User Experience Research Report

Heuristic Evaluation

Team Visionaries

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https://docs.google.com/document/d/1wiByYF-EgdCWqV_CQqdLtGUhYZtkLqWVPe1RjUk8-s8/edit

Executive Summary

The heuristic evaluation of ProQuest ETD Administrator, an online platform facilitating electronic submission of theses and dissertations for students, was conducted using Nielsen's 10 usability heuristics as the guideline for assessment. The evaluation process is mainly composed of 3 stages: **planning**, **individual assessments**, and **comprehensive data analysis**.

Methods and Implementation

At the planning stage, our team conducted the heuristic evaluation together to establish a consistent interpretation of criteria. We assigned severity to each identified problem, ranging from 0 to 4 for prioritization. Subsequently, each of our team members individually examined the platform, recording our findings in separate evaluation sheets. Once completed, we consolidated these individual evaluations into a unified worksheet to identify the most frequently mentioned problems.

Key Findings and Recommendations

The analysis of the worksheet revealed 34 pain points. These were classified into major, minor, and cosmetic categories. Major challenges included user comprehension of key tasks and error prevention. Minor issues revolved around clarity of page layout, while cosmetic concerns centered on aesthetic design and readability.

Recommendations were tailored to the severity of identified issues. To enhance the comprehension of contents, we suggested rewording instructions, integrating supplemental materials like videos, and clarifying info icons. Lower priority tasks involve improving layout visibility, enabling drag-and-drop uploads, enhancing input validation, and updating UI elements for better consistency and aesthetics.

Summary

In summary, our heuristic evaluation provides insights into the current usability status of ProQuest, identifying potential usability issues that may impact the user journey while highlighting opportunities for enhancing the user experience and refining the platform to better meet user needs.

Introduction

Proquest ETD Administrator serves as a vital platform for academic researchers and scholars, facilitating the submission and dissemination of scholarly works such as theses and dissertations. Designed to streamline the process of publishing academic content, ProQuest aims to provide users with an intuitive and efficient interface for managing their submissions effectively.

In conducting our heuristic evaluation, our team looked to assess the usability of the ProQuest system against Nielsen's 10 usability heuristics. Our primary goal was to identify potential usability issues and areas for improvement within the platform to enhance the user experience.

Key questions guiding our evaluation included:

1. How effectively does ProQuest ETD Administrator support users in accomplishing key tasks such as submission management and navigation?
2. Are there any usability challenges hindering user comprehension and efficient interaction with the platform?
3. What measures can be recommended to address identified usability issues and enhance the overall user experience?

The goals of this study align well with the heuristic evaluation method, which provides a structured approach to identifying usability problems based on established principles. Through our assessment of the ProQuest system against these heuristics, we aimed to deliver actionable insights that could drive meaningful improvements, ultimately delivering enhanced value to the client by improving user satisfaction, efficiency, and engagement with the platform.

Methods

We planned our heuristic evaluation carefully to make sure we checked the system's ease of use thoroughly. This includes pre-evaluation coordination, individual evaluations, and data debriefing.

- **Severity Levels:** To quantify the urgency of identified issues, we used a scale from 0 to 4, where a score of 0 indicates no problem and 4 means issues imperative to fix before the product can be released.

- **Criteria standardization and team evaluation:** The second step we took was to establish a set of standardized criteria to ensure our interpretations of each heuristic and severity level were consistent. We went through the system together, examining how each page followed these rules. For rules that were not clear, we attached brief explanations to the criteria document we established (e.g., the application of the second heuristic, “Match between system & the real world,” was interpreted as terminology understandability). We identified a total of 9 issues during our team evaluation to serve as guiding examples.

- **Individual Evaluation Phase:** After our group assessment, we reviewed the ProQuest system independently, using the agreed-upon heuristic criteria to see how serious any problems were. This phase was conducted in isolation to ensure the unbiased discovery of potential issues. Individual findings were documented in separate sections of a pre-designed spreadsheet to facilitate data collection. Information recorded includes issue descriptions, heuristics used, severity scores, screenshots, and recommendations.

- **Data Aggregation and Analysis:** Following the individual evaluations, our team reconvened to consolidate findings. We compared and aggregated issues into a comprehensive team sheet. To organize this sheet, we color-coded each heuristic category and reordered the combined list by their severity and frequency of identification. This process helped us to determine areas in need of immediate attention and the most prevalent issues. From there, we broke issues down into prioritized categories, figured out which parts of the system needed the most improvements, and prioritized our recommendations accordingly.

Findings and Recommendations

Findings

Our team has compiled the results from our individual evaluations into a table of 34 pain points (See Appendix A). By analyzing these pain points, we identified four areas of concern: comprehension of key tasks, mitigating user error, page layout, and visual appeal. We’ve separated our findings into three levels of severity–major, minor, and cosmetic.

Major Usability Issues

Challenges with User Comprehension of Key Tasks

Help and Documentation

- Formatting and wording of **instructions** lacks balance between clarity and efficiency.
- The “PQ Publishing Options” page was an area of major concern. The font size to word count ratio in the **tooltips** makes readability difficult.

Recognition Rather than Recall

- The platform lacks **graphics/visual aids** to help users navigate the submission process.

Issues Minimizing and Managing User Errors

Error Prevention

- One major concern is loss of content when navigating via the **sidebar**. If users do not notice the Save & Continue button, it's possible to lose inputted work.
- It’s possible to leave required **input fields** (i.e. contact information) **blank** by using the sidebar to navigate.

User Control and Freedom

- Currently, there is no way for users to **delete** submission attempts.

Minor Usability Issues

Challenges with Page Layout: Clarity and Easy Access

Visibility of System Status

- Options for digital downloads and pre-ordered copies of content had **visibility issues**. Issues involving **formatting** and **indicators** were identified on the “Pre-order copies” page.

Error Prevention

- The **lack of borders** around the text on the “Submit” page makes the submission summary visually overwhelming.
- The option of declining **search engine access** is obscured.

Flexibility and Efficiency of Use

- The **text box** on the “Notes to Administrator (optional)” page is currently limited to **200 characters**. Possible frustration for users with complex concerns/notes.
- When uploading a copy of their thesis/dissertation, there is no option for the user to **drag and drop** their file.

Shortfalls Mitigating User Error

Error Prevention

- On the **“Pre-order copies”** page, users can select "Continue with pre-order" **without** purchasing copies by inputting a **“0”** into the text field.

Cosmetic Issues

Issues Concerning Visual Appeal and Readability

Aesthetic and Minimalist Design

- In general, the platform's design is simple and easy to navigate, but lacks **visual appeal.**
- The information for **hard and soft cover** prices/amounts on the "Pre-order copies" page is visually cluttered. **Photos** of products are limited.

Consistency and Standards

- **Input controls** such as **checkboxes** differed from page to page. Inconsistency in design may affect user experience.

Recommendations

Our evaluations did not uncover any catastrophic usability issues. 50% of the pain points we identified were minor issues only, which were frustrating but not insurmountable. The following recommendations aim to streamline the user experience.

Highest Priority

Recommendations for Improving User Comprehension of Key Tasks

Help and Documentation

- **Reword** instructional content, integrate **supplemental material** such as **video demos.**
- Adjust **info icon** color to differentiate from other icons. **Increase** the **font size** to make tooltips more legible.

Recognition Rather than Recall

- Integrate **graphics** (i.e. arrows, icons, diagrams) that aid the user in navigating the platform.

Recommendations for Minimizing and Managing User Errors

Error Prevention

- Add modal **windows** to stop users from leaving a section without saving or filling out required information.

User Control and Freedom

- Put in place a **"remove attempt"** option.

Low Priority

Recommendations for Strengthening Page Layout

Visibility of System Status

- Reformat **font size** and **weight** on the “PDF” page. Ensure users are able to quickly and easily comprehend **status indicators.**

Error Prevention

- Add **borders/text boxes** to increase readability.

Flexibility and Efficiency of Use

- Increase **user autonomy** in places like the “Notes to Administrator (optional)” page.
- Include a **drag and drop** option for uploading thesis/dissertation files.

Recommendations for Mitigating User Error

Error Prevention

- Remove users’ ability to proceed with the purchasing process without buying copies. Record **“0”** as an **invalid input** in the copy amount section.

Cosmetic

Recommendations Concerning Visual Appeal and Readability

Aesthetic and Minimalist Design

- Update the platform’s **UI elements** and **visual design** to embody a more colorful, polished look.
- Add additional **photos** to the “Pre-order copies” page. Consider reformatting **price tables** into a more user-friendly layout.

Consistency and Standards

- Ensure consistency in **structural elements** from page to page.

Discussion

Shortcomings

In terms of shortcomings, our evaluation was limited to ProQuest ETD Administrator’s test site for training and demonstrations. As a result, our findings may not fully reflect the current state of the platform. For example, we observed vague language on the “Administrative Documents” page, but noted this heuristic issue may be due to the site's demonstrative purpose (See Appendix B). Given that the demo may not accurately represent all updates and features present on the live site, our findings could potentially overlook some issues.

Another shortcoming from our study was the lack of user context in heuristic evaluations. Without a deep understanding of users' goals and tasks, evaluators may struggle to accurately assess areas of the submission process. For instance, without knowing the timeline for PhD and Masters students, it may be challenging to prioritize issues related to task efficiency. Since we have not experienced submitting a thesis/dissertation ourselves, it was difficult to internalize the user's mindset.

Lastly, we found that certain areas of the system may have received more attention than others, leading to incomplete coverage of usability issues. While we assessed each step of the submission process, there is the possibility our focus may have been unevenly distributed. Factors such as the complexity of the interface, the prominence of certain features, or the familiarity of evaluators with specific sections could have influenced the extent of attention given to different parts of the system.

Next Steps

Our next steps would be to focus on high priority issues (i.e. rewording instructional content, integrating modal windows) to further conceptualize our recommended solutions. Additionally, we would follow up and address low priority issues. We plan to run a usability test analysis to gain different insights and perspectives on the shortcomings we found and the solutions we suggested. We will address any new shortcomings we discover through our usability testing.

References

Nielsen, J. (2024, February 20). 10 usability heuristics for user interface design. Nielsen Norman Group. https://www.nngroup.com/articles/ten-usability-heuristics/

Appendices
Appendix A

Team Severity Assessment

Link to Google Sheets:
https://docs.google.com/spreadsheets/d/1lXZPQzCQQYqNY8NyG3MncwkBOmq2aKdy6cPYhB8Ch0Y/edit#gid=0

Heuristic Analysis

Link to product w	https://www.etdadmin.com/student/inst?siteId=1&submissionId=1052467
Login credentials	None
Heuristics to be used	
Reviewer Names	Zi, Kay, Catherine, Henry & Suf

#	Screen	Problem Identified	Heuristic Used	Severity	Mentioned By	Notes	Recommendations	Resolution
1	"My Dissertations/Theses List"	Although users can continue unfinished submissions, there is no option to delete mistakenly created submission attempts.	3.User Control & Freedom	3. Major usability problem: important to fix, so should be given high priority	1 Reviewer		Add a "remove attempt" option	
2	N/A	Changes in each section are not saved until users click "Save & Continue". If users navigate to other sections via the sidebar without clicking this button, changes are lost without any alert.	5.Error Prevention	3. Major usability problem: important to fix, so should be given high priority	2 Reviewers		Pop up a confirmation window every time users leave the current page with unsaved changes.	
3	N/A	Though certain categories are required to fill out to Save & Continue during the submission process, users are still able to navigate past while leaving them blank (through the checklist sidebar)	5. Error Prevention	3. Major usability problem: important to fix, so should be given high priority	5 Reviewers	More serious usability issue	Lock the nav menu so users can't navigate to pages they haven't yet completed	
4	N/A	ProQuest does not have graphics to help with navigation and recognition throughout the submission process	6. Recognition Rather than Recall	3. Major usability problem: important to fix, so should be given high priority	5 Reviewers		Include images to make the submission process easier to navigate	
5	N/A	Instructions in general are sometimes wordy and confusing, overall instructional clarity could be improved	10. Help & Documentation	3. Major usability problem: important to fix, so should be given high priority	5 Reviewers	Important to fix		
6	"PQ Publishing Options"	In the "PQ Publishing Options" section, additional information about purchasing options is provided. However, it's not clearly stated whether the discount on copy purchases and free PDF download apply to both types of publishing.	10.Help & Documentation	3. Major usability problem: important to fix, so should be given high priority	1 Reviewer		Clarify the instructions to indicate which option the discount applies to.	
7	"PQ Publishing Options"	Current info icons aren't distinct from the blue stars in the "Open Access" section, tooltip font size to word count ratio needs adjustment	10. Help and Documentation	3. Major usability problem: important to fix, so should be given high priority	1 Reviewer	Adjustments to make the tooltips more visible and readable could help users better navigate the publishing options page	Make info icons a different color, increase font size for tooltip and simplify information included	
8	"Submit"	Though the system includes checkboxes to show where the user is in the submission process, there is no "progress bar" to identify the status of a user's dissertation/thesis after submission (pending, in revision, etc.)	1. Visibility of System Status	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	5 Reviewers		Add a progress bar that users can check after they've submitted their paper	
9	"Pre-order copies"	If users decline to pre-order, or if they click on "continue with pre-order" without placing an order, the sidebar will still display a checkmark next to the 'Pre-order copies' section title, which may lead to confusion.	1.Visibility of System Status	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	3 Reviewers		This section may need to be marked as "optional", or use other marks to indicate the status.	
10	"PDF of your thesis or dissertation"	The font for the uploaded PDF indicator is small and thin, may benefit from reformatting or even a thumbnail of the PDF	1. Visibility of System Status	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	1 Reviewer	Low visibilty, could present an obstacle for users with visual impairments	Reformatting font size/weight, maybe a thumbnail of the PDF page 1	
11	"Pre-order copies"	The font size and formatting of the pre-order copies page makes it difficult to see which options you're buying and how many copies you're ordering	1. Visibility of System Status	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	2 Reviewers	Users could incidentally buy the wrong copies or number of copies	Reformatting to a more visibly distinct table, possibly changing color of the number slot could help improve visibility	
12	"PQ Publishing Options"	Terminology such as "embargo" is not defined succinctly and clearly, can cause user frustration	2. Match Between System & the Real World	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	5 Reviewers		Simplify definition and format it so it's easier to read	
13	N/A	Although users are able to navigate to different tabs within the submission process, there is no set button for returning to a previous page	3. User Control & Freedom	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	5 Reviewers		Add return button in the top left	
14	"Dissertation/Thesis Details"	Allowing users to add custom amounts of text-fields for info such as number of committee members and chairs could give the user more control over their experience, currently the text fields are set in place and capped at certain numbers	3. User Control and Freedom	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	1 Reviewer	Nonessential, but might make filling out the forms slightly more user-friendly	Add customizability for those lists of text-fields	
15	"Creative Commons"	The way the "tell me more about Creative Commons" drop down is formatted makes it look like a link, which may confuse users/slow users down if they're opposed to being redirected	4. Consistency and Standards	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	1 Reviewer	May confuse users/slow users down if they're opposed to being redirected	Reformat information so it's consistent with the info icons/tooltips on other pages	
16	"Creative Commons"	Some of hightlighted links are build-in, some of them are redirected to another page	4. Consistency and Standards	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	1 Reviewer		Users may get confused by inconsistent behaviors of link	
17	"PQ publishing options"	The option of declining search engine access is hidden until users click on "Show More", potentially raising the error rate by making it less obvious that a refusal option exists.	5.Error Prevention	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	1 Reviewer		Remove the refusal option from the "Show More" accordion, and display it directly beneath the statement "Your work on ProQuest will be discoverable and accessible through Google Scholar!"	
18	"Pre-order copies"	Users must order at least one copy to proceed with "Continue with pre-order", or an error message appears. However, if users manually input "0" in the box, they can bypass this and proceed with "Continue with pre-order" without placing any order. This may potentially cause some issues if the user makes a typo.	5.Error Prevention	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	1 Reviewer		Display an error message whenever the input is 0.	
19	"Submit"	Information reiterated in the summary section of the "Submit" is currently constructed in a way that may result in user error	5. Error Prevention	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	1 Reviewer	Lack of readability could influence user success in the submission step	Add image thumbnails to the listed file to help prevent users from approving the wrong files. Add containers/blocks of color to increase readability	
20	"Pre-order Copies"	The highlighted size is not clickable	5. Error Prevention	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	1 Reviewer		When I clicked different size box, the screen didn't change and didn't tell me anything, causing little frustration	
21	"Supplemental files (optional)"	Though the "Help" option at the top of the page has an icon next to it, the help icon next to the supplemental files title isn't transparent about where it'll redirect the user	6. Recognition Rather than Recall	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	1 Reviewer	Weak readibilty could cause users to overlook it as an efficient method of assistance	Add a small descriptor such as "Need help understanding which files count as supplemental?"	
22	"Notes to Administrator (optional)"	The notes to administrator section has a word count cut-off set at 200 characters, which could potentially be limiting to some users	7. Flexibility & Efficiency of Use	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	5 Reviewers		Increase the word count limit or remove it	
23	"Supplemental files (optional)"	There isn't an option to upload your work from other sources such as google docs. Also, due to rights, you cannot upload a word document.	7. Flexibility & Efficiency of Use	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	1 Reviewer		Provide more options to upload work from different places.	
24	"PDF of your thesis or dissertation"	To upload your file, you cannot drag and drop, you must click and select from your system	7. Flexibility & Efficiency of Use	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.	5 Reviewers		Add drag-and-drop option for uploading files	
25	N/A	Users can see how many sections they complished by the check box, but they didn't have sense of how far away from the completion	1. Visibility of System Status	1. Cosmetic problem only: need not be fixed unless extra time is available on project	1 Reviewer		Uses can still view the progress, so it is a mild problem	
26	"Pre-order copies"	The option to select "number of copies" looks like it is not an active selection as it is grayed out until a number is entered.	1. Visibility of System Status	1. Cosmetic problem only: need not be fixed unless extra time is available on project	1 Reviewer		Make the selction a darker color so it does not appear to be grayed out even when there is no value entered.	

27	"Pre-order copies"	Limited images in terms of copy sizing	2. Match Between System & the Real World	1. Cosmetic problem only: need not be fixed unless extra time is available on project	1 Reviewer	Users aren't able to visualize accurate sizing based on representations and may not know which to choose	Include multiple photographs of views for both hard and soft cover copies	
28	"PQ publishing options" and "Creative Commons"	The method of differentiating between an unselected option and a selected one is inconsistent between the "PQ Publishing Options" section and the "Creative Commons" section. In the "PQ Publishing Options" section, it is indicated by the word "Select" and a check mark icon. However, in the "Creative Commons" section, a check mark appears next to each option, regardless of its selection status, with the differentiation made through the use of "Select" and "Selected".	4.Consistency & Standards	1. Cosmetic problem only: need not be fixed unless extra time is available on project	1 Reviewer		Unify the design standard for selection buttons	
29	"ProQuest agreement" and "University agreement"	The method of accepting agreements differs between the ProQuest agreement and the University agreement: one uses "Accept" and "Decline" buttons, while the other employs a checkbox.	4.Consistency & Standards	1. Cosmetic problem only: need not be fixed unless extra time is available on project	1 Reviewer		Unify the interaction of accepting agreement	
30	"Pre-order Copies"	The system calculated the amounts of money for user, but didn't tell them how much they saved if they buy more	6. Recognition Rather than Recall	1. Cosmetic problem only: need not be fixed unless extra time is available on project	1 Reviewer		Users need to calculate themselves how much they saved if they buy more	
31	"PDF of your thesis or dissertation"	The webpage does not use any visual icons (such as an image of a pdf) that could help users quickly more effectively find what they are looking for. Instead, users have to read the text to understand which page they are on.	6. Recognition Rather than Recall	1. Cosmetic problem only: need not be fixed unless extra time is available on project	1 Reviewer		Add visual icons for the different tabs on the webpage.	
32	"Pre-order Copies""	The enter copy input box didn't have up and down arrow to increase or decrease the number of copies	7. Flexibility and Efficiency of Use	1. Cosmetic problem only: need not be fixed unless extra time is available on project	1 Reviewer		It is not convient but user can still enter the number manually	
33	"Pre-order copies"	Information on the "Pre-order Copies" page is difficult to read, could benefit from reordering/simplification	8. Aesthetic and Minimalist Design	1. Cosmetic problem only: need not be fixed unless extra time is available on project	1 Reviewer	Interviewees in our user interviews mentioned particular difficulty navigating this page	Add different colors, reformat the table to be more readable. Introduce a more aesthetic, simple, and accessible design to the page	
34	N/A	Design is simple and easy to navigate, but not very visually appealing	8. Aesthetic & Minimalist Design	1. Cosmetic problem only: need not be fixed unless extra time is available on project	5 Reviewers	Only aesthetic issue		

Appendix B

Individual Heuristic Evaluation: Zi Wang

Link to Google Sheets:
https://docs.google.com/spreadsheets/d/1lXZPQzCQQYqNY8NyG3MncwkBOmq2aKdy6cPYhB8Ch0Y/edit#gid=340705543

Heuristic Analysis

Link to product website	
Login credentials	
Heuristics to be used	
Reviewer Names:	Zi

#	Screen	Reviewer	Problem Identified	Heuristic Used	Severity	Mentioned By	Notes	Screenshots	Recommendations
1	"Pre-order copies"	Zi	If users decline to pre-order, or if they click on "continue with pre-order" without placing an order (see Error Prevention c), the sidebar will still display a checkmark next to the "Pre-order copies" section title, which may lead to confusion.	1.Visibility of System Status	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.				This section may need to be marked as "optional", or use other marks to indicate the status.
2	"Administrative Documents"	Zi	The lack of specificity regarding which administrative documents need to be uploaded may be due to this being a demo site.	2.Match Between System & the Real World	1.Cosmetic problem only: need not be fixed unless extra time is available on project				The site should provide clearer instructions on the required documents for the actual site.
3	"My Dissertations/Theses List"	Zi	Although users can continue unfinished submissions, there is no option to delete mistakenly created submission attempts.	3.User Control & Freedom	3, important to fix				Add a "remove attempt" option
4	"PQ publishing options" and "Creative Commons"	Zi	The method of differentiating between an unselected option and a selected one is inconsistent between the "PQ Publishing Options" section and the "Creative Commons" section. In the "PQ Publishing Options" section, it is indicated by the word "Select" and a check mark icon. However, in the "Creative Commons" section, a check mark appears next to each option, regardless of its selection status, with the differentiation made through the use of "Select" and "Selected".	4.Consistency & Standards	1, not a huge issue as users are able to make selections.				Unify the design standard for selection buttons
5	"ProQuest agreement" and "University agreement"	Zi	The method of accepting agreements differs between the ProQuest agreement and the University agreement: one uses "Accept" and "Decline" buttons, while the other employs a checkbox.	4.Consistency & Standards	1; not a significant issue as users can understand both confirmation methods.				Unify the interaction of accepting agreement
6	"PQ publishing options"	Zi	The option of declining search engine access is hidden until users click on "Show More", potentially raising the error rate by making it less obvious that a refusal option exists.	5.Error Prevention	Severity: 2, minor issue				Remove the refusal option from the "Show More" accordion, and display it directly beneath the statement "Your work on ProQuest will be discoverable and accessible through Google Scholar!"
7	Every step	Zi	Changes in each section are not saved until users click "Save & Continue". If users navigate to other sections via the sidebar without clicking this button, changes are lost without any alert.	5.Error Prevention	Severity: 3, important to fix				Pop up a confirmation window every time users leave the current page with unsaved changes.
8	"Pre-order copies"	Zi	Users must order at least one copy to proceed with "Continue with pre-order", or an error message appears. However, if users manually input "0" in the box, they can bypass this and proceed with "Continue with pre-order" without placing any order. This may potentially cause some issues if the user makes a typo.	5.Error Prevention	Severity: 2, minor issue				Display an error message whenever the input is 0.
9	"PQ Publishing Options"	Zi	In the "PQ Publishing Options" section, additional information about purchasing options is provided. However, it's not clearly stated whether the discount on copy purchases and free PDF download apply to both types of publishing.	10.Help & Documentation	Severity: 3, important to fix, easy to cause confusion				Clarify the instructions to indicate which option the discount applies to.

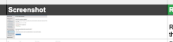
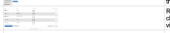
Appendix C

Individual Heuristic Evaluation: Kay Malan

Link to Google Sheets:
https://docs.google.com/spreadsheets/d/1lXZPQzCQQYqNY8NyG3MncwkBOmq2aKdy6cPYhB8Ch0Y/edit#gid=1426145882

Heuristic Analysis

Link to product website	https://www.etdadmin.com/stu...	
Login credentials	None	
Heuristics to be used		
Reviewer Names:	Kay	

#	Screen	Reviewer	Problem Identified	Heuristic Used	Severity	Mentioned By	Notes	Screenshot	Recommendations
1	"PDF of your thesis or dissertation"	Kay	The font for the uploaded PDF indicator is small and thin, may benefit from reformatting or even a thumbnail of the PDF	1. Visibility of System Status	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.		Low visibility, could present an obstacle for users with visual impairments		Reformatting font size/weight, maybe a thumbnail of the PDF page 1
2	"Pre-order copies"	Kay	The font size and formatting of the pre-order copies page makes it difficult to see which options you're buying and how many copies you're ordering	1. Visibility of System Status	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.		Users could incidentally buy the wrong copies or number of copies		Reformatting to a more visibly distinct table, possibly changing color of the number slot could help improve visibility
3	"Creative Commons"	Kay	The way the "tell me more about Creative Commons" drop down is formatted makes it look like a link, which may confuse users/slow users down if they're opposed to being redirected	4. Consistency and Standards	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.		May confuse users/slow users down if they're opposed to being redirected		Reformat information so it's consistent with the info icons/tooltips on other pages
4	"Pre-order copies"	Kay	Limited images in terms of copy sizing	2. Match Between System & the Real World	1. Cosmetic problem only: need not be fixed unless extra time is available on project		Users aren't able to visualize accurate sizing based on representations and may not know which to choose		Include multiple photographs of views for both hard and soft cover copies
5	"Dissertation/Thesis Details"	Kay	Allowing users to add custom amounts of text-fields for info such as number of committee members and chairs could give the user more control over their experience, currently the text fields are set in place and capped at certain numbers	3. User Control and Freedom	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.		Nonessential, but might make filling out the forms slightly more user-friendly		Add customizability for those lists of text-fields
6	"PQ Publishing Options"	Kay	Current info icons aren't distinct from the blue stars in the "Open Access" section, tooltip font size to word count ratio needs adjustment	10. Help and Documentation	3. Major usability problem: important to fix, so should be given high priority		Adjustments to make the tooltips more visible and readable could help users better navigate the publishing options page		Make info icons a different color, increase font size for tooltip and simplify information included
7	"Pre-order copies"	Kay	Information on the "Pre-order Copies" page is difficult to read, could benefit from reordering/simplification	8. Aesthetic and Minimalist Design	1. Cosmetic problem only: need not be fixed unless extra time is available on project		Interviewees in our user interviews mentioned particular difficulty navigating this page		Add different colors, reformat the table to be more readable. Introduce a more aesthetic, simple, and accessible design to the page
8	"Supplemental files (optional)"	Kay	Though the "Help" option at the top of the page has an icon next to it, the help icon next to the supplemental files title isn't transparent about where it'll redirect the user	6. Recognition Rather than Recall	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.		Weak readibility could cause users to overlook it as an efficient method of assistance		Add a small descriptor such as "Need help understanding which files count as supplemental?"
9	"Submit"	Kay	Information reiterated in the summary section of the "Submit" page could be reconstructed to better prevent user error	5. Error Prevention	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.		Lack of readability could influence user success in the submission step		Add image thumbnails to the listed file to help prevent users from approving the wrong files. Add containers/blocks of color to increase readability

Appendix D

Individual Heuristic Evaluation: Catherine Zhou

Link to Google Sheets:
https://docs.google.com/spreadsheets/d/1lXZPQzCQQYqNY8NyG3MncwkBOmq2aKdy6cPYhB8Ch0Y/edit#gid=1302239126

Heuristic Analysis

Link to product website	
Login credentials	
Heuristics to be used	
Reviewer Names:	Catherine

#	Screen	Reviewer	Problem Identified	Heuristic Used	Severity	Mentioned By	Notes	Screenshot	Recommendations
1	Pre-order Copies	Catherine	The highlighted size is not clickable	Error Prevention	2		When I clicked different size box, the screen didn't change and didn't tell me anything, causing little frustration		show a error message saying it is not clickable
2	Pre-order Copies	Catherine	The enter copy input box didn't have up and down arrow to increase or decrease the number of copies	Flexibility and Efficiency of Use	1		It is not convient but user can still enter the number manually		giving an up and down arrow to enter the number by clicking
3	Pre-order Copies	Catherine	The system calculated the amounts of money for user, but didn't tell them how much they saved if they buy more	Recognition Rather than Recall	1		Users need to calculate themselves how much they saved if they buy more		showing the discount percentage
4	Sidebar	Catherine	Users can see how many sections they complished by the check box, but they didn't have sense of how far away from the completion	Visibility of System Status	1		Uses can still view the progress, so it is a mild problem		giving a progess bar showing the percentage of progess
5	Creative Commons	Catherine	Some of highlighted links are build-in, some of them are redirected to another page	Consistency and Standards	2		Users may get confused by inconsistent behaviors of link		making them all redirected or all build-in, or find a way to distinguish two types of links

Appendix E

Individual Heuristic Evaluation: Henry Jackson

Link to Google Sheets:
https://docs.google.com/spreadsheets/d/1lXZPQzCQQYqNY8NyG3MncwkBOmq2aKdy6cPYhB8Ch0Y/edit#gid=51386805

Heuristic Analysis

Link to product website	
Login credentials	
Heuristics to be used	
Reviewer Names:	Henry

#	Screen	Reviewer	Problem Identified	Heuristic Used	Severity	Mentioned By	Notes	Screenshot	Recommendations
1	"PDF"	Henry	The webpage does not use any visual icons (such as an image of a pdf) that could help users quickly more effectively find what they are looking for. Instead, users have to read the text to understand which page they are on.	6. Recognition rather than recall	1. Cosmetic Problem - Using icons could make it easier for users to find what they are looking for but it does not impede their ability to submit the thesis/dissertation.		No use of visual icons.		Add visual icons for the different tabs on the webpage.
2	"Pre-order copies"	Henry	If a user declines a pre-order, they are still presented with a checkmark on the page as if they did acually pre-order and completed the task which could lead to confusion for some users.	1. Visibility of system status	2. Minor Issue - Could lead to confusion for some users but is not a critical issue as it does not hinder the submission process.		If a user declines a pre-order, they are still presented with a checkmark on the page as if they did acually pre-order and completed the task which could lead to confusion for some users.		Get rid of the checkmark that appears next to the tab if a user declines to do a pre-order.
3	Every Step	Henry	There are no actionable shortcuts for neither novice nor expert users.	7. Flexibility and efficiency of use	0. Dont agree that its a usability problem - The webpage is simple enough to navigate that I do not believe there is a need for webpage shortcuts.		No actionable shortcuts are mentioned on the website.		No action required.
4	"Instructions"	Henry	There are minimal instructions that explain exactly how to upload your thesis/dissertation	10. Help and Documentation	2. Minor Issue - Users could benefit from clearer and more detailed instructions.		Lack of detailed instructions.		Provide clearer and more detailed instructions.
5	"Pre-order copies"	Henry	The option to select "number of copies" looks like it is not an active selection as it is grayed out until a number is entered.	1. Visibility of system status	1. Cosmetic Problem - It may be difficult for users to recognize that the selection is active but once they do realize, it is does not hinder thier ability to submit.		"Number of copies" appears to be an inactive selection until you manu		Make the selction a darker color so it does not appear to be grayed out even when there is no value entered.

Appendix F

Individual Heuristic Evaluation: Sufyan Hammoudeh

Link to Google Sheets:
https://docs.google.com/spreadsheets/d/1lXZPQzCQQYqNY8NyG3MncwkBOmq2aKdy6cPYhB8Ch0Y/edit#gid=880975308

Heuristic Analysis

Link to product website	
Login credentials	
Heuristics to be used	
Reviewer Names:	Sufyan

#	Screen	Reviewer	Problem Identified	Heuristic Used	Severity	Mentioned By	Notes	Screenshot	Recommendations
1	Every step	Sufyan	Changes in each section are not saved until users click "Save & Continue". If users navigate to other sections via the sidebar without clicking this button, changes are lost without any alert.	5.Error Prevention	Severity: 3, important to fix				Pop up a confirmation window every time users leave the current page with unsaved changes.
2	"Register U.S Copyright"	Sufyan	The instructions for the benefits of the U.S copyright can be confusing for users who don't have experience with copyrighting.	5.Error Prevention	Severity: 3, important to fix				Have a short summary or link of how the copyright process works.
3	"Administrative Documents"	Sufyan	The option where it says to "Please upload another thing" could be better worded and deliver clearer instructions to the user.	10. Help & Documentation	2. Minor Issue - Users could benefit from clearer and more detailed instructions.				Provide clearer instructions to the user on what to upload.
4	"Pre-order copies"	Sufyan	The font size and formatting of the pre-order copies page makes it difficult to see which options you're buying and how many copies you're ordering which could cause error for the user when pre-ordering their thesis.	1. Visibility of System Status	2. Minor Issue - Slightly slows down and irritates users. Should be given low priority to fix.				Reformatting to a more visibly distinct table, possibly changing color of the number slot could help improve viability
5	"Supplemental files (optional)"	Sufyan	Their isn't an option to upload your work from other sources such as google docs. Also, due to rights, you cannot upload a word document.	7. Flexibility & Efficiency of Use	2. Minor Issue - Users could benefit from clearer and more detailed instructions.				Provide more options to upload work from different places.