent-and-tell.

Steps 2,3 and 5 are Jigsaw.





Why it works

Learners are told at the very beginning that they will finish a group assignment and have an individual post-test at the end.

Their grades will be made up of

1. Individual performance (Refer to Pre-test and Post-test) and
2. Group performance (Refer to group assignment and partner's individual performance in post-test).

We can see students' individual learning ability from the test, which takes place after the video they watched separately. Also, we can learn where the partnered activity helps by looking at the final assignment and post-test.

By doing assessments graded by both individual and group performance, learners will have both positive interdependence and individual accountability.

Anticipated behavior

If it works well, we will see partners go through all the tasks, finish all the assignments, communicate with their partner successfully and learn a lot.

One assumption: We will see learning progress both from the group assignment and from tests (comparison of pre-test, individual test, and post-test).

Test Protocol

The prototype appears to be adopting the "two students" approach and it makes sense based on the analysis in the writeup. I would've liked to know more about how previous materials are adapted (or not) for this.

Protocol Times:

- 3.27 before 8:00 pm (Shujing & Yu)
- 3.28 at 5pm (Miaojun & Chenning)

Joe sends the link of Zoom room, playing with the breakout room function

5:00 pm:

1. First, meet Miaojun & Chenning, introduce a little bit, ask for permission for screen recording and screen sharing.
2. Keep them in separate breakout rooms. Neil will be in the room with Miaojun and Congying will be in the room with Chenning.
3. Ask people to look at the introduction first.
4. Tell Miaojun to take track 1 and Chenning to take track 2.
5. Send them the link of the prototype in Zoom - http://lioninawhat.com/how-an-everyday-object-works-collaborative/
6. Have the learner start screen sharing and we will start screen recording.
7. When we observe that they finished their video and tests, tell them to go back to the main room. Then Congying can keep recording till the end.

During observation, it's ok to answer any tech questions but we cannot help them with the prototype content.

Actual behavior (No need to take a careful look at all the notes, just pay attention to our improvement)

Test 1

Neil's Notes

Track 1
Yu (Alexa) Zhao
"Should I redo the pretest? Maybe not."
Script: Return to outside the breakout room, and Track 1 should share their screen with the people.

Collaborative session
"If you are sitting next to each other and not on Zoom, consider drawing some pictures ..."
"Is this supposed to be a discussion?" - it's not clear that they are supposed to collaborate on this page ... really? On the master key hypothesis page.
Annotation feature for Zoom allows you to draw on the screen.
"I feel like there's no difference between the two locks." "It's the number of driver pins."

To do:

- Take into account whether they are sitting next to each other or doing the activity online? Modify text to take into account both cases?
- Perhaps make it more explicitly stated on the Predict Master Key Hypothesis page that they should collaborate ... sort of like a reminder.
- Ask them: What is the key feature that differentiates the master key system? (Should we do this?)
- Do something with self-efficacy at the hypothesis session.

Joe's Notes

- Part 1 is done much slower than part 2
- "wow too much text" (referring to hypothesis prompt)
- "How can I draw on this?"
- What is this box for? Where should we draw?
- We should draw elsewhere
    - UNEXPECTED - They used zoom annotate to achieve their collaborative discussion/drawing
- "What is a master key?" - we need some more context/base bg knowledge>
- They worked together to understand the video; the video wasn't totally clear on how they are different

30 min to finish course

Confused about "average score for team"

Too text heavy, esp for the collaboration
Intro page is too text heavy
Alexa didn't see the intro page, so didn't know there would be tests

Master key/master key system seem like two different things;

It’s difficult to make the hypothesis; like there isn't enough information prior to it to make a correct hypothesis

I understand it, but I'm not very confident about my knowledge

Not face to face is kind of hard; esp for components

Not sure how it would work even if we were face to face

Formative assessments might be better if questions were broken down; one question at a time

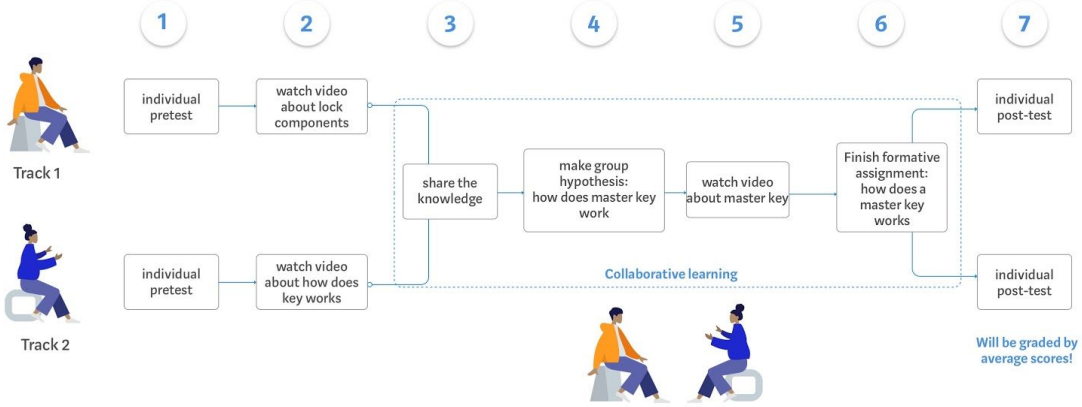
Yes but maybe it's because shujing knows the content
Shujing felt there was some learning by teaching and clarifying the concepts she already knew

Feedback is not that obvious

Default answer for q2 shouldn't be "spring"

Improvements we made

1. Change the protocol and ask people to read the introduction first. Tell them the track after that.
2. Have a picture of the whole process instead of the words on the introduction page.



3. Add 2 pictures (one of case/plug, one of pins/springs side view) to hypothesis page

4. Add a line to encourage hypothesis creation; it's not about correctness. Make it more explicitly stated on the Predict Master Key Hypothesis page that they should collaborate ... sort of like a reminder.
5. Add words like 'It is okay to make mistakes here, click continue to learn about the lock!' in the pre-test. Clarify that they should just go to the next screen after completing the pretest.
6. On FA3 - Ask them: What is the key feature that differentiates the master key system?

Test 2

Track 1 - Miaojun found a typo on the post-test, which was fixed - "pin" was not correct; the typo was pluralized.
Track 2 -

1. The learner assumed that she would learn something before the pre-test, but she didn't, so she felt so bad during the test. But she noticed the encouraging words at the end of the pre-test session.
2. She thought that the video was so fast and she replayed it to figure out what the video taught. She wants subtitles for the video.
3. In the collaboration session, people collaborate well using the pictures when explaining the components. But they have trouble explaining how the key works (the knowledge of a process) online.
4. The watching video session and the follow up formative assignment part went well: the learners discussed with each other about the assignment and decided to go back to the video and rewatch it. Both collaborative learning and learner control work.
5. After the post test, learners said that they felt accomplished because of the big progress from pre test and post test.

What we can improve in the future

1. Add subtitles in the video.
2. Put the encouraging words of pretest in the beginning.
3. Improve wording of the prototype.
4. Improve layout and visuals of the prototype.