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CS465 – HMWK 5
Overview of the Interfaces

Interface 1)

In this interface, the user is given a static end time for taking notes when the video is uploaded. When the user uploads their video, the start time is set to 00:00 and the end time is set to 00:30 seconds. The idea behind this is to give the user predefined times that they can take notes in. Once the sections of time are loaded in, the user can control the end time of the section by clicking on the Lengthen Seg or Shorten Seg buttons at the bottom of the player. Clicking on the lengthen seg button will increase the end time by a second and clicking on the Shorten Seg. Button will decrease the end time by a second. Once the user submits the caption however, they are not allowed to edit either the start time or end time of the captions from the data grid. If they want to edit the times of the note, the user has to double click on the note to reload that segment and then change the time by using the buttons. Once the notes are stored in the log, the user has the option of editing the notes in log by double-clicking on the grid where the notes are and then changing them.

The user can interact with the video using the three video control buttons found below the video player. To play the video, the user will click on the right-most button. To pause the video at its current playhead time, the user will click on the middle of the three buttons, and to restart the video from the beginning, the user will click on the left-most of the three buttons.
The user can also use keyboard shortcuts in this interface to both interact with the player as well as submit notes. The keyboard shortcuts are shown to the left hand side of the notes log.

The user can also control the volume of the video by interacting with the vertical slider found on the left hand side of the video player. By dragging the slider upwards, the user can increase the volume.

The video’s playback can also be controlled by the user by interacting with the horizontal slider found on the bottom of the video player. By dragging the slider leftwards, the user can allow for the video to jump ahead to a certain section. Once the video starts playing, a display will show up next to the Reload button that will display the video’s current playtime over the total time of the video. This will give users an idea of how much of the video is still left to play.

Once the user has stored notes into the notes log, they can double click on the notes to get the video to start playing back at the start time of the certain note. This allows for the user to go back to where they took notes and revise them.

Interface 2)

In this interface, the user is given a dynamic end time for taking notes. When the user uploads their video, the start time is set to 00:00 and the end time is set to the video playhead time. The idea behind this is that, whenever the user is done taking notes for a
certain section, they can just click the submit button and have their notes stored in the log with the end time being where they clicked submit. Once the notes are stored in the log, the user has the option of editing the notes in the log. By double-clicking on the grid, the user can change the end time and the notes of a certain section.

The user can interact with the video using the three video control buttons found below the video player. To play the video, the user will click on the right-most button (labeled >). To pause the video at its current playhead time, the user will click on the middle of the three buttons (labeled ||), and to restart the video from the beginning, the user will click on the left-most of the three buttons (labeled Reload).

The user can also control the volume of the video by interacting with the vertical slider found on the left hand side of the video player. By dragging the slider upwards, the user can increase the volume.

The video’s playback can also be controlled by the user by interacting with the horizontal slider found on the bottom of the video player. By dragging the slider leftwards, the user can allow for the video to jump ahead to a certain section. Once the video starts playing, a display will show up next to the Reload button that will display the video’s current playtime over the total time of the video. This will give users an idea of how much of the video is still left to play.

Once the user has stored notes into the notes log, they can double click on the notes to get the video to start playing back at the start time of the certain note. This allows for the user to go back to where they took notes and revise them.
Pre-study questionnaire

1. What is your gender? Please bold one.
   - Male
   - Female

2. How old are you?

3. What is your ethnicity? Please bold one.
   - Asian
   - Caucasian
   - Indian Subcontinent
   - American Indian/Alaskan Native
   - African American
   - Pacific Islander
   - Hispanic/Latino
   - Other (Please specify ____________________)

4. Have you ever captioned a video before? Please bold one.
   - Yes
   - No

5. If yes, in what context...
   - Who was the video for?
   - Which format was it?
   - How long was it?
   - What was the reason for captioning?

6. Have you ever taken notes on an online lecture before? Please bold one.
   - Yes
   - No

7. How often do you interact with video players online? (Please bold one)
   - Once a month
   - Once a week
   - Two or three times a week
   - Everyday
   - Never
Post-study questionnaire

1. Which interface did you like the most? Why?

2. Did you find the shortcuts in Interface 2 helpful in interacting with the player?

3. Which time-stamping interface were you more comfortable with?

4. What problems, if any, did you encounter when dealing with each interface?
   a. Interface 1
   b. Interface 2

5. What would you suggest be done to improve the interfaces?
Script for Study

**Shalu:** Hi. Thank you so much for helping us with our study. We will be showing you a piece of software that is used to take notes during lecture. This study will take approximately 20 minutes. Please fill out this questionnaire first before we begin the study.

**[Hand out survey. Give users 10 minutes to complete it. Collect survey]**

**Theresa:** Thank you for filling that out. Now we will explain to you our tool.

**[Pull up tool on computer so that the user can see it]**

**Theresa:** Using our tool you can watch lecture videos [Point to screen to show where the videos will show] and type up notes. You will see that you can have a start and end time for each part of your notes. That will indicate where in the lecture you are writing the notes for. Once you type in a segment of the notes you can press the submit button or the enter key and the notes will show up on a list. You can then edit each segment that you create by just clicking on that note segment in the list.

**Shalu:** We would like you to carry out certain tasks on two interfaces for this tool. From our results we hope to see which interface is more user-friendly. So if you could take a look at interface one. This interface has a start and end time and a notes box where you can type in notes for each segment. A default end time will be provided (30 seconds after the start time). However this can be incremented or decremented using the lengthen and shorten segment buttons. As mentioned before once you press submit, the notes that you input as well as the start and end time will appear in a list. You can go to different segments of your video by clicking on the items in the list.

**Theresa:** For the second interface the end time will be dynamic. This means that as the video is playing the end time will be changing so that it’s the same as the current position in the video. In the same way as in interface one you can press submit button or enter key and the notes for that segment will be placed in a list which you can access.

**Shalu:** Now, I will start explaining the task.

**[Start explaining the tasks]**
Description of Tasks

**Task 1: Playback Video**

For the first task we would like you to test the video player. This task should take about 5 minutes. If you have any questions please feel free to ask us.

First we'd like you to upload a video.

After you have uploaded the video we'd like you to play the video.

After 20 seconds have gone by in the video pause it.

After pausing the video play it again from its current position.

Drag the playback back to 20 seconds.

Increase the volume to the maximum possible value.

Now try reloading the video.

**Task 2: Add and Edit Notes**

For the second task we would like you to add and edit notes. This task should take around 10 minutes. If you have any questions please feel free to ask us.

First we'd like you to upload a video.

After you have uploaded the video we'd like you to play it.

We would like you to type in the word ‘hello’ in the notes box for a time segment of 30 seconds, and then go back and change the end time to be 20 seconds.

For interface 1: This can be done by submitting the note with the original timestamp and then changing the time by changing the log.

For interface 2: This can be done by writing in the note and then using the shorten segment button to change the end time to 20 seconds.

Type in 'World' in the notes box and submit it after the next minute.

Now go to the first notes segment in the list and edit the note to say 'Hi' instead of 'Hello'.
Description of Metrics Used for Data Analysis

When creating our interface there were many design decisions that were difficult to make and we hoped that through this study our test subjects would help us see which design elements were more user-friendly than others.

Our first design problem was the buttons for the video player. We wanted the buttons to be intuitive and easy to find and use. Therefore, we designed our first task to identify problems with the video controls. We thought using short cuts would make our tool easier to use. This way, while people are typing they wouldn't have to go to the mouse to control the video player. Users could just continue typing by using the keyboard shortcuts.

However, we were not sure if the keys we chose were easy to use or in good locations on the keyboard. So, we asked the test subjects to control the video player using the one interface that used shortcuts and the second that used the buttons. In our questionnaire we asked them if they felt the shortcuts were helpful. We also observed the test subjects while they were working through this first task to see if they made errors with the shortcuts. We also wanted to make sure that our buttons were well labeled and intuitive. So, as part of our tasks we made them test out each of the controls for the video player. We didn't explain to the test subjects where the buttons were in the tool so that we could see if their locations were intuitive. During the study we watched the subjects to see if they clicked the right buttons for each of the button controls. We also wanted to make sure that sliders were easy to use and find. Again in the tasks we asked them to drag the playback control and to change the volume. Any user problems with the sliders were noted.

Our second design problem was how to let the users create, store and edit the notes they take. In our second task we asked them to create notes for a certain time segment, store it and then later edit it. We watched the test subjects to see if they made errors. An error would be if they loaded the note in at the wrong time. We made sure to explain both time stamping methods to them so that we could compare the two interfaces. We also had a question on the questionnaire asking them which time stamping interface they liked. This way, we were able to see how well they did and also get feedback on how they felt about both methods.

For all the tasks we had one of us recording while the other person read out the instructions and answered questions.
Raw Data - Notes

[Subject 1]

Task 1: Interface 1
- Thought reload was upload
- Asked about sound
- Instead of 20secs, moved the playhead to 19.91
- The keyboard shortcuts weren’t working for some reason, perhaps she wasn’t clicked onto the browser

Task 2: Interface 1
- To change time stamps, first submitted then went to the list and brought back the segment and then changed the time stamp and pressed the submit button again
- Thought the notes log was the notes box

Task 1: Interface 2

Task 2: Interface 2
- Didn’t know what time stamping was – so was a bit confused

[Subject 2]

Task 1: Interface 1
- After using the first interface that was presented to him(Interface 2), he found it difficult finding the time on the second interface (different place on both interfaces).
- Was confused with no shortcut for upload (since there were shortcuts for everything else).

Task 2: Interface 1
- Didn’t realize that the end time wasn’t changing dynamically

Task 1: Interface 2
- Pressed pause by accident instead of play
- When dragging the playback went back to 20.27seconds.
- Found it hard to find the volume scroll
- Tried using the upload button instead of the reload button when asked to reload the video.

Task 2: Interface 2
- When asked to submit the word ‘Hello at 20 seconds he typed in ‘Hello’ and submitted it at 10 seconds and then changed it to 20 seconds in the log
[Subject 3]

Task 1: Interface 1
- Thought that play was ‘ctrl p’ instead of ‘ctrl t’ even though it is written.

Task 2: Interface 1
- Didn’t realize you could use lengthen and shorten segment buttons to change the time segments
- She tried using the notes box to edit the notes instead of the log although mentioned in the in the script in the beginning

Task 1: Interface 2
- Moved the mouse to upload instead of reload but then caught herself

Task 2: Interface 2
- Commented on how she couldn’t delete a note
Raw Data – Screen Shots

[Subject 1]
Interface 1:

[Subject 2]
Interface 2:
[Subject 2]
Interface 1: Don’t have screen shot because browser was accidentally closed.
Interface 2:

[Subject 3]
Interface 1: Don’t have screen shot because browser was accidentally closed.
Interface 2:
Data: Pre-Study Questionnaires

[Subject 1]
Pre-study questionnaire

1. What is your gender? Please bold one.
   • Male
   • Female

2. How old are you?
   21

3. What is your ethnicity? Please bold one.
   • Asian
   • Caucasian
   • Indian Subcontinent
   • American Indian/Alaskan Native
   • African American
   • Pacific Islander
   • Hispanic/Latino
   • Other (Please specify ____________________)

4. Have you ever captioned a video before? Please bold one.
   • Yes
   • No

5. If yes, in what context...
   • Who was the video for?
   • Which format was it?
   • How long was it?
   • What was the reason for captioning?

6. Have you ever taken notes on an online lecture before? Please bold one.
   • Yes
   • No

7. How often do you interact with video players online? (Please bold one)
   • Once a month
   • Once a week
   • Two or three times a week
   • Everyday
   • Never
[Subject 2]
Pre-study questionnaire

1. What is your gender? Please bold one.
   • Male
   • Female

2. How old are you? 20

3. What is your ethnicity? Please bold one.
   • Asian
   • Caucasian
   • Indian Subcontinent
   • American Indian/Alaskan Native
   • African American
   • Pacific Islander
   • Hispanic/Latino
   • Other (Please specify ____________________)

4. Have you ever captioned a video before? Please bold one.
   • Yes
   • No

5. If yes, in what context...
   • Who was the video for?
   • Which format was it?
   • How long was it?
   • What was the reason for captioning?

6. Have you ever taken notes on an online lecture before? Please bold one.
   • Yes
   • No

7. How often do you interact with video players online? (Please bold one)
   • Once a month
   • Once a week
   • Two or three times a week
   • Everyday
   • Never
[Subject 3]
Pre-study questionnaire

1. What is your gender? Please bold one.
   - Male
   - Female

2. How old are you? 20

3. What is your ethnicity? Please bold one.
   - Asian
   - Caucasian
   - Indian Subcontinent
   - American Indian/Alaskan Native
   - African American
   - Pacific Islander
   - Hispanic/Latino
   - Other (Please specify ____________________)

4. Have you ever captioned a video before? Please bold one.
   - Yes
   - No

5. If yes, in what context...
   - Who was the video for?
   - Which format was it?
   - How long was it?
   - What was the reason for captioning?

6. Have you ever taken notes on an online lecture before? Please bold one.
   - Yes
   - No

7. How often do you interact with video players online? (Please bold one)
   - Once a month
   - Once a week
   - Two or three times a week
   - Everyday
   - Never
Data: Post-Study Questionnaires

[Subject1]
Post-study questionnaire

1. Which interface did you like the most? Why?
   I preferred the second interface to the first one because it had a dynamic end time. Also, it is easier to edit the length of the note by editing the note rather than using the shorten and lengthen buttons.

2. Did you find the shortcuts in Interface 1 helpful in interacting with the player? Yes, they are simple to use. It would just take a little while to memorize and get used to using the shortcuts, but from then on I believe it would be helpful.

3. Which time-stamping interface were you more comfortable with? I felt more comfortable with the interface with the dynamic end time.

4. What problems, if any, did you encounter when dealing with each interface?
   Interface 1 (Shortcut interface)
   I had a little trouble when trying to shorten the time for the first note. Instead of editing the first submission, there were two notes in the log. I was not able to find the reload button right away.

   Interface 2 (Dynamic)
   When I clicked on the log entry to edit it, the video segment of the entry played again. Also, then the note text box had the old text that had to be deleted before entering a new note.

5. What would you suggest be done to improve to the interfaces? If possible, it would be useful to have an edit button when the user wants to edit the note entry. That way the note can be viewed by double clicking it, and can be edited by hitting the edit button first then clicking on the log entry.
[Subject 2]  
Post-study questionnaire

1. Which interface did you like the most? Why?
   I liked the second interface better. I liked the fact that I could just type the end time and not have to press lengthen and shorten buttons in order to change the duration of the time.

2. Did you find the shortcuts in Interface 1 helpful in interacting with the player?
   I found the shortcuts very helpful. The keyboard shortcuts could be listed in a different spot. I couldn’t spot it in the beginning.

3. Which time-stamping interface were you more comfortable with?
   The automatic time stamping without the lengthen and shorten buttons were helpful.

4. What problems, if any, did you encounter when dealing with each interface?

   Interface 1
   • I didn’t realize that the volume bar was the volume bar.
   • It was hard for me to realize where the reload button was

   Interface 2
   • I didn’t like the scheme to lengthen and shorten the note segment with buttons
   • I think it might just be intuitive to have the submit shortcut as enter instead of z.

5. What would you suggest be done to improve to the interfaces?
   • I would like the notes text box to be bigger.
   • The reload button could be located in a better spot
   • There could be a volume icon by the volume bar
[Subject 3]
Post-study questionnaire

1. Which interface did you like the most? Why?
   Interface #2. I liked that it recorded the end time based on when I submitted the note; this is very intuitive. I also like that the notes box is bigger.

2. Did you find the shortcuts in Interface 1 helpful in interacting with the player?
   Not at first because I wasn’t familiar with them. I think that after getting used to them and using this player on a regular basis, I would get used to the shortcuts and would find them very useful.

3. Which time-stamping interface were you more comfortable with?
   Interface #2 with the dynamic stamping. I think that if I wanted to reduce the amount of time in Interface #1 by 10 seconds, I don’t want to have to click on “Shorten segment” 10 times.

4. What problems, if any, did you encounter when dealing with each interface?

   Interface 1
   - I wasn’t used to the shortcuts, so they were hard to use at first.
   - I can double click to edit the contents in the note, but I can’t double click to add the time.
   - The note box is too small which makes me think that I can’t write really long notes.
   - I can’t delete a note.

   Interface 2
   - I can edit the end time by double clicking on the chart, but I can’t edit the start time.
     I can’t delete a note.

5. What would you suggest be done to improve to the interfaces?

   I think that once a note is submitted, the popup is a little distracting. Also, there should be a way to delete a note.
Interpretation of Results

As designers of our tool, it was hard to critique and find faults with our design. However after carrying out our study we were able to solve design problems we had and also find new issues with our design. From our questionnaire and observations we were able to see which interface was more user-friendly, as well as ask for improvements for our tool.

To decide which interface was better we graphed the results of the errors performed for each interface. From our graph it can be seen that overall, Interface 2 did better than Interface 1. However, it is not enough just to look the graphs to decide this. We have to take into account that for Subject one and Subject three, Interface 1 was shown first, while for Subject two, Interface 2 was show first. Once the user has gotten used to one interface, they won't make the same mistake on the second interface shown to them, even if there exists the same design flaws. This is because the user has learned from the first interface shown to them. Therefore, we have to analyze the errors that occurred in both interfaces.

We have to analyze the errors that occurred that are dependent on the differences of the interfaces. For example, all three subjects reloaded the video incorrectly. They were confused with the upload and reload button. As part of task 1 when we asked the users to reload the video all three of them tried to use the upload button. Since they had used that button in the beginning of the task they knew where that button was located and didn't look for a different button to reload the video. So regardless of which interface was shown first, we found that this error always occurred. It is independent of the interface because the reload button is located in the same location for both interfaces.

Combining our questionnaire with the error results will help us more fully understand the pros and cons of each of our interfaces. Our first task tested out the controls for our video player. From our questionnaire, we found that all three of our tests felt that shortcuts would be easier to use than buttons. But, two of them mentioned that there would be a learning curve. This goes along with what we thought. It's easier to use shortcuts so you don't have to move your hands away from the keyboard while you are typing. One of the test subjects mentioned that the key for using the shortcuts should be placed in a different location so that they could be seen more clearly. One subject did make an error when using the shortcuts. She used 'ctrl p' (which is the shortcut for pause) for play instead of 'ctrl t'. Again like mentioned above, we agree with the test subjects that once people learn the shortcuts we feel that they will become easier to use.

Another problem we found while observing Subject 2 was that he couldn't find the volume slider. What made him different from the other two test subjects was that he used Interface 2 before he used Interface 1. For interface 1 the slider is easier to see (because it is smaller and closer to the controls) so, when Subjects 1 and 2 went on to Interface 2, they could find the slider since it's located around the same place but just looks different. From these results we see that the volume slider on interface 1 is better.
The next sets of results pertain to our second task. We were testing two different ways to create, store and edit notes. We were surprised to see that each user created, stored and edited the notes in a slightly different way. However, all three of them felt that the Interface 2 was better. From the questionnaire, we found that they thought dynamic time stamping was better. From Subject 3, we found that having to lengthen and shorten segments can be annoying. Due to this we will be using dynamic time stamping when creating note segments.

From our results we see that a combination of the interfaces will create a better tool. The test subjects liked the shortcuts found on Interface 1 and then liked the time stamping method used on Interface 2. We will also need to take into account the design issues that came up like the location of the reload button as well as the volume slider.
Data Analysis

Errors made by subject

![Bar chart showing errors made by subject for Interface 1 and Interface 2.](Image)
Users did not like editing the time stamp with the Lengthen and Shorten buttons. They preferred the dynamic tracking of end times.

Users had a hard time finding the Reload button — they thought it was the same thing as the Upload button.

Users found the volume bar hard to find because it was not labeled.

Users did not like having the time shown on top of the video. All three users had a hard time locating it.
Users had a hard time finding the Reload button – they thought it was the same thing as the Upload button.

Volume bar should be distinctly labeled with a volume (speaker) symbol. Users also preferred the smaller bar from Interface 1 over this longer version.

Users preferred the dynamic way of capturing end time over the way used in Interface 1. They thought it was more convenient than manually changing the end time.
Recommendations on Improving the Interface

A list of recommendations we got from our subjects:

- Bigger text box for editing notes
- Moving the Reload button closer to the Upload button so it is more visible
- Having a volume icon by the volume bar
- Making an edit button for the data grid so the user can click on this button to edit data if they don’t want the segment of the video the be played again
- Creating a button to delete a note