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**Textbook Affordability Attestation Form**

# Usability Validation Plan

1.0

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## Document Overview

This document describes a test plan for conducting a usability test during the development of Textbook Affordability Attestation (TAAF). The goals of usability testing include establishing a baseline of user performance, establishing and validating user performance measures, and identifying potential design concerns to be addressed in order to improve the efficiency, productivity, and student satisfaction.

The usability test objectives are:

To determine design inconsistencies and usability problem areas within the user interface and content areas. Potential sources of error may include:

* + Navigation errors – failure to locate functions, excessive keystrokes to complete a function, failure to follow recommended screen flow.
	+ Presentation errors – failure to locate and properly act upon desired information in screens, selection errors due to labeling ambiguities.
	+ Control usage problems – improper toolbar or entry field usage.

Exercise the application or web site under controlled test conditions with representative users. Data will be used to access whether usability goals regarding an effective, efficient, and well-received user interface have been achieved.

Establish baseline user performance and user-satisfaction levels of the user interface for future usability evaluations.

The testing group will be recruited based on previously developed personas to help us cover a dynamic range of potential users. The testing itself will take place setup in a usability lab in room K071.

## Executive Summary

These usability testing sessions will require participants to preform outlined task by the moderator in order to setup or correct their TAAF for the current and following terms. We will gain insight into the overall design of the application and should identify if there are gaps in the user flow and to ensure that our users needs are met.

Upon review of this usability test plan, including the draft task scenarios and usability goals for eStaff TAAF, documented acceptance of the plan is expected.

## Methodology

We will be conducting qualitative testing with 3 test subjects in a usability lab set up in room K071. The room will consist of 2 cameras, one camera mounted to the computer to capture reactions and one mounted HD camera to capture room footage, 2 desktop PC’s, one for the tester and one for the moderators use to submit test parameters to the subject and record the cameras and testing screen. The moderator will use OBS to record all of the test footage and provide an observer in room K067 with the live feed of the moderators screen via RTMP streaming.

### Participants

Participants should be recruited on the basis of the previously provided personas. We will identify 9 month Instructors and Academic Assistants to participate.

The participants' responsibilities will be to attempt to complete a set of representative task scenarios presented to them in as efficient and timely a manner as possible, and to provide feedback regarding the usability and acceptability of the user interface. The participants will be directed to provide honest opinions regarding the usability of the application, and to participate in post-session subjective questionnaires and debriefing.

Participants will be provided by the ITS team with participants outside of IT. There are a set of email templates that can be sent out to parties involved including:

* Recruiting emails
* Confirmation emails
* Follow-up emails

### Training

Participants will be given a background scenario to explain their motivations for visiting eSanta Fe. The participants will receive and overview of the usability test procedure, equipment and software. Keeping in mind that this is only a design prototype at this point and may run into interaction issues.

### Procedure

Participants will take part in the usability test at K071 in Building K on campus. A desktop PC with the Web site/Web application and supporting software will be used in a typical office environment. The participant’s interaction with the Web site/Web application will be monitored by the facilitator seated in the same office. Note takers and data logger(s) will monitor the sessions in observation room, the test session will be streamed into room K067 via a secure RTMP streaming server. The test sessions will be videotaped.

The moderator will brief the participants on the application and instruct the participant that they are evaluating the application, rather than the facilitator evaluating the participant. Participants will sign an informed consent that acknowledges: the participation is voluntary, that participation can cease at any time, and that the session will be videotaped but their privacy of identification will be safeguarded. The facilitator will ask the participant if they have any questions.

Participants will complete a pretest demographic and background information questionnaire. The facilitator will explain that the amount of time taken to complete the test task will be measured and that exploratory behavior outside the task flow should not occur until after task completion. At the start of each task, the participant will read aloud the task description from the printed copy and begin the task. Time-on-task measurement begins when the participant starts the task.

The facilitator will instruct the participant to ‘think aloud’ so that a verbal record exists of their interaction with the Web site/Web application. The facilitator will observe and enter user behavior, user comments, and system actions in a notebook.

After each task, the participant will complete the post-task questionnaire and elaborate on the task session with the facilitator. After all task scenarios are attempted, the participant will complete the post-test satisfaction questionnaire.

## Roles

The roles involved in a usability test are as follows. An individual may play multiple roles and tests may not require all roles.

### Moderator

* Provides overview of study to participants
* Defines usability and purpose of usability testing to participants
* Assists in conduct of participant and observer debriefing sessions
* Responds to participant's requests for assistance

### Test Observers

* Silent observer
* Assists in identifying problems, concerns, coding bugs, and procedural errors.
* Serve as note takers.
* Record users actions and makes comments.

**Test Participants**

* Take part in the usability study
* Complete tasks outlined by the moderator
* Respond to questions before and after the study

### Ethics

All persons involved with the usability test are required to adhere to the following ethical guidelines:

* The performance of any test participant must not be individually attributable. Individual participant's name should not be used in reference outside the testing session.
* A description of the participant's performance should not be reported to his or her manager.

## Usability Tasks

The task descriptions below are required to be reviewed by the application owner, business-process owner, development owner, and/or deployment manager to ensure that the content, format, and presentation are representative of real use and substantially evaluate the total application. Their **acceptance is to be documented** prior to usability test.

|  |  |
| --- | --- |
| Task 1: Search for the Author | 8 seconds |
| As staff I want to locate a book by author Stephen Hawking. | Participant should opt to use the search area to type in the search parameter for Stephen Hawking. |
| The search area is the only touchpoint on the landing page of the TAAF. This limits the users options. |

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| Task 2: Navigate through Results | 5 seconds |
| As staff, I want to navigate through search results, so that I can browse available titles.  | The participant should add two results to their shortlist.  |
| The participant can also choose to clear that shortlist.  |

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| Task 3: Filter to Print Only Results | 8 seconds |
| As staff, I want to filter the results to show only print titles. | Participant should choose from one of the top two filters to show only copies available in print. |
| In the working MVP the user can filter additionally by average rating, affordability and availability. I don’t expect there to be many issues with filtering the results. |

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| Task 4: Create a Shortlist | 10 seconds |
| As staff, I want to create a shortlist, so that I can come back to my selections later. | The participant should add two results to their shortlist. |
| If they scroll the results, the shortlist could disappear as part of the design prototype.  |

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| Task 5: Add a Book to my Bag | 12 seconds |
| As staff, I want to add selected books to my shopping cart, so that I can begin the approval process. | User should click the “Add to Form” button associated with every result.  |
| There may be some questions around associating books with a selected course. That isn’t exactly displayed in the design prototype at this point.  |

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| --- | --- |
| Task 6: Assign Textbooks to Courses | 10 seconds |
| As staff, I would like to assign a number of textbooks to my course, so that the bookstore orders enough copies.  | User should go to the checkout screen and interact with the multi-select of available courses. Topics Math is preselected. |
| Physics courses are already selected for the second book in the book bag.  |

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| Task 7: Reuse a Textbook from Previous Term |  4 seconds |
| As staff, I would like to identify textbooks that can be reused from a previous term, so that I can maximize the savings for the students. | User should toggle the re-use switch above the quantity input on the checkout screen. |
| This affects various data around the prototype such as book price, overall price, number of total books and the tax amount. |

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| Task 8: Submit Textbook Selection | 6 seconds |
| As staff, I would like to submit my selections to the instructor, so that they can review before purchasing. | After the user has identified the number of books, the UX pattern is similar to a checkout process that submits to the instructor for approval.  |
| The user is met with a success ecosystem dialog that times out to the initial landing screen.  |

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| Task 9: Requesting a New Title | 30 seconds |
| As staff, I was unable to locate the book I need. | From the search results, the user should click the add a new title button, fill out the form and submit the new title. |
| This process should create a temporary database item send an automated message to the bookstore about the request.  |

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| Task 10: Review Submission | 30 seconds |
| As an instructor, I want to review the textbook selection, so that I can make changes as needed. | The instructor should review and verify the purchase of the books with a signature and submission to the bookstore. |
| User can make simple edits at this point in the process before submitting the form. |

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| Task 10: Edit Quantity of Books | 15 seconds |
| As an instructor, I was to edit the number of requested books. | User clicks the “Make an Edit” tertiary button and reviews the quantity number, then should click “Finish Editing”. |
| There is no step between “Make an Edit” and “Finish Editing”. The participant can continue from this point to approve. |

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| --- | --- |
| Task 11: Sign and Approve | 6 seconds |
| As a user, and now to my term has been setup I want to submit the current term. | User should click on the signature area in the right sidebar signing date and time. Then can select to approve the TAAF. |
| A snack bar dialog notes the form submission. An email with the attached information should be sent to the assistant, instructor and the bookstore. There could be a small window of time that the instructor/assistant can make an edit and re-submit the form. |

## Questions

### Pre-Test

Introduction and Clarification - “Do you have any questions before we start?”

Understanding Demographics – “Can you tell me about yourself?”

* What do you do?
* What is your involvement with the college?

“When was the last time you had to deal with the current TAAF process?”

### During Task/Test

“I noticed you [did a thing]. Could you please describe what happened at that moment?”

* What exactly did you do?
* Why did you take/choose that approach?

 “I noticed you tried interacting with [specific UI element] a couple of times, but nothing happened as a result. Can you tell me what your expectations were at that moment?”

“How did you find your experience of using the app to plan out your academic career?”

“How did you find the tone of the messaging in the application?”

“How easy is the academic plan to navigate?”

“What do you think of the layout of the content?”

Device Users - “How did you find the amount of scrolling you had to do in order to complete the task?”

“Why did you choose [A] and not [B]?”

“Would you agree that [A way of completing said task] is better than [way B]?”

“What do you think of the use of icons?”

* Do they offer helpful visual cues for tasks?

“How easy was it to complete this task? On a scale of 1 to 5, 5 being very confident and 1 being not very confident.”

### Post-Test

“How would you describe your overall experience now that you’ve completed a few tasks within the academic plan?”

“What did you like the most from the academic plan? Why?”

“What did you like the least about the academic plan? Why?”

“As you preformed the tasks, did you notice [UI componenets, brand, etc.] in any of the screens you saw?”

* What do you understand they relate to?
* Do you think they could help you do some of the tasks you did today during the study? How?

## Usability Metrics

Usability metrics refers to user performance measured against specific performance goals necessary to satisfy usability requirements. Scenario completion success rates, adherence to dialog scripts, error rates, and subjective evaluations will be used. Time-to-completion of scenarios will also be collected.

### Scenario Completion

Each scenario will require, or request, that the participant obtains or inputs specific data that would be used in course of a typical task. The scenario is completed when the participant indicates the scenario's goal has been obtained (whether successfully or unsuccessfully) or the participant requests and receives sufficient guidance as to warrant scoring the scenario as a critical error.

### Critical Errors

Critical errors are deviations at completion from the targets of the scenario. Obtaining or otherwise reporting of the wrong data value due to participant workflow is a critical error. Participants may or may not be aware that the task goal is incorrect or incomplete.

Independent completion of the scenario is a universal goal; help obtained from the other usability test roles is cause to score the scenario a critical error. Critical errors can also be assigned when the participant initiates (or attempts to initiate) and action that will result in the goal state becoming unobtainable. In general, critical errors are unresolved errors during the process of completing the task or errors that produce an incorrect outcome.

### Non-critical Errors

Non-critical errors are errors that are recovered from by the participant or, if not detected, do not result in processing problems or unexpected results. Although non-critical errors can be undetected by the participant, when they are detected they are generally frustrating to the participant.

These errors may be procedural, in which the participant does not complete a scenario in the most optimal means (e.g., excessive steps and keystrokes). These errors may also be errors of confusion (ex., initially selecting the wrong function, using a user-interface control incorrectly such as attempting to edit an un-editable field).

Noncritical errors can always be recovered from during the process of completing the scenario. Exploratory behavior, such as opening the wrong menu while searching for a function, these will be coded as a non-critical error.

### Subjective Evaluations

Subjective evaluations regarding ease of use and satisfaction will be collected via questionnaires, and during debriefing at the conclusion of the session. The questionnaires will utilize free-form responses and rating scales.

### Scenario Completion Time (time on task)

The time to complete each scenario, not including subjective evaluation durations, will be recorded.

## Usability Goals

 The next section describes the usability goals for The Academic Planning application.

### Completion Rate

Completion rate is the percentage of test participants who successfully complete the task without critical errors. A critical error is defined as an error that results in an incorrect or incomplete outcome. In other words, the completion rate represents the percentage of participants who, when they are finished with the specified task, have an "output" that is correct. Note: If a participant requires assistance in order to achieve a correct output then the task will be scored as a critical error and the overall completion rate for the task will be affected.

**A completion rate of 100% is the goal for each task in this usability test.**

### Error-free rate

Error-free rate is the percentage of test participants who complete the task without any errors (critical **or** non-critical errors). A non-critical error is an error that would not have an impact on the final output of the task but would result in the task being completed less efficiently.

**An error-free rate of 75% is the goal for each task in this usability test.**

### Time on Task (TOT)

The time to complete a scenario is referred to as "time on task". It is measured from the time the person begins the scenario to the time he/she signals completion.

### Subjective Measures

Subjective opinions about specific tasks, time to perform each task, features, and functionality will be surveyed. At the end of the test, participants will rate their satisfaction with the overall system. Combined with the interview/debriefing session, these data are used to assess attitudes of the participants.

## Problem Severity

To prioritize recommendations, a method of problem severity classification will be used in the analysis of the data collected during evaluation activities. The approach treats problem severity as a combination of two factors - the impact of the problem and the frequency of users experiencing the problem during the evaluation.

1.
2.

### Impact

Impact is the ranking of the consequences of the problem by defining the level of impact that the problem has on successful task completion. There are three levels of impact:

* High - prevents the user from completing the task (critical error)
* Moderate - causes user difficulty but the task can be completed (non-critical error)
* Low - minor problems that do not significantly affect the task completion (non-critical error)

### Frequency

Frequency is the percentage of participants who experience the problem when working on a task.

* High: 50% or more of the participants experience the problem
* Moderate: 17% - 49% of participants experience the problem
* Low: 16.66% or fewer of the participants experience the problem

\*basing these percentages off of 6 participants.

### Problem Severity Classification

The identified severity for each problem implies a general reward for resolving it, and a general risk for not addressing it, in the current release.

**Severity 1** - High impact problems that often prevent a user from correctly completing a task. They occur in varying frequency and are characteristic of calls to the Help Desk. Reward for resolution is typically exhibited in fewer Help Desk calls and reduced redevelopment costs.

**Severity 2** - Moderate to high frequency problems with moderate to low impact are typical of erroneous actions that the participant recognizes needs to be undone. Reward for resolution is typically exhibited in reduced time on task and decreased training costs.

**Severity 3** - Either moderate problems with low frequency or low problems with moderate frequency; these are minor annoyance problems faced by a number of participants. Reward for resolution is typically exhibited in reduced time on task and increased data integrity.

**Severity 4** - Low impact problems faced by few participants; there is low risk to not resolving these problems. Reward for resolution is typically exhibited in increased user satisfaction.

## Reporting Results

The Usability Test Report will be provided at the conclusion of the usability test. It will consist of a report and/or a presentation of the results; evaluate the usability metrics against the pre-approved goals, subjective evaluations, and specific usability problems and recommendations for resolution. The recommendations will be categorically sized by development to aid in implementation strategy. The report is anticipated to be delivered to the Director of Technology group by November 8th, 2019 at the latest.