Assignment P1
CS6750: Summer 2020

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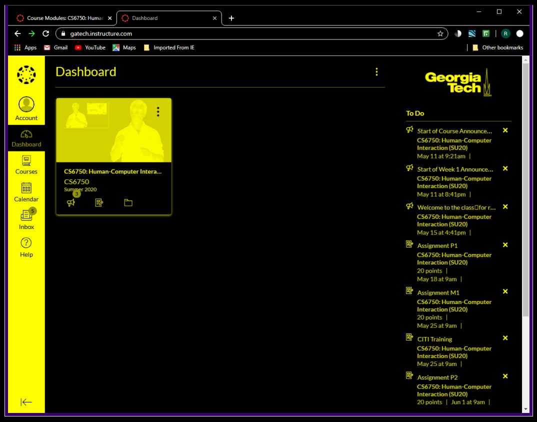
1 QUESTION 1: ROLES

I'd like to discuss the Canvas interface within the context of the processor and predictor role models. I chose Canvas for its rich set of actions the interface contains.

1.1 Canvas: From the Perspective of a Processor

The processor model is concerned with objective, measurable outcomes. Efficiency will be evaluated for accomplishing user tasks via the interface Canvas provides for each task. Upon a successful login to Canvas, the user is greeted with the dashboard. This is a logical place to land, as the user can access their course from this location.



Start of Course Announce...
CS6750: Human-Computer Interaction (SU20)
May 11 at 9:21am |

Start of Week 1 Announce...
CS6750: Human-Computer Interaction (SU20)
May 11 at 8:41pm |

Welcome to the class□for r...
CS6750: Human-Computer Interaction (SU20)
May 15 at 4:41pm |

Assignment P1
CS6750: Human-Computer Interaction (SU20)
20 points |
May 18 at 9am |

Assignment M1
CS6750: Human-Computer Interaction (SU20)
20 points |
May 25 at 9am |

CITI Training
CS6750: Human-Computer Interaction (SU20)
May 25 at 9am |

Assignment P2
CS6750: Human-Computer Interaction (SU20)
20 points | Jun 1 at 9am |

Figure 1: Canvas Dashboard

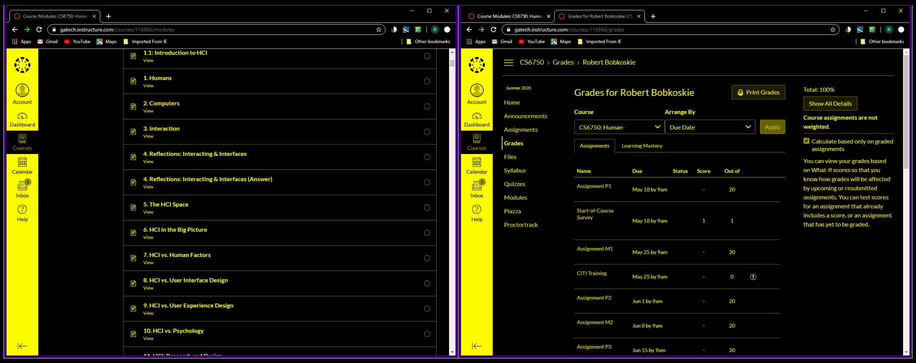
After a course is selected, the user can choose course specific tasks from the left pane, See figure 2 on page 2. Thus far, accessing tasks from the Canvas the interface has been efficient.

From this point, I'll focus the efficiency of interfaces available to the user after course selection. For this discussion, efficiency will be **quantitatively** assessed from the users perspective while performing actions. I'll choose examples of interfaces that are efficient to this user and contrast with less efficient interfaces.

Accessing Piazza from Canvas is an example of efficient task. The user is presented with a link labeled Piazza, and when a user clicks it, the Piazza interface is made available. This is efficient in that the user does not need a separate login to Piazza, which saves time. Similarly, accessing Protortrack is also efficient. As with accessing Piazza from Canvas, accessing Protortrack saves the user time by eliminating Protortrack login through another browser instance.

Let's discuss performing some tasks on Canvas that are not so efficient. As with the tasks that are efficient, these inefficient tasks will share a similar source to their inefficiency. The two examples I chose to demonstrate inefficiency are the Modules and Grades interfaces, although other interfaces are likewise inefficient [Assignments, Files, Quizzes, ...].

The reason for this inefficiency are the long pages of information that are presented to the user. There is not consolidation of information. Thus, to perform a task, such as accessing a grade, the user must scroll down through the pages(s) of information to locate it. This is even more pronounced in the latter half of the semester, when many assignments, quizzes and tests scores have accumulated.



1.1: Introduction to HCI
View

1. Humans
View

2. Computers
View

3. Interaction
View

4. Reflections: Interacting & Interfaces
View

4. Reflections: Interacting & Interfaces (Answer)
View

5. The HCI Space
View

6. HCI in the Big Picture
View

7. HCI vs. Human Factors
View

8. HCI vs. User Interface Design
View

9. HCI vs. User Experience Design
View

10. HCI vs. Psychology
View

Grades for Robert Bobkoskie

Course: CS6750: Human-

Arrange By: Due Date

Name	Due	Status	Score	Out of
Assignment P1	May 18 by 9am		-	20
Start-of-Course Survey	May 18 by 9am		1	1
Assignment M1	May 25 by 9am		-	20
CITI Training	May 25 by 9am		-	0
Assignment P2	Jun 1 by 9am		-	20
Assignment M2	Jun 8 by 9am		-	20
Assignment P3	Jun 15 by 9am		-	20

Total: 100%

Course assignments are not weighted.

☑ Calculate based only on graded assignments

You can view your grades based on What-If scores so that you know how grades will be affected by upcoming or resubmitted assignments. You can test scores for an assignment that already includes a score, or an assignment that has yet to be graded.

(a) Canvas Modules Interface

(b) Canvas Grades Interface

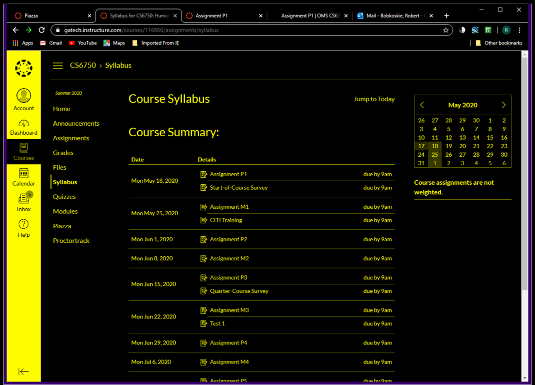
Figure 2: Canvas Inefficient Interfaces

1.2 Canvas: From the Perspective of a Predictor

The predictor model is concerned with what a user predicts will be the outcome of an action, and whether the user can interpret if the outcome matched the users predicted outcome. The focus of this analysis will be on the users perception and interpretation on task selection and whether the selected task was successful.

The Piazza and Syllabus interfaces will be analyzed in the context of the predictor model. If a user selects Piazza, the Piazza interface is rendered to the user. The matches a users prediction of the task. That is, if a user knows what Piazza is, by clicking a link to Piazza, the user would expect to have access to Piazza, which, in fact, is the end result of the task.

In contrast, if a user chooses to access the Syllabus, a virtual syllabus is displayed, which does match the expects output from the users perspective. However, the calendar application in the upper right portion of the screen does not meet a users expectations. If a date in the calendar is clicked, nothing happens. A user may predict that by clicking a date in the calendar, that the user would be directed to that date in the syllabus.



Course Syllabus

Course Summary:

Date	Details	
Mon May 18, 2020	Assignment P1	due by 9am
	Start-of-Course Survey	due by 9am
Mon May 25, 2020	Assignment M1	due by 9am
	CITI Training	due by 9am
Mon Jun 1, 2020	Assignment P2	due by 9am
Mon Jun 8, 2020	Assignment M2	due by 9am
Mon Jun 15, 2020	Assignment P3	due by 9am
	Quarter-Course Survey	due by 9am
Mon Jun 22, 2020	Assignment M3	due by 9am
	Test 1	due by 9am
Mon Jun 29, 2020	Assignment P4	due by 9am
Mon Jul 6, 2020	Assignment M4	due by 9am
	Assignment P5	due by 9am

May 2020

26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

Course assignments are not weighted.

Figure 3: Canvas Syllabus

1.3 Summary and Conclusions for Processor and Predictor Models

This section will propose enhancements to the Canvas interface based on analysis of the processor and predictor models with respect to the Canvas interface.

1.3.1 *Analysis: Processor Model*

To improve the task efficiency of the Canvas interface, web-pages can have a more consolidated, hierarchical information pattern. Compressing how data is displayed to the user would speed-up or even eliminate the screen scrolling and parsing of information.

1.3.2 *Analysis: Predictor Model*

The predictor model is not about interfaces predicting user intentions. The predictor model is about paying attention to what the user predicts the outcome of their action will be, and how they will interpret what they see after their action is complete. Let's revisit the calendar application in the Syllabus interface (see figure 3 on page 3). To achieve a users predicted outcome, the calendar application might redirect the user to the appropriate date within the syllabus. As a corollary, from the perspective of the processor model, this would also enhance efficiency.

2 QUESTION 2: CONTEXTS

Some interfaces are designed for activities that exist in different contexts. For this discussion, let's explore tactile human computer interface within the context of a global pandemic such as the current Coronavirus crisis as well as within the context prior to the Coronavirus. Tactile interfaces for this discussion are touch access information screens such as those found in automobiles, ATMs and elevators.

2.0.1 *Tactile Interfaces: Pre-Coronavirus*

Within the context of pre-Coronavirus, tactile interfaces such as an ATM screen provided efficient and predictable results for a given task. A user could enter a PIN, confirm identity in order to access bank account parameters. This was a more secure solution than an ATM audible interface. Having a user speak their PIN is not the most secure option for protecting personal and private information. While entering information through a purely visual interface would present even greater hurdles to both feasibility and efficiency.

2.0.2 *Tactile Interfaces: Post-Coronavirus*

In the post-Coronavirus context, tactile interfaces require additional safeguards beyond personal information security. In this context, the act of performing a task using a tactile interface may infect the user or, if the user is infected, spread the virus. A user may choose to utilize a glove in order to adjust to the new context. This may in turn diminish efficiency, as a gloved hand does not provide the same stimulus to the user as a naked hand. As mentioned, visual and audible approaches may not be feasible. Also, something like the use of a no-touch, but heat activated interface may not be obvious to the user. That is, tactile interfaces have relied on touch for a long time, and a user may not be aware of a novel solution to detect the heat from a finger without actually touching the interface.

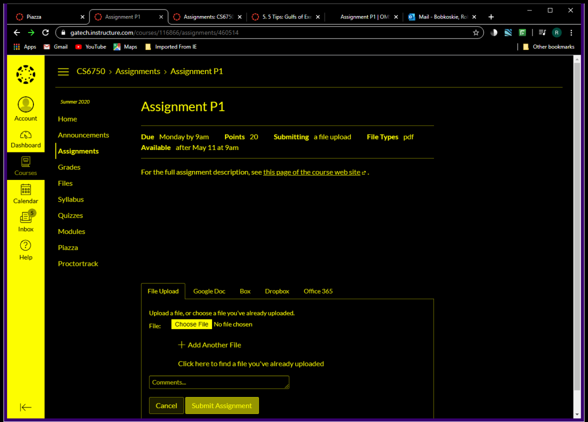
3 QUESTION 3: FEEDBACK CYCLES

For each of the three stages of the gulf of execution and evaluation, I'll describe how Canvas either successfully carries the student across that stage, or in what way it fails to carry the student across that stage.

3.0.1 *Gulf of Execution: Identify Intentions*

Identifying the intent of submitting an assignment through Canvas is well suited for the novice user. The parameters for the intent of performing the task of submitting an assignment are defined in the submission interface. Some parameter aide a users intent to submit an assignment: due date, file type. Other parameters such as: availability of assignment, submitting and points may not help the users intent for assignment submission. Some parameters that could refine a users intent to submit an assignment would be requirements related to:

- File naming convention.
- Ate late submissions allowed?
  - Penalties for late submissions.
- Diaplay for users current time in the application.
- Are multiple submissions allowed?



Assignment P1

Due Monday by 9am **Points** 20 **Submitting** a file upload **File Types** pdf
Available after May 11 at 9am

For the full assignment description, see this page of the course web site.

Upload a file, or choose a file you've already uploaded.

File: No file chosen

Click here to find a file you've already uploaded

Figure 4: Canvas Assignment Intention

3.0.2 *Gulf of Execution: Identify Actions*

To submit an assignment, Canvas presents the user with a link to assignments in the left pane (See figure 2 on page 2). After clicking assignments, there is a large SUBMIT button that a user can press, which allows a user to upload and submit the assignment. To reach this state, Canvas allows a user to **experiment**, by making the functions **discoverable**. A user may explore several options within the interface to find the ”assignment submission path” I’ve described.

The process of uploading and submitting an assignment are a series of actions that are identifiable through user exploration, but could be streamlined to improve efficiency. For example, uploading multiple files for a submission via the choose file option is inefficient. A user must take multiple repeatable actions by choosing a single file and uploading in order to complete the assignment submission task. To make this task more efficient, the Canvas interface should be **consistent** with other applications that support multiple file selection for uploading.

3.0.3 *Gulf of Execution: Execute in Interface*

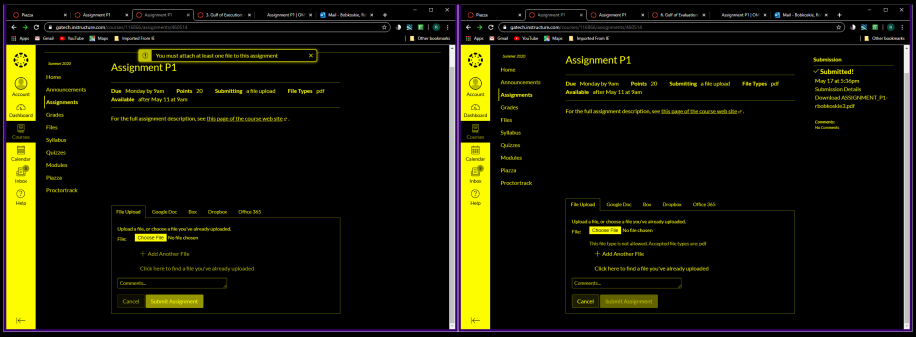
Through **exploration** of actions, a user can **discover** and execute in the interface to submit an assignment. To improve efficiency, some actions can be consolidated. Another approach would be to make the action of uploading a file more **consistent** with other application. Lastly, the application could be made more even more efficient by adjusting for a user. The process could take a **feed-forward** approach to adjust the submission process as a user gains experience with the application.

3.0.4 *Gulf of Evaluation: Interface Output*

To identify the process for assignment submission via Canvas a user navigates through a series of interfaces. The users intention is to submit an assignment, which is further refined by parameters presented to the user (See figure 4 on page 5), the user can visually identify links ”Assignments” and icons ”Submit Assignment”, ”Choose File”.

3.0.5 *Gulf of Evaluation: Interpret Output*

To bridge the gulf of evaluation, based on a users actions, Canvas provides relevant **feedback** to the user. For example, if a user attempts to submit an assignment without attaching a file, a message is displayed to the user. The helps the user **interpret** and correct tasks for assignment submission.



You must attach at least one file to this assignment

Assignment P1

Due Monday by 9am **Points** 20 **Submitting** a file upload **File Types** pdf
Available after May 11 at 9am

For the full assignment description, see this page of the course web site.

Upload a file, or choose a file you've already uploaded.
File: Choose File No file chosen

(a) Canvas Feedback: No File Attached

Assignment P1

Due Monday by 9am **Points** 20 **Submitting** a file upload **File Types** pdf
Available after May 11 at 9am

For the full assignment description, see this page of the course web site.

Upload a file, or choose a file you've already uploaded.
File: Choose File No file chosen
This file type is not allowed. Accepted file types are: pdf

Submission
✓ **Submitted!**
May 17 at 5:36pm
Submission Details
Download ASSIGNMENT_P1-rbobkoskie3.pdf

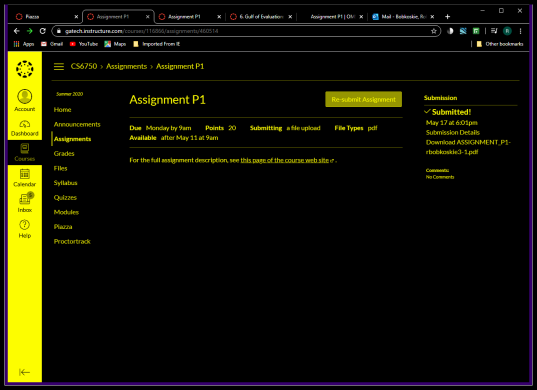
Comments:
No Comments

(b) Canvas Feedback: Incorrect File Type

Figure 5: Canvas User Feedabck

3.0.6 *Gulf of Evaluation: Evaluate Output*

Resubmitted file are labeled in a way that hinders the evaluation of a successful submission. For example, upon resubmission, submitted files have file names that have been modified by the application. This is confusing to the user and leads the user to conclude that they have not correctly submitted their files for an assignment. For example in figure 4, Canvas has renamed my file submission with a ”-1” extension.



Assignment P1

Due Monday by 9am **Points** 20 **Submitting** a file upload **File Types** pdf
Available after May 11 at 9am

For the full assignment description, see this page of the course web site.

Submission
✓ **Submitted!**
May 17 at 6:01pm
Submission Details
Download ASSIGNMENT_P1-rbobkoskie3-1.pdf

Comments:
No Comments

Figure 6: Canvas Assignment Renaming

4 QUESTION 4: APPLICATION GULF OF EVALUATION

The spellcheck interface in MS Word present a large gulf of evaluation to complete the task for correcting errors. I’ve identified the following factors within the interface that make the gulf of evaluation for correcting spelling or grammatical errors wide.

- The placement of the Ignore button shifts based on interface output. This inconsistent placement makes it challenging for the user **evaluate** whether a suggested correction was Ignored or executed.
- Replacement of grammatical errors is suggested, but not actionable. Because grammatical error are only suggested, a user may incorrectly **interpret** Word's suggestion as less important than a spelling error.
- Skipping of some text in text boxes is ignored. By requiring a user to repeatedly acknowledge the same error condition, **evaluating** the correctness of a document will be inefficient for the user.

An interface that does a better job of narrowing the gulf of evaluation is my old touch-tone phone. This interface, while not robust, has a twelve button interface plus an on-hook button that allow the user to easily identify interface output [dial tone, DTMF, busy tone]. Thus, user **evaluation** and **interpretation** of interface output is also simplified. For example, the task of making a phone call: a user would take the phone off-hook, hear the dial tone, enter some digits (hear DTMF) and place the call. Additional feedback following call initiation would be either a ring-tone or busy signal. The user feedback is immediate and constant which enables the user to modify actions throughout the task.

To improve the spellcheck interface and narrow it's gulf of evaluation, Word could implement the uniformity that the phone interface provides a user. By keeping the spellcheck interface more homogeneous, a user would be better able to **interpret** and **evaluate** the task of correcting a document.