# ROCHESTER INSTITUTE OF TECHNOLOGY

**4004-749-70 • Usability Testing**
**Prof. Kara Goldstein**

**Usability Test Report of**

## RIT Online Learning: Clipboard

***Tested By: Buchanan, Colombo, Kumar and Pahwa***
***Tested: April-May, 2007***

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## Executive Summary

Clipboard 1.0 is a survey creation tool that enables secure storage and distribution of internet questionnaires. It is created specifically for faculty and staff at Rochester Institute of Technology. Clipboard is recognized as the tool created by the Online College to facilitate feedback and testing for distance learning courses. The purpose of this usability test was to assess the strengths and potential weaknesses of Clipboard as they relate to human-computer interaction. Those elements thought to significantly impact Clipboard's usability, positive or negative, can be taken into account for the nascent Clipboard 2.0.

Nine participants (mostly faculty and staff, supplemented with two graduate students) were presented with a series of tasks thought to be critical for the creation of an intermediate level survey. Minimal instruction was provided as most usability testers feel that this interferes with the ability to rate the perceived 'intuitiveness' of a given interface.

Instructions were provided for the creation of a fairly specific survey, with participants required to complete seven measured tasks (many of which contained distinct subtasks). Metrics included time to survey completion, whether or not the objectives were completed, and number and type of critical errors. An example of participant data is pictured here:

**Participant data is summarized below:**

1. Average amount of time taken to complete the test– 20 minutes.
2. Percentage of tasks completed (average) – 75%
3. 4 out of 9 participants used help or documentation.
4. Average number of errors occurred – 2
5. Common types of errors occurred
   - Participant tried to save the question in the question bank without selecting question.
   - Participant clicked the 'Save Question' Instead of update to save the survey.
   - Participant changed the authorization instead of editing

permissions.

6. Average time spent on errors – 4 minutes.
7. Average number of failures occurred – 2
8. Common types of failures:
   - Participant was unable to activate the survey for respondents.
   - Participant was unable to give permissions.
9. Overall feeling towards the Clipboard – 2.5 (where scale is 1-Strongly Disagree to 5-Strongly Agree).

Positive aspects about Clipboard are:

- **Existence**: Test Participants were happy to know about Clipboard as a survey tool which helps to build online surveys.
- **Permission:** Test Participants found this feature really helpful and also considered it to be a good idea to be incorporated in the clipboard.

Based on the usability problems identified in this test, usability test team of clipboard recommends:

- **Activate the survey to get responses from the respondents**: None of the participants were able to this task successfully. Thus, this feature definitely requires improvement.
- The feature **'Edit Permissions'** need to be located at more prominent place on the page.
- **Navigation** needs to be improved.
- **Adding question in the scale (one side) and scale (two sides)** needs few improvements.
- **Need for more prompt messages.**

The RIT Online Learning department has created clipboard for campus-wide use, both for research and feedback purposes. A great deal of variety is available both in terms of question type and survey accessibility. Examples of questions include: inclusive and exclusive multiple choice, one and two-sided scales, short answer and long answer, and a "spacer" option. The ability to select what population can view a

survey and during what specific timeframe is a user-friendly feature that allows for increased validity control. The ability to export survey data to programs such as Microsoft Excel® allows for fast and easy analysis of results.

Clipboard 1.0 is used primarily by R.I.T. faculty and staff, with the variable age and income levels expected of such a group. Web accessibility is essential, as all surveys are formatted for online interaction. For technical specifications, please browse the user manual available on the Clipboard 1.0 website: https://clipboard.rit.edu.

## Usability Test Objectives

The primary goal of this evaluation was to ascertain the overall usability of Clipboard 1.0 for users of intermediate to advanced computer skill levels. By having participants complete a more or less fully-functional and live survey with partially prescribed questions; the effectiveness of the software could be measured and generalized to the larger population of Clipboard users.

Quantitative measures such as time to survey completion and number of errors were taken alongside more qualitative measurements, such as perceived ease of use. Trials were run both *in situ* (in the faculty or staff members' offices) or in the usability testing laboratory in Building 70. Trials lasted no longer than one hour, and users were logged on using one of the team member's DCE usernames.

The basic test objectives are:

- Does Clipboard produce the highest quality surveys for academic research?
- Does it provide the right blend of functionality vs. ease of use, powerful enough for professional survey requirements, yet easy enough for the casual user to administer.
- Does it provide the ability to administer a survey in a variety of different environments? From Paper Form surveys, to standalone or networked PCs, to Mail Diskette surveys, to Internet surveys.
- Does it provide tools that are tailored to survey administration? A tool that adds value over using spread sheets, databases, and having to spend

significant amounts of time creating custom macros (or routines) to analyze the responses.

- Does it provide a data entry environment that even an untrained respondent can easily manipulate to answer a survey. Design intuitive and attractive question presentation screens that can have images readily displayed.
- Does it provide a complete survey package; from question design to data entry to data analysis must support multiple users in a network environment. From 1 to 200 concurrent administrators or respondents.

## Method

### Participants

The test was carried out using nine participants, seven of which were faculty and staff and two of which were graduate students in the appropriate age range.

Intended context of use*:* The key characteristics and capabilities expected of Clipboard users are:

- Familiarity with laptop/desktop and a basic working knowledge of Microsoft Windows.
- Internet usage per week no less than 6 Hours.
- Enjoy using computers: with minimal rating 3 ( where 1 is strongly disagree to 5 is strongly agree)

Other characteristics of users which it is expected could influence the usability of Clipboard are:

- Use internet for activities such as entertainment (e), shopping (s), work / study (w).
- Amount of experience with clipboard or any other survey tool.
- Job function and length of time in current job.

The participant makeup is given here:

| | Age (years) | Department | Time in Job (years) | Internet Usage per week (Hours) | *Enjoy using comp-uters | Frequency of Use for internet activities (such as 'e' or's')? | Familiarity with clipboard or any other survey tool? |
|---|---|---|---|---|---|---|---|
| 1 | 60+ | Access Services (Staff) | 17 | 6-15 | 5 | Low | No |
| 2 | 60+ | NTID Business Studies | 35 | 6-15 | 5 | High | No |
| 3 | 51-60 | Information Technology (Faculty) | 7 | 6-15 | 5 | Medium | Yes |
| 4 | 51-60 | Information Technology (Faculty) | 9 | 30+ | 4 | High | Yes |
| 5 | 31-40 | Payroll (Staff) | 4 | 15-30 | 5 | Medium | No |
| 6 | 21-30 | Information Technology (Faculty) | 2 | 30+ | 4 | Low | No |
| 7 | 21-30 | Information Technology (Graduate Student) | 1 | 6-15 | 5 | High | No |
| 8 | 31-40 | Academic Accommodations Office (Staff) | 8 | 6-15 | 4 | Low | Yes |
| 9 | 21-30 | Computer Science (Research Student) | 2 | 15-30 | 5 | Medium | No |

*Enjoy Using Computers: Rating Scale where 1– Strongly Disagree, 2 -Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree.

**Interview**

Participants were tested one at a time and all of them signed informed consent documents (as required by the IRB). Test Participants were then asked to fill out a pre test questionnaire to know about their Internet and Computer usage; as well as their interaction about the Clipboard or any other survey tool in the past.

All of the participants reported at least six hours of internet use. And three of the participants were familiar with the Clipboard. Test Participants were asked to think aloud and to comment on the Clipboard while they were carrying out their tasks.

## Test Environment

The testing environment was variable, as many participants were tested in their actual workspaces (which lead to an increase in ecological validity). The equipment used for this test was a laptop with a 1.83 GHz processor and a 15.4" monitor set to a resolution of 1440 x 900 for nine test participants and 1024 x 768 for one test participant. Mozilla Firefox (version 2.0.0.3) was used. Operating system on the laptop was Windows Vista (Premium Home Edition). The computer was set up to communicate with Clipboard through RIT's wireless internet connection.

## Data Capturing Methods

Camtasia Studio, a screen-capturing program developed by TechSmith, was used to track mouse movements in real time. We were particularly interested in the verbal comments they made while filling in the questionnaire. In addition, test participants were debriefed about their general impression of the website. Noteworthy participant comments, questions and errors were transcribed by hand.

## Procedure

A step by step breakdown of test procedures and protocols is available in Appendix A of this document.

## Roles

Test Administrator: Neha Pahwa & Melody Buchanan
Data collection / Note Takers: Naveen Kumar & Daniel Colombo

## Issues

- Wireless signal was low in some tests which caused extra time to complete the tasks.
- Some test places were too small to allow the whole test team to efficiently conduct the test. (Note takers faced the difficulty in viewing the screen from acute angles).

**Usability Metrics**

- **Performance**: Performance was measured across a variety of quantitative data points, including time to survey completion, percentage of tasks completed, number of errors, and number of failures.

- **Effectiveness**:

  *Completion Rate*: Percentage of participants who completed each task correctly.

  *Mean goal achievement*: Mean extent to which each task was completely and correctly achieved, scored as a percentage.

  *Errors:* An error is considered as a mistake made by the participant during the completion of task.

  *Failure:* Failure is considered when the participant is unable to complete the task at all.

  *Assists:* The participants were given no assistance or very minimal assistance.

- **Efficiency:**

  *Task time*: mean time taken to complete each task (for correctly completed task)

  *Completion rate efficiency*: mean completion rate/mean task time.

  *Goal achievement efficiency*: mean goal achievement/mean task time.

  *References to the manual*: If any references were made to the manual

- **Satisfaction**: Satisfaction was measured using a variety of subjective scales in a post-test questionnaire. Dimensions assessed on these scales included perceived *ease of use, attractiveness* and *overall satisfaction*.

# Results

## Data Analysis

- **Performance Score Results** - Performance scores were evaluated based on quantitative data collected during the testing process.
- **Performance Scoring Data** - When participants were able to correctly complete a task, a performance score of 100 was given (seen as a percentage under Goal Achievement on the following charts). For tasks with subtasks, scores were divided among the number of total tasks given and thus the overall percentage for the tasks, including its subtasks, was calculated as the final score. Participants who successfully completed a task without any assistance were also given a score of 100 (seen as a percentage under Unassisted Task Completion Rate in the following charts for each task). Fir tasks with subtasks, scores were also divided among the number of total tasks given and the overall percentage was then calculated and given as a final score.

**Task 1: Create Survey with guidelines and save the survey.**

Task 1 consisted of participants naming their survey in the process of survey creation with specific guidelines given by the test administrator. Subtask 1 consisted of saving the survey. All participants successfully created the survey with the guidelines and also saved the survey in a mean time of 3 minutes.

| Participant # | Unassisted Task Completion Rate (%) | Goal Achievement (%) | Task Time (min) | References to help |
|---|---|---|---|---|
| 1 | 100% | 100% | 4 | 0 |
| 2 | 100% | 100% | 2 | 0 |
| 3 | 100% | 100% | 2 | 0 |
| 4 | 100% | 100% | 2 | 0 |
| 5 | 100% | 100% | 4 | 0 |
| 6 | 100% | 100% | 2 | 0 |
| 7 | 100% | 100% | 4 | 0 |
| 8 | 100% | 100% | 3 | 0 |
| 9 | 100% | 100% | 4 | 0 |
| Mean | 100% | 100% | 3.0 | 0 |
| Standard error | 0.0 | 0.0 | 0.3 | 0.0 |
| Std Deviation | 0.0 | 0.0 | 1.0 | 0.0 |
| Min | 100% | 100% | 2 | 0.0 |
| Max | 100% | 100% | 4 | 0.0 |

This task was quite simple for the test participants. All the participants were successfully able to complete this task without any assistance.

### Task 2: Add a question to the survey with four answer options.

Participants were able to add questions to the survey in a mean time of 2.8 minutes.

| Participant # | Unassisted Task Completion Rate (%) | Goal Achievement (%) | Task Time (min) | References to help |
|---|---|---|---|---|
| 1 | 100% | 60% | 5 | 0 |
| 2 | 100% | 100% | 2 | 0 |
| 3 | 100% | 100% | 2 | 0 |
| 4 | 100% | 100% | 2 | 0 |
| *5 | 0% | 0% | 3 | 0 |
| 6 | 100% | 100% | 2 | 0 |
| 7 | 100% | 100% | 3 | 0 |
| 8 | 100% | 100% | 3 | 0 |
| 9 | 100% | 100% | 3 | 0 |
| Mean | 88.8% | 84.4% | 2.8 | 0 |
| *Standard error | 4.0 | 6.4 | 0.3 | 0.0 |
| *Standard Deviation | 12.0 | 18.0 | 1.0 | 0.0 |
| Min | 0% | 0% | 2 | 0.0 |
| Max | 100% | 100% | 5 | 0.0 |

***Standard Error and Standard Deviation were calculated by excluding the participant #5, who failed to complete the task.**

Not all the participants could perform this task accurately. The number of errors performed in this task was also high. One of the participants created four questions with single answer options rather than creating a single question with four answer options. Also participants seemed confused with various questions mode.

### Task 3: Preview, Make a copy of, and Hide the survey

With this task, participants were told to review the survey as would be seen by respondents, make a copy of the survey and hide the survey.

All participants successfully performed these three actions in a mean time of 2 minutes.

| Participant # | Unassisted Task Completion Rate (%) | Goal Achievement (%) | Task Time (min) | References to help |
|---|---|---|---|---|
| 1 | 100% | 100% | 3 | 0 |
| 2 | 100% | 100% | 2 | 0 |
| 3 | 100% | 100% | 2 | 0 |
| 4 | 100% | 100% | 1 | 0 |
| 5 | 100% | 100% | 3 | 0 |
| 6 | 100% | 100% | 2 | 0 |
| 7 | 100% | 100% | 2 | 0 |
| 8 | 100% | 100% | 2 | 0 |
| 9 | 100% | 100% | 3 | 0 |
| Mean | 100% | 100% | 2.2 | 0 |
| Standard error | 0.0 | 0.0 | 0.2 | 0.0 |
| Std Deviation | 0.0 | 0.0 | 0.7 | 0.0 |
| Min | 100% | 100% | 1 | 0.0 |
| Max | 100% | 100% | 3 | 0.0 |

This task was relatively easier for the test participants. Participants liked the icons to represent preview, hide and copy functions.

### Task 4: Activate the survey

This task required participants to make the survey live so respondents would be able to see and take the survey.

None of the participants were able to complete the survey without the assistance of the test administrator. Thus, none of the participants were able to achieve 100% goal completion.

| Participant # | Unassisted Task Completion Rate (%) | Goal Achievement (%) | Task Time (min) | References to help |
|---|---|---|---|---|
| 1 | -- | -- | 6 | Yes |
| 2 | -- | -- | 4 | Yes |
| 3 | -- | -- | 3 | No |
| 4 | -- | -- | 4 | Yes |
| 5 | -- | -- | 5 | Yes |
| 6 | -- | -- | 4 | No |
| 7 | -- | -- | 6 | No |
| 8 | -- | -- | 5 | No |
| 9 | -- | -- | 5 | No |
| Mean | -- | -- | 4.7 | N/A |
| Standard error | -- | -- | 0.3 | N/A |
| Std Deviation | -- | -- | 1.0 | N/A |
| Min | -- | -- | 3 | N/A |
| Max | -- | -- | 6 | N/A |

This task was the most difficult task for the participants. This task was not completed by any one of the participant therefore unassisted task completion rate and goal completion is left vacant. The reference to help for this task was very high, but still it was difficult for users to complete this task successfully.

### Task 5: Give Permissions

This task required participants to give permissions so others would be able to change and access the survey.

Four out of nine participants could not perform this task successfully, and the mean for the completion of this task is 4 minutes.

| Participant # | Unassisted Task Completion Rate (%) | Goal Achievement (%) | Task Time (min) | References to help |
|---|---|---|---|---|
| 1 | 100% | 100% | 3 | No |
| 2 | 0% | 0% | 3 | Yes |
| 3 | 100% | 100% | 2 | No |
| 4 | 100% | 100% | 2 | No |
| 5 | 0% | 0% | 5 | Yes |
| 6 | 100% | 100% | 3 | No |
| 7 | 0% | 0% | 5 | No |
| 8 | 0% | 0% | 6 | No |
| 9 | 100% | 100% | 7 | No |
| Mean | 55.5% | 55.5% | 4 | No |
| Standard error | 17.6 | 17.6 | 0.6 | N/A |
| Std Deviation | 52.7 | 52.7 | 1.8 | N/A |
| Min | 0% | 0% | 2 | N/A |
| Max | 100% | 100% | 7 | N/A |

Participant felt that the option for giving permission is not at the appropriate screen of the clipboard and more than half of them had hard time to find the link “Edit Permissions’. Some of the participants, two total, used the help manual to figure out the successful task completion.

**Task 6: Save a question in the clipboard database.**

This task required participants to save a particular question in the clipboard question database. The clipboard database is useful in storing specific questions to access and use at a later date for other surveys that would benefit from the same question.

Four out of nine participants could not perform this task without the assistance of the test administrator. And the mean for the completion of this task is 3 minutes.

| Participant # | Unassisted Task Completion Rate (%) | Goal Achievement (%) | Task Time (min) | References to help |
|---|---|---|---|---|
| 1 | 80% | 80% | 3 | 0 |
| 2 | 80% | 80% | 2 | 0 |
| 3 | 100% | 100% | 1 | 0 |
| 4 | 80% | 80% | 2 | 0 |
| 5 | 100% | 100% | 2 | 0 |
| 6 | 100% | 100% | 1 | 0 |
| 7 | 100% | 100% | 2 | 0 |
| 8 | 80% | 80% | 3 | 0 |
| 9 | 100% | 100% | 3 | 0 |
| Mean | 91.1% | 91.1% | 2.1 | 0 |
| Standard error | 3.5 | 3.5 | 0.3 | 0.0 |
| Std Deviation | 10.5 | 10.5 | 0.8 | 0.0 |
| Min | 80% | 80% | 1 | 0.0 |
| Max | 100% | 100% | 3 | 0.0 |

There was mixed interactions with this task. Some participants were able to complete this task and some needed assistance from the test administrator. Most of the participant committed the same mistake of saving the question without selecting it.

### Task 7: Delete the survey

Participants were told to permanently get rid of the survey.

All participants successfully deleted the survey in a mean time of 1.4 minutes.

| Participant # | Unassisted Task Completion Rate (%) | Goal Achievement (%) | Task Time (min) | References to help |
|---|---|---|---|---|
| 1 | 100% | 100% | 2 | 0 |
| 2 | 100% | 100% | 1 | 0 |
| 3 | 100% | 100% | 1 | 0 |
| 4 | 100% | 100% | 1 | 0 |
| 5 | 100% | 100% | 2 | 0 |
| 6 | 100% | 100% | 1 | 0 |
| 7 | 100% | 100% | 2 | 0 |
| 8 | 100% | 100% | 1 | 0 |
| 9 | 100% | 100% | 2 | 0 |
| Mean | 100% | 100% | 1.4 | 0 |
| Standard error | 0.0 | 0.0 | 0.2 | 0.0 |
| Std Deviation | 0.0 | 0.0 | 0.5 | 0.0 |
| Min | 100% | 100% | 1 | 0.0 |
| Max | 100% | 100% | 2 | 0.0 |

This was a relatively easy task for the participants.

**Satisfaction Scores:**

Satisfaction scores are subjective ratings of participants' perceptions on the survey creating tool, Clipboard. On a 5-point Likert scale (where 1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5= strongly agree – the different dimensions are shown below). Participants filled out a post-test questionnaire expressing their feelings on their perceived satisfaction rates of task completion, interface aesthetics, and future recommendations of this program to colleagues.

An example question is: Overall, I am satisfied with how easy it is to use Clipboard. (1 – Strongly disagree, 2 –disagree, 3 – neutral, 4 – agree, 5 – strongly agree)

**Satisfaction Results**

| Participant # | Satisfaction | Usefulness | Ease of Use | Effectiveness | Attractiveness |
|---|---|---|---|---|---|
| 1 | 4 | 3 | 3 | 3 | 5 |
| 2 | 3 | 3 | 2 | 3 | 4 |
| 3 | 3 | 2 | 3 | 3 | 4 |
| 4 | 2 | 1 | 2 | 2 | 3 |
| 5 | 2 | 2 | 3 | 2 | 3 |
| 6 | 2 | 1 | 2 | 1 | 3 |
| 7 | 3 | 2 | 2 | 3 | 3 |
| 8 | 1 | 2 | 2 | 1 | 2 |
| 9 | 3 | 3 | 2 | 2 | 2 |
| Mean | 2.5 | 2.1 | 2.3 | 2.2 | 3.2 |
| Std. dev. | 0.8 | 0.8 | 0.5 | 0.8 | 1.0 |
| Min | 1 | 1 | 2 | 1 | 2 |
| Max | 4 | 3 | 3 | 3 | 5 |

The participation satisfaction, usefulness of the interface, ease of use, effectiveness and attractiveness were the basic usability issues that were tested in this usability test.

**Formulas Used**:

Mean is calculated by using the formula:

$$\frac{x1+x2+\ldots\ldots\ldots\ldots\ldots x9}{9}$$

Standard Deviation is calculated using the formula:

$$s = \sqrt{\frac{1}{N-1}\sum_{i=1}^{N}(x_i - \overline{x})^2},$$

where $\{x_1, x_2, \ldots, x_N\}$ is the sample and $\overline{x}$ is the mean of the sample.

## Participants Reviews

Participants were asked to complete a pre test and a post test questionnaire which was followed by a debriefing session. Participants were also asked about how they felt about the Clipboard.

Test Participants expressed that they appreciate the following features:

a.) Clipboard exists, as none of the test participants had ever used any survey tool.

b.) It is easily accessible on computers.

c.) Will definitely reduce the paper work.

d.) Permission feature is a great idea.

e.) Overall, it has potential

4 out of 9 test participants had shown a neutral response with respect to the use of clipboard in the near future. 3 of the 9 participants said that they will never use the clipboard again. And 2 participants seemed to be happy with the clipboard and said “Overall, Clipboard has the potential.”

Many of the participants were not happy with the navigational path of the clipboard. One of them said,” It would be good to see improved menus between the screens.” One of the test participants said, “I got lost in between the pages, how do I go back to the previous page.”

50% of the participants didn’t think that the icons were appropriate. One of the

test participants said," I got logged off from the system. The logout icon needs to be improved. It looks like 'Go to previous page'."

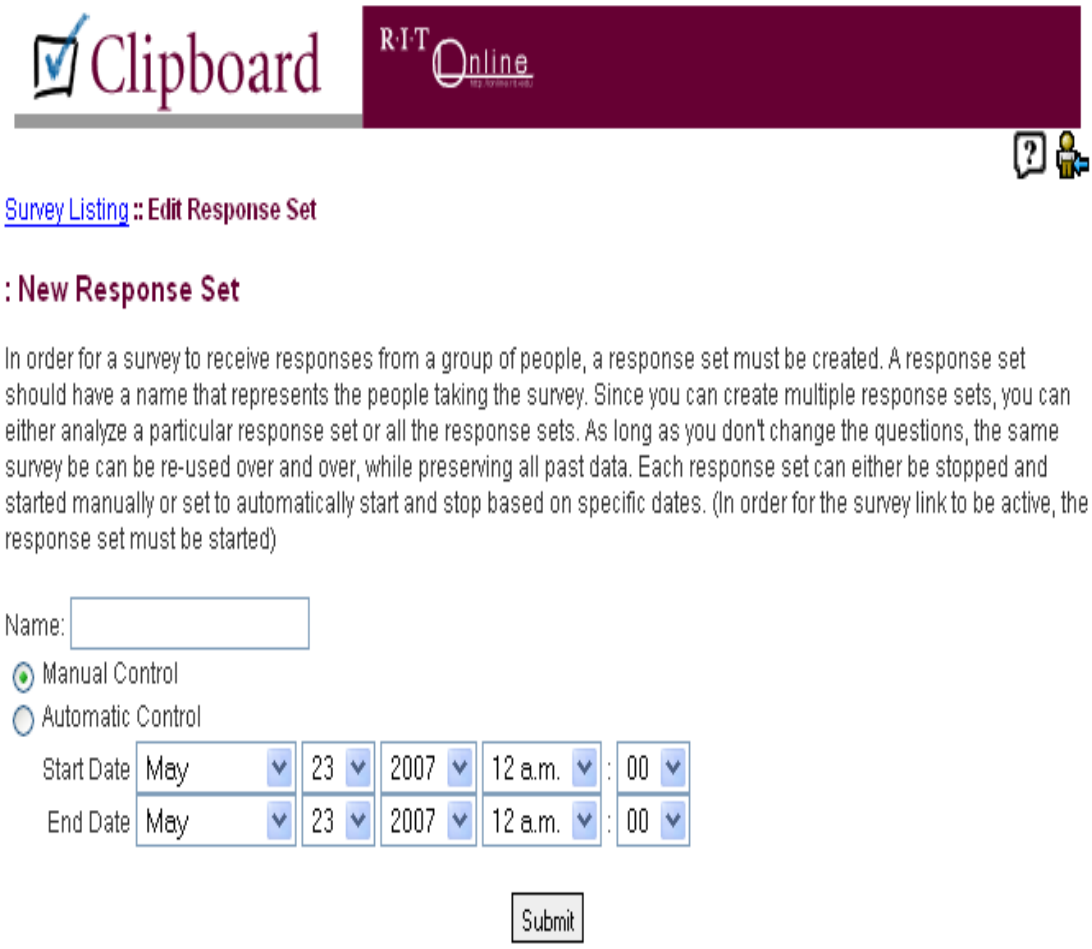
One test participant gave suggestion that the help icon should be inline with all the major task performing icons. One of the participants said, "I expect obviousness from clipboard for new and distracted users."

## Recommendations

Clipboard has shown potential among the participants. It has some very good features such as edit permissions, option of adding various kinds of questions. But apart from these excellent features, Clipboard lacks some basic functionality.

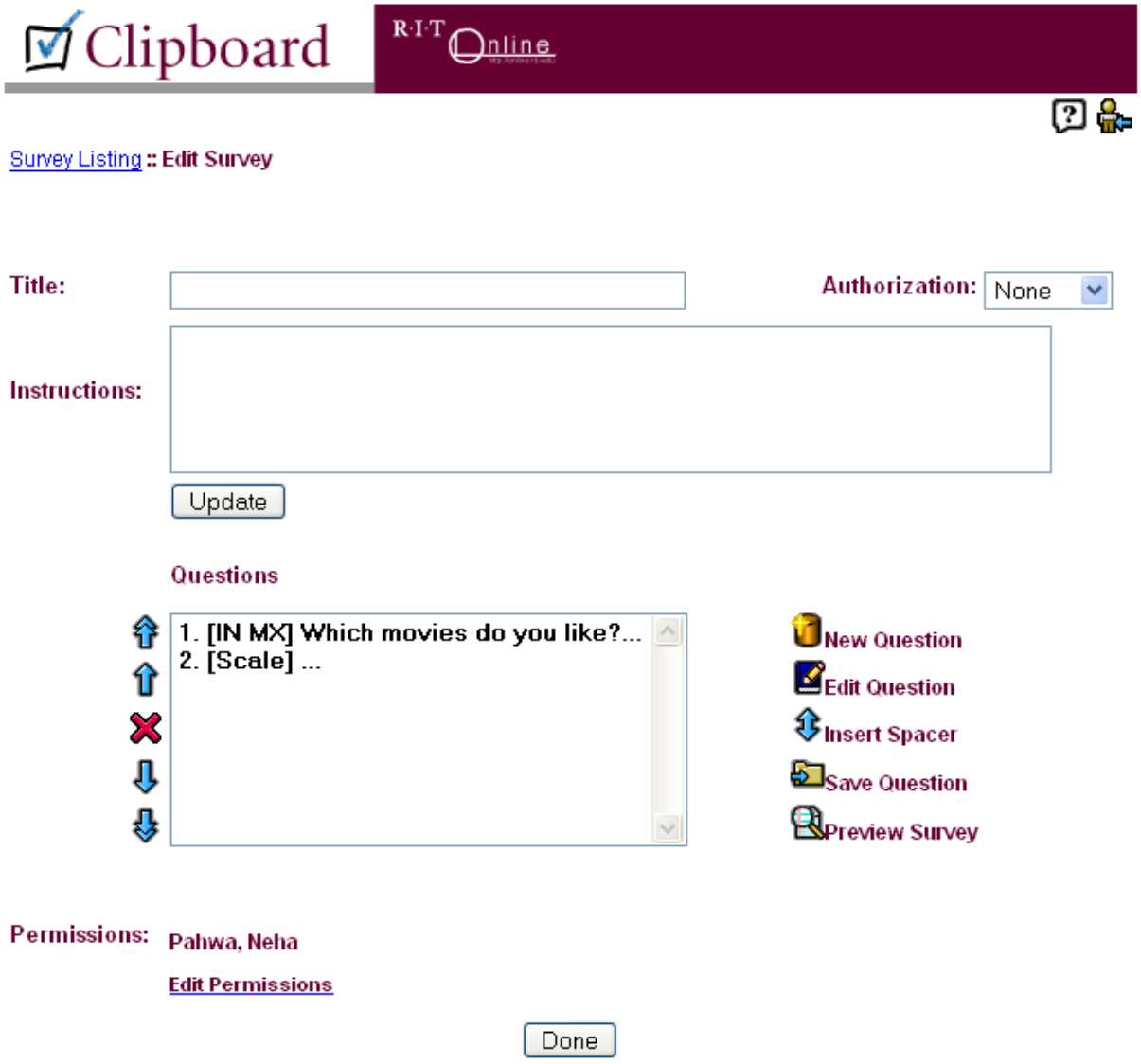
**Problem: 'Activate the survey to get responses from the respondents'**. None of the participants were able to complete this task successfully. The reason behind it is that the icon is not appropriate and the information provided about it is ambiguous. Participants were not able to understand terms such as response set also many of the users didn't bother to read the second line. And even after opening the page of 'New Response Set', none of the participant read the whole paragraph of information provided in it.

**Recommendation:** This feature definitely needs to be improved. The icon needs to be changed and the information should be provided in a context sensitive language rather than paragraphs. Help text should also be modified to exactly represent the function of the feature.




**Problem**: The other problem which most participants encountered was with the feature of *edit permissions*. Many participants appreciated this feature but they were not able to use it successfully because of its inappropriate location.

**Recommendation:** Edit permission feature should be placed on the 'survey listing' screen along with the other controls.




**Problem:** The other improvement needs to be done with the *navigation of the clipboard*. Almost 80% participants used browser's back and forward button to move between the pages. And many times, they got lost within the pages. The interface basically lacks the flow.

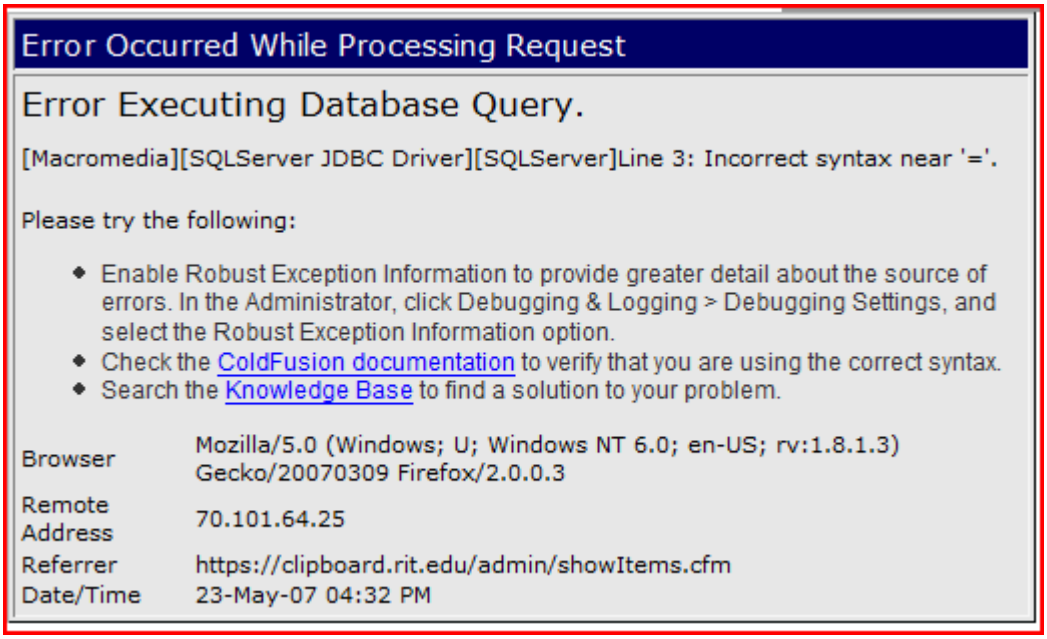
**Recommendation:** The recommendation is to build clear and bold tabs somewhere in the top left corner or in top middle location of the page for navigation. The interface should clearly illustrate on which screen user is currently working. A seamless flow is required starting from entering a title to the survey to making it live for respondents.

**Problem:** On the edit survey page, the feature ‘authorization’ gives least idea about itself. The authorizations ‘none’, ‘DCE’ and ‘unlimited’ are not self explanatory.
**Recommendation:** A brief context sensitive help about each authorization will definitely serve the purpose.

**Problem:** Inconsistent or ambiguous language like ‘Done’ or ‘Update’ confuse the user and increases the time to respond.
**Recommendation:** More familiar words such as ‘Save’ should be used instead of ‘Done’ & ‘Update’.

**Problem:** Lack of prompt messages and error messages and also error messages does not provide any information that helps in recovering from it.
**Recommendation:** More prompt messages should be provided on the completion of a task. If an error message occurred it should include the reasons and solutions to recover from it.

The following screen appears when user try to save the question without selecting it, but there is hardly any chance that he can recover from error after reading this error message.



Error Occurred While Processing Request

Error Executing Database Query.

[Macromedia][SQLServer JDBC Driver][SQLServer]Line 3: Incorrect syntax near '='.

Please try the following:

- Enable Robust Exception Information to provide greater detail about the source of errors. In the Administrator, click Debugging & Logging > Debugging Settings, and select the Robust Exception Information option.
- Check the ColdFusion documentation to verify that you are using the correct syntax.
- Search the Knowledge Base to find a solution to your problem.

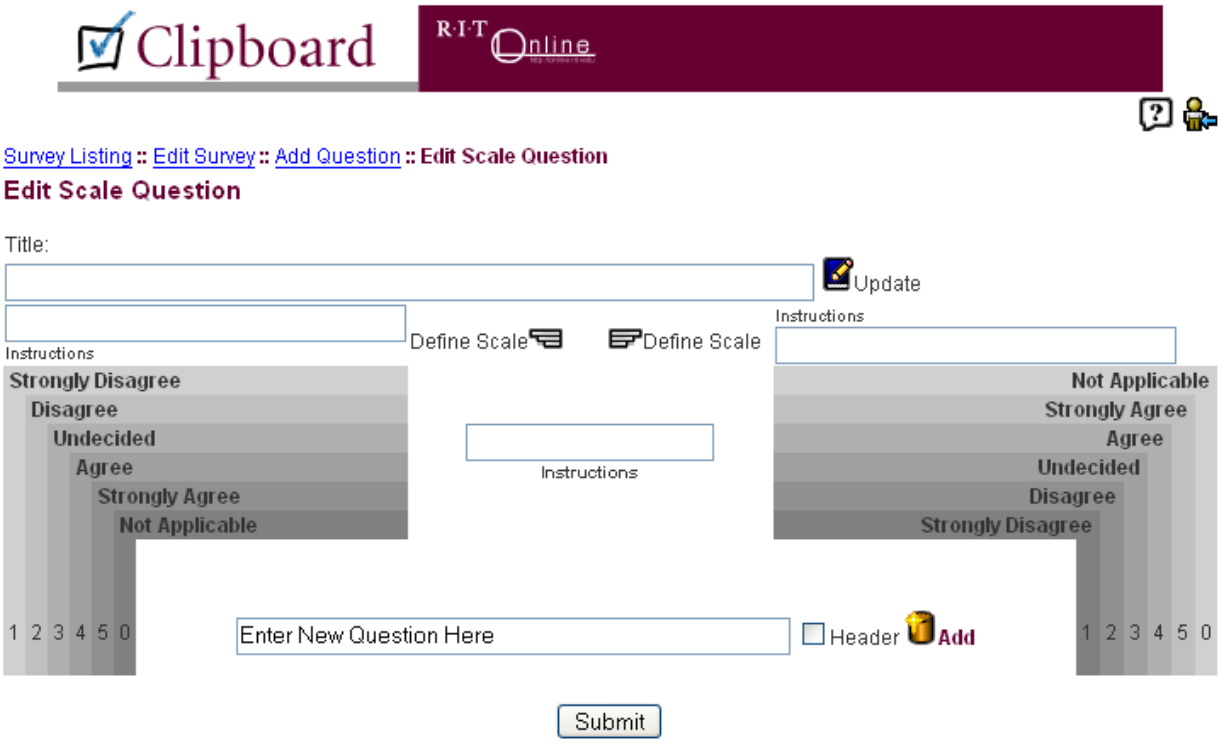
| | |
|---|---|
| Browser | Mozilla/5.0 (Windows; U; Windows NT 6.0; en-US; rv:1.8.1.3) Gecko/20070309 Firefox/2.0.0.3 |
| Remote Address | 70.101.64.25 |
| Referrer | https://clipboard.rit.edu/admin/showItems.cfm |
| Date/Time | 23-May-07 04:32 PM |

**Problem:** Some of the icons need improvement particularly icons for 'logout' and 'status' functionalities are inappropriate. Two out of nine users clicked the logout icon in order to go back to previous screen. The icon hammer for an inactive response set under status also does not give a clear idea.

**Recommendation:** For logout icon an arrow pointing towards an opening door is worth considering. Red traffic light for inactive and green traffic light for active survey is also a better idea.

**Problem:** Title field in edit scale question creates confusion.

**Recommendation:** Get rid of the title field; replace it with question text field.


Clipboard
R·I·T Online
Survey Listing :: Edit Survey :: Add Question :: Edit Scale Question
Edit Scale Question
Title:
Update
Instructions
Define Scale
Define Scale
Instructions
Strongly Disagree
Disagree
Undecided
Agree
Strongly Agree
Not Applicable
1 2 3 4 5 0
Instructions
Not Applicable
Strongly Agree
Agree
Undecided
Disagree
Strongly Disagree
1 2 3 4 5 0
Enter New Question Here
Header
Add
Submit

## Appendix A

**RIT • 4004-749-70 • Usability Testing**
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## Test Procedure and Protocols

**1.) Order of testing Events**:

**Leading up to experiment**:

- Assemble test environment
- Know the order of tasks for each participant
- Have a code for identifying each participant
- Have Camtasia and Clipboard ready to run

**Experimental Procedure**:

- Greet participant.
- Introduce ourselves
- Give them a general overview about why they're here
- Explains where everything in the workstation is located
- Have the participant sign the informed consent
- Administer the background/pretest questionnaire
- Encourage them to work at a pace that is natural to them
- Start Camtasia

**Presentation of Task Scenarios**:

- Read introductory script that provides overall context
- Read aloud the task scenario
- Ask them to think aloud.
- Give them a printed copy of the task scenario
- Allow them some time "digest" what has just been asked of them
- Ask them to tell when they believe they have finished the task
- At least one of us records any questions they have in a notebook

- When the task is completed, ask them what parts they found difficult or why they may have needed prompting (if any)

**Final Protocol**:

- Stop Camtasia.
- Ask them to fill out a brisk debriefing questionnaire
- Thank them and kindly ask that they do not discuss the test with any other faculty members.
- Store their results

**2.) Roles of team members**:

- Data Collection & Analysis: Naveen Kumar and Daniel Colombo
- Test Administrator: Neha Pahwa and Melody Buchanan

**3.) Incentives**: None (learn to create Survey fast)

**4.) Prompt** the user when they really get stuck.

**5.) Anomalies**: Will be reported in the final presentation of the results as outliers.

## Appendix B

**RIT • 4004-749-70 • Usability Testing**
**Prof. Kara Goldstein**
***Buchanan, Colombo, Kumar, Pahwa***

## Orientation Script

Hi, my name is _____. I'll be working with you in today's session. Let me explain why we've asked you to come in today.

During today's session, you'll be trying out a survey tool clipboard. We will watch you as you interact with the clipboard and make notes about how you use it – what you read, where you click, and any opinions you express.

You will be performing some typical tasks with the clipboard today, and I'd like you to perform as you normally would. For example, try to work at the same speed and with the same attention to detail that you normally do. Do your best, but don't be all that concerned with results.

We are not testing you, we are asking you to test the clipboard while we observe. You may ask questions at any time, but I may not answer them, since this is a study of the product and its written support materials, and we need to see how they work with a person such as yourself working independently.

While you're working, it will be helpful if you "think out loud." Tell us what you think of what you're being asked to do, how you're being asked to do it, whether you're lost or feel on track, and anything else that comes to mind.

We will ask you to fill out another questionnaire after you finish. Please don't hesitate to express your opinions frankly. Your comments will be combined with those of other participants before being passed on anonymously to the developers of clipboard.

While you are working, I'll be sitting nearby taking some notes and timings. In addition, we are using Camtasia data logger to capture your screen interactions.

Do you have any questions?

If not, then let's begin by having you sign the consent form.

## Appendix C
## RIT • 4004-749-70 • Usability Testing
## Prof. Kara Goldstein
***Buchanan, Colombo, Kumar, Pahwa***
# Research Participant Information and Consent Form

Title of the Study: *Clipboard Usability Testing*
Principal Investigator: Kara Goldstein
Student Researchers: Daniel Colombo, Melody Buchanan, Naveen Kumar, Neha Pahwa

### DESCRIPTION OF THE RESEARCH

You are invited to participate in a research study about the RIT Clipboard. The purpose of the study is to manage and analyze the online surveys.
You have been asked to participate because your feedback is important for us to improve the product.

The purpose of the research is to do usability testing on Clipboard. The test will be conducted in the Usability Testing Lab. You will be audio and video recorded during your participation in this research. The developer's digital video files will be kept for two months before they are destroyed.

### WHAT WILL MY PARTICIPATION INVOLVE?

If you decide to participate in this research you will be asked to use the product and then share your thoughts and experiences. You will be asked to complete a series of survey questions by an interviewer.

Your participation will last approximately 30 min and we require only one session.

### ARE THERE ANY RISKS TO ME?

There are no known risks involved from participating in the survey.

### ARE THERE ANY BENEFITS TO ME?

You will be given an opportunity to use a new product; we are unable to offer remuneration.

### HOW WILL MY CONFIDENTIALITY BE PROTECTED?

This study is anonymous. The information in the study records will be kept strictly confidential. Neither your name nor any other identifiable information will be revealed.

### WHOM SHOULD I CONTACT IF I HAVE QUESTIONS?

You may ask any questions about the research at any time. If you have questions about the research after you leave today you should contact the Principal Investigator Prof. Kara Goldstein (kagvks@rit.edu). You may also call the student researcher, Neha Pahwa at 585-520-4553.

Your participation is completely voluntary. Your signature indicates that you have read this consent form, had an opportunity to ask any questions about your participation in this research and voluntarily consent to participate. You will receive a copy of this form for your records.

Name of Participant (please print):_____

_____ _____
Signature Date

## Appendix D

**RIT • 4004-749-70 • Usability Testing**
**Prof. Kara Goldstein**
***Buchanan, Colombo, Kumar, Pahwa***

## Background/Pre test Questionnaire

### Section 1: General information

Age:

[ ] 15-20 [ ] 21-30 [ ] 31-40
[ ] 41-50 [ ] 51-60 [ ] Over 60

Sex:

[ ] Male [ ] Female

Your relationship with RIT:

[ ] Faculty
[ ] Staff
[ ] Postgraduate student – research
[ ] Postgraduate student - coursework

How long have you worked at RIT?

_____

What faculty, department or organizational unit do you work for/study in?

_____

### Section 2: Computer experience

**Considering your computer usage over the past 12 months, please answer the following:**

What sort of computer do you usually use (tick all that applies)?

[ ] PC (Windows)
[ ] Macintosh
[ ] Unix/Linux

[ ] Other

Where do you usually use a computer (tick all that applies)?

[ ] at work/univ/school
[ ] at home
[ ] other (please specify) _____

How many hours per week would you usually spend using a computer?

[ ] less than 5
[ ] 6-15
[ ] 15-30
[ ] more than 30

Please indicate the frequency of your use of the following desktop computer programs

| | | | | |
|---|---|---|---|---|
| Word processors | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |
| Spreadsheets | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |
| Databases | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |
| Graphic design tool | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |
| Web design tools | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |
| Games | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |

Please indicate whether you agree or disagree with the following statement:

I enjoy using computers

| | | | | |
|---|---|---|---|---|
| | | | | |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

**Section 3: Internet and web experience**

**Considering your Internet usa** Strongly disagree **2 months, please answer the following:**

How many hours per week would you usually spend using the Internet?

[ ] none
[ ] less than 5
[ ] 6-15

[ ] 15-30
[ ] more than 30

Please indicate the frequency of your use of the following Internet services

| | | | | |
|---|---|---|---|---|
| Email | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |
| Web | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |
| Instant messaging | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |

(E.g. MSN messenger, ICQ, AOL instant messaging)

Please indicate the frequency of your use of the web for the following kinds of activities:

| | | | | |
|---|---|---|---|---|
| Work/study | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |
| Entertainment | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |
| E-commerce | [ ] daily | [ ] weekly | [ ] monthly | [ ] rarely/never |

Which web browser do you usually use? (Tick all that apply)

[ ] Netscape
[ ] Internet Explorer 6.0

I enjoy using the Internet

[ ] Mozilla Firefox

| | | | | |
|---|---|---|---|---|
| | | | | |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

[ ] Other (please specify) _____

Please indicate whether you agree or disagree with the following statement:

Strongly disagree

Strongl

**Section 4: Familiarity with and use of Survey Tool**

**Considering your use of the Clipboard during the academic year, please answer the following:**

How often do you use the Clipboard?

[ ] At least once per week
[ ] Two or three times each month
[ ] Monthly or less
[ ] Less than five times ever

[ ] I have never used it

If you have ever used any other survey tool, please indicate which ones and how often?

| **Survey Tool** | **Usage** |
|---|---|
| | |

These are the responses of the above mentioned questions

| Participant # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Age | Over 60 | Over 60 | 51-60 | 51-60 | 31-40 | 21-30 | 31-40 | 51-60 | 41-50 |
| Sex | F | M | M | M | M | M | F | M | F |
| Job Profile | Staff | Faculty | Faculty | Faculty | Staff | Post-graduate student | Post-graduate student | Faculty | Staff |
| Computer Platform Used | PC | Mac & PC | PC | PC, Mac, Unix/ Linux | PC. Unix/ Linux | PC, Mac, Unix/ Linux | PC | Mac & PC | PC |
| Hours per week spend On computers | More than 30 | 6-15 | 15-30 | More than 30 | More than 30 | 15-30 | More than 30 | 15-30 | More than 30 |
| Enjoy using computers | 5 | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 4 |
| Web browser used | IE 6.0, Mozilla Firefox | IE 6.0, Mozilla Firefox, Safari | Mozilla Firefox | Firefox | IE 6.0, Mozilla Firefox | Mozilla Firefox | IE 6.0, Mozilla Firefox | Mozilla Firefox | IE 6.0, Mozilla Firefox |
| Hours per week spend on Internet | 6-15 | Less than 5 | 6-15 | More than 30 | More than 30 | 6-15 | More than 30 | 6-15 | 6-15 |
| Enjoy using Internet | 5 | 4 | 5 | 4 | 5 | 5 | 5 | 5 | 5 |
| How often do you use clipboard? | Never Used | Never Used | Monthly or less | Less than 5 times ever | Never used | Never used | Never Used | Less than 5 times ever | Never Used |

Where Rating Scale is 1– Strongly Disagree, 2 -Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree.

## Appendix E

**RIT • 4004-749-70 • Usability Testing**
**Prof. Kara Goldstein**
***Buchanan, Colombo, Kumar, Pahwa***

## Task List

**Task 1**: Make a survey titled "Teaching Improvement Survey"

**Task 1A**: Provide guidelines that will inform users how to take the survey – "Please select the choice that represents how you feel about each item. If you feel an item does not apply, select NA".

**Task 1B**: Save the survey.

**Task2**: Make a question with 4 (four) answer options. Construct question as: "If you are a graduate student, what is your grade point average (GPA) at RIT?"

**Task 2A**: Give the options for answers as: (1) At or below 3.2, (2) 3.2 – 3.5, (3) 3.5 – 4.0, (4) N/A.

**Task 3**: Review your survey as would be seen by respondents.

**Task 3A**: Make a duplicate of the survey.

**Task 3B**: Make the survey invisible to viewers.

**Task 4**: Make the survey live so respondents will be able to answer your survey questions.

**Task 4A**: Mention duration of your survey.

**Task 5**: Give permission so others can change/access your survey

**Task 6**: Preserve any survey question, from your survey, into the clipboard database so you can access it later.

**Task 7**: Get rid of the survey permanently.

## Appendix F

**RIT • 4004-749-70 • Usability Testing**
**Prof. Kara Goldstein**
***Buchanan, Colombo, Kumar, Pahwa***

## Posttest Questionnaire

This questionnaire gives you an opportunity to express your satisfaction with the usability of Clipboard. Your responses will help us understand what aspects of the system you are particularly concerned about and the aspects that satisfy you. To as great a degree as possible, think about all the tasks that you have done with Clipboard while you answer these questions. Please read each statement and indicate how strongly you agree or disagree with the statement by circling a number on the scale. Whenever it is appropriate, please write comments to explain your answers.
Thank you!

1. Overall, I am satisfied with how easy it is to use Clipboard.

| | | | | | | |
|---|---|---|---|---|---|---|
| STRONGLY DISAGREE | 1 | 2 | 3 | 4 | 5 | STRONGLY AGREE |

COMMENTS:

2. I can effectively create survey using this system.

| | | | | | | |
|---|---|---|---|---|---|---|
| STRONGLY DISAGREE | 1 | 2 | 3 | 4 | 5 | STRONGLY AGREE |

COMMENTS:

3. I am able to efficiently complete my survey using this system.

| | | | | | | |
|---|---|---|---|---|---|---|
| STRONGLY DISAGREE | 1 | 2 | 3 | 4 | 5 | STRONGLY AGREE |

COMMENTS:

4. I feel comfortable using this system.

STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE
COMMENTS:

5. It was easy to learn to use this system.

STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE
COMMENTS:

COMMENTS:

6. The system gives error messages that clearly tell me how to fix problems.

STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE
COMMENTS:

7. Whenever I make a mistake using the system, I recover easily and quickly.

STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE
COMMENTS:

8. The information (such as on-line help, on-screen messages and other documentation) provided with this system is clear.

STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE
COMMENTS:

9. It is easy to find the information I need. The organization of information on the system screens is clear.

STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE
COMMENTS:

Note: *The interface includes those items that you use to interact with the system. For example, some components of the interface are the keyboard, the mouse, the screens (including their use of graphics and language).*

10. The interface of this system is pleasant.

STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE

COMMENTS:

11. This system has all the functions and capabilities I expect it to have.

| | | | | | | |
|---|---|---|---|---|---|---|
| STRONGLY DISAGREE | 1 | 2 | 3 | 4 | 5 | STRONGLY AGREE |

COMMENTS:

12. Overall, I am satisfied with this system.

| | | | | | | |
|---|---|---|---|---|---|---|
| STRONGLY DISAGREE | 1 | 2 | 3 | 4 | 5 | STRONGLY AGREE |

COMMENTS:

13. What features did you like most about Clipboard?

14. What improvements would you like to see in Clipboard?

Where Rating Scale is 1– Strongly Disagree, 2 -Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree.

Responses to the above listed questions are illustrated in the following table:

| **Participant #** / **Questions** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
|---|---|---|---|---|---|---|---|---|---|
| **Overall, I am satisfied with how easy it is to use Clipboard** | 3 | 3 | 4 | 2 | 3 | 2 | 3 | 3 | 2 |
| **I can effectively create survey using this system** | 4 | 4 | 4 | 2 | 3 | 3 | 3 | 1 | 2 |
| **I am able to efficiently complete my survey using this system.** | 3 | 3 | 3 | 2 | 2 | 3 | 4 | 2 | 3 |
| **I feel comfortable using this system**. | 3 | 3 | 4 | 2 | 2 | 3 | 3 | 2 | 3 |
| **It was easy to learn to use this system** | 3 | 4 | 3 | 2 | 3 | 3 | 2 | 2 | 3 |
| **The system gives error messages that clearly tell me how to fix problems.** | 3 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 2 |
| **Whenever I make a mistake using the system, I recover easily and quickly.** | 3 | 3 | 4 | 1 | 3 | 2 | 1 | 1 | 2 |
| **The information such as on-line help, on-screen messages provided with this system are clear.** | 2 | 3 | 4 | 2 | 2 | 2 | 1 | 3 | 3 |
| **It is easy to find the information. The organization of information on the system screens is clear.** | 3 | 3 | 3 | 1 | 3 | 3 | 2 | 2 | 2 |
| Note: *The interface includes those items that you use to interact with the system. For example, some components of the interface are the keyboard, the mouse, the screens (including their use of graphics and language).* | | | | | | | | | |
| **The interface of this system is pleasant.** | 5 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 4 |
| **This system has all the functions and capabilities I expect it to have.** | 4 | 2 | 4 | 2 | 3 | 4 | 1 | 2 | 2 |
| **Overall, I am satisfied with this system.** | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 1 | 3 |

Most Liked Features (comments):

- Easy access
- Reasonably user friendly.
- Ability to create a survey.
- It exists.
- Permissions feature is a great idea.

Improvements Required (comments):

- Navigation –overall menu between screens needs improvement.
- Make it more intuitive when creating questions.
- Icons are uninformative.
- Obviousness for new and distributed users.

(The above mentioned comments are unmodified quotes taken from the posttest questionnaire)