

TIND RDM Research Data Repository

Usability Test Research Report

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Executive Summary

The Research Data Repository (RDR) supports Duke researchers in sharing their research datasets with the Duke community. Originally developed in-house by Duke University, the RDR transitioned in 2025 to TIND RDM, a vendor-supported platform. This migration introduced substantial changes to the repository's design, workflows, and functionality, leading the RDR team to engage Duke University Assessment & User Experience Strategy (AUXS) department to conduct a comprehensive usability evaluation of the system.

To capture a diverse range of user experiences, participants were recruited based on their familiarity with the legacy RDR. The study sample comprised five expert users (faculty and staff members familiar with the legacy RDR) and five novice users (graduate students with limited prior experience using the legacy RDR).

Participants completed a series of representative tasks using TIND RDR that reflected common workflows. Researchers recorded performance and collected quantitative usability metrics alongside qualitative observations of points of difficulty. Both open- and closed-ended questions were used to capture user perceptions and feedback. The primary goals of this research were (1) to evaluate the usability of the updated designs and workflows, and (2) to develop actionable recommendations to improve the overall user experience.

The objective of this report is to support targeted adjustments by TIND's software development team ahead of the platform's full institutional release in 2026. Accordingly, issues classified as Severe (Level 1) and Serious (Level 2) were prioritized and translated into Immediate Action and High-priority recommendations.

Recommendations

The following recommendations reflect multiple rounds of review and prioritization and are organized by implementation priority for TIND's software development team. Recommendations are grouped into three categories (Immediate Action, High Priority, and Secondary) with each category listing the relevant workflow and its associated recommendations.

The team that prepared this report recognizes that implementation may be constrained by factors such as development effort, timing, or technical feasibility. Accordingly, some recommendations include multiple implementation options. In these cases, Option A represents the preferred solution and should be prioritized, as it offers the greatest benefit to Duke's users.

Immediate Action

Workflow	Recommendations
Depositing Data	<p>Form Submission Confirmation Modals</p> <ul style="list-style-type: none"> Option A: Develop a confirmation modal allowing users to explicitly select reasoning for empty form submissions. Option B: Develop a clear confirmation modal (e.g., "Are you sure you want to submit? No dataset has been attached to the form.") for empty form submissions. Option C: Implement a system-level requirement that prevents form submission without an uploaded dataset.
Previewing ZIP Files	<p>Preview & Files Relation</p> <ul style="list-style-type: none"> Option A: Merge the Files & Preview sections to allow users to preview and download from a single location. Option B: Rename the Files and Preview sections to "Files Download" and "Files Preview".
Creating Baskets	<p>Terminology & Topic Categorization</p> <ul style="list-style-type: none"> Replace the "Personalize" menu option to "My Account". Replace the "Basket" feature to "Folders". Remove topic categorization. <p><i>If "My Account" cannot be implemented:</i></p> <ul style="list-style-type: none"> Eliminate the "Personalize" menu option. <p><i>If "Folders" cannot be implemented:</i></p> <ul style="list-style-type: none"> Eliminate the "Basket" feature.
Downloading Usage Statistics	<p>Downloads Button</p> <ul style="list-style-type: none"> Rename the "Downloads" selector to a metric-focused label (e.g., "Metric Type: Downloads"). <p>Update Button</p> <ul style="list-style-type: none"> Option A: Remove the "Update" button and automatically refresh the graph when statistics metrics or date ranges change. Option B: Provide immediate visual feedback when a statistics metric or date selection is changed.

High Priority

Workflow	Recommendations
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Depositing Data	<p>Form Fields Behavior</p> <ul style="list-style-type: none"> • Option A: Stabilize input field behavior. • Option B: Implement long option lists.
Downloading Files	<p>Batch Download: Modals</p> <ul style="list-style-type: none"> • Option A: Eliminate the multi-step modal flow by triggering an immediate download once the batch is ready with a single confirmation modal. • Option B: <ul style="list-style-type: none"> ○ Modal 1 - Remove the “OK” button from the first modal and retain only the loading progress indicator. ○ Modal 2 - Replace the “Click here” link in the second modal with a clearly labeled primary action button (e.g., “Download Here”) and avoid placing calls to action in body text. <p>Batch Download: Modal Messaging</p> <ul style="list-style-type: none"> • Replace the phrase “requested archive of files” with “requested batch of files” to keep messaging consistent. <p>Multiple File Download</p> <ul style="list-style-type: none"> • Make file-selection checkboxes visible by default.

Secondary

Workflow	Recommendations
Depositing Data	<p>Form Submission Fields</p> <ul style="list-style-type: none"> • Option A: Collapse, defer, or visually distinguish required versus non-required fields. • Option B: Reorder the form to present required fields first, with non-required fields grouped at the end. • Add a “Save and finish later” option to allow users to complete non-required fields at a later time.
Downloading Usage Statistics	<p>Locating Statistics Section</p> <ul style="list-style-type: none"> • Add a page-level overview or sidebar navigation that uses in-page anchors or jump links. <p>Ownership</p> <ul style="list-style-type: none"> • Move the statistics section toward the top of the page for dataset owners. • Set the statistics section toggle to be collapsed by default for non-owned datasets.

Copying Citations	<p>Format & Export Options</p> <ul style="list-style-type: none"> • Add BibTeX and RIS export options to the citations feature.
Locating Globus Download	<p>Download Options & Instructional Materials</p> <ul style="list-style-type: none"> • Show only one download option at a time by surfacing Globus only for large datasets and hiding the standard download option. • Remove the “Learn more” option and route the Globus button directly to Globus. • Partner with Globus to surface instructional materials directly from their site.
Revising Datasets	<p>Revision Emails Wrap Text</p> <ul style="list-style-type: none"> • Ensure revision emails are responsively formatted with proper text wrapping across common email clients and screen sizes. <p>Revision Emails Length & Clarity</p> <ul style="list-style-type: none"> • Provide clear, step-by-step revision instructions within revision emails. • Include visual aids such as annotated screenshots or simple diagrams in revision emails. • Visually prioritize the primary action link within revision emails. <p>Revision Icons</p> <ul style="list-style-type: none"> • Add hover text or inline labels to revision-related icons. • Delete the truncate text option and wrap text by default. <p>Submission Dashboard Sections</p> <ul style="list-style-type: none"> • Clarify the labeling of deposit status sections to better indicate required user actions. • Differentiate “Drafts” and “My Submissions” more clearly through labeling or supporting text.
Versioning Datasets	<p>Versioning Options</p> <ul style="list-style-type: none"> • Clarify the distinction between “Edit Version” and “Create New Version” by explicitly stating that “Edit Version” does not add to version history, while “Create New Version” adds a new retained version.
Downloading Files	<p>Batch Download: Button Discoverability</p> <ul style="list-style-type: none"> • Emphasize the “Batch Download” option by applying the same call-out colors used for individual file download buttons.
Creating Baskets	<p>Creation Confirmation</p> <ul style="list-style-type: none"> • Provide clear modal confirmation feedback upon successful basket creation.

Research Questions

This study was guided by a set of research questions designed to evaluate the usability of the TIND-based RDR for both expert and novice users. The questions focus on users' ability to complete key workflows, their perceptions of ease of use and satisfaction, and the identification of usability issues that affect task success, efficiency, and overall usability.

Primary Research Question

- How effectively does the TIND RDR support expert and novice users in completing key repository workflows, and what usability issues impact task success, efficiency, and satisfaction?

Expert Users

- How well does the TIND RDR support expert users in completing core data management workflows? What usability issues affect task completion, efficiency, and satisfaction?
- To what extent are expert users satisfied with the TIND RDR? How do they perceive its ease of use?
- How do expert users perceive the usability of the TIND RDR in comparison to the legacy RDR? Which system do they prefer and why?

Workflows Evaluated

Sample Question: How easily can expert users complete the [name] workflow? What usability issues arise during the [name] workflow, and how do they affect task completion?

- Depositing data
- Downloading usage statistics
- Copying citations
- Previewing ZIP files
- Locating Globus download
- Reviewing deposit status
- Revising datasets
- Versioning datasets

Novice Users

- How well does the TIND RDR support novice users in locating, understanding, and downloading datasets?

- To what extent are novice users satisfied with the TIND RDR? How do they perceive its ease of use?

Workflows Evaluated

Sample Question: How easily can expert users complete the [name] workflow? What usability issues arise during the [name] workflow, and how do they affect task completion?

- Locating & understanding datasets
- Downloading multiple files
- Downloading batch ZIP files
- Creating baskets

Methodology

This study employed a task-based usability testing methodology to evaluate the effectiveness, efficiency, and satisfaction of key workflows within the TIND RDR. The approach aligns with established UX research best practices for formative usability evaluation, particularly those outlined by the Nielsen Norman Group (NN/Group, 2019), which emphasize direct observation of users completing representative tasks to uncover usability issues that impact task success and user experience.

Usability testing sessions were conducted in a moderated setting, allowing researchers to observe user behavior in real time, probe for clarification when necessary, and capture both quantitative performance metrics and qualitative insights into user expectations, mental models, and points of friction.

Participants

Participants were recruited to represent two primary user groups of the RDR: expert users and novice users. Recruitment criteria were based on participants' prior familiarity with the legacy RDR and their typical interaction patterns with research data repositories.

- Expert users (n=5): Faculty and staff members with prior experience using the legacy RDR, who regularly or occasionally engage in workflows such as depositing, revising, reviewing, or managing datasets.
- Novice users (n=5): Graduate students with limited prior experience using the RDR, including first-time or infrequent users who primarily interact with the system to locate and download datasets.

This sample size is consistent with usability testing guidance, which demonstrates that testing with a small number of representative users is effective for identifying the majority of critical usability issues when combined with task-based observation.

Participant ID	Expertise	Role	Department
EP1	Expert	Staff	Nicholas Institute for Energy
EP2	Expert	Staff	Office of Scientific Integrity
EP3	Expert	Faculty	Science & Engineering
EP4	Expert	Faculty	Chemistry & Physics
EP5	Expert	Staff	University Libraries
NP1	Novice	Graduate Student	School of Law
NP2	Novice	Graduate Student	Trinity College
NP3	Novice	Graduate Student	School of Law
NP4	Novice	Graduate Student	Romance Studies
NP5	Novice	Graduate Student	Computer Science

Tasks & Scenarios

Participants completed a series of representative, goal-oriented tasks designed to reflect real-world use of the RDR. Tasks were tailored to each user group to align with their typical workflows: expert user tasks focused primarily on data management activities, while novice user tasks emphasized dataset discovery and access (see Appendix A for a complete list of tasks and scenarios).

Tasks were presented as realistic scenarios rather than prescriptive instructions, allowing participants to rely on the interface to guide task completion. This approach supports the identification of breakdowns in navigation, labeling, system feedback, and workflow design by revealing where the interface fails to meet user expectations or support task progression.

Data Analysis

Quantitative Metrics

To analyze the data, we began by examining the following quantitative metrics to identify where further analysis should be pursued:

- Completion rate – represents the average percentage of participants who completed each task.
- Difficulty – reflects participants' subjective assessment of how easy or difficult the task was to complete.
- Time on task – captures the average duration required to complete each task from start to finish.

Taken together, these metrics offer a snapshot of performance and help identify areas of friction, inefficiency, or potential usability risk. Tasks with lower completion rates, higher perceived difficulty, and longer completion times signal opportunities for targeted improvements and warrant further analysis.

Accordingly, this report prioritizes those tasks, as these patterns suggest barriers to successful task completion. For example, Expert T4: Preview ZIP exhibited both a low completion rate and high perceived difficulty, indicating a high likelihood of usability issues impacting user success. Following analysis of quantitative metrics and task prioritization, observed usability issues were examined in greater depth and classified by impact and frequency.

Issue Classification

Impact

Impact ranks the issue's consequences by defining the degree of severity a problem has on successfully completing a task.

- 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 task completion (non-critical error)

Frequency

Frequency is the percentage of participants who experience the problem.

- High – 80% or more of the participants experience the problem

- Moderate – 40% to 60% of participants experience the problem
- Low – 20% or fewer of participants experience the problem

Classification

● Level 1 - Severe	High-impact problems that prevent users from correctly completing a task. May or may not exhibit high frequency.
● Level 2 - Serious	Moderate to high frequency problems with moderate to low impact. These are typical problems that the participant usually does not recognize.
● Level 3 - Moderate	Either moderate problems with low frequency or low problems with moderate frequency. These are minor problems experienced by several participants.
● Level 4 - Subtle	Low-impact problems experienced by few participants.

Thematic Analysis

Following issues identification and severity classification, qualitative data were analyzed using a thematic analysis approach to identify recurring patterns across tasks and user groups. This analysis drew mainly on participants’ verbal comments and observed behaviors. The resulting themes were used to contextualize individual usability issues, explain underlying causes, and inform the development of higher-level design considerations. This approach ensured that findings reflected not only what issues occurred, but also why they occurred and how they related to users’ mental models, prior workflows, and expectations of repository systems.

Considerations & Recommendations

Finally, the researcher drafted initial considerations to address the underlying causes of observed usability issues, focusing on potential changes to design, interaction, and workflow that could reduce friction and better align the system with user expectations.

These initial considerations were then presented to RDR stakeholders, including members of the RDR team and relevant library staff, for collaborative discussion. Through this process, considerations were refined, clarified, and, where appropriate, consolidated to reflect technical feasibility and institutional priorities.

To support structured decision-making, stakeholders and the researcher collaboratively evaluated recommendations using a priority matrix that balanced staff-defined priority against technical effort (time and cost). This matrix enabled recommendations to be categorized into four decision areas

- Immediately Deliver to TIND (high priority, lower technical effort)
- Save for a Future Date (high priority, higher technical effort)
- Potential (lower priority, lower technical effort)
- Eliminate (lower priority, higher technical effort)

Recommendations classified as Immediately Deliver to TIND were prioritized and shared with TIND’s software development team prior to the completion of this report. These recommendations addressed issues with the greatest impact on user success and efficiency and were deemed feasible with the current development cycle. This report documents those recommendations alongside additional findings and considerations that, while not immediately actionable, provide a comprehensive view of usability risks and opportunities for improvement. The sections that follow present detailed findings organized by workflow, with associated usability metrics, issues, severity ratings, and related considerations.

Findings

Research Questions Synthesis

Primary

How effectively does the TIND RDR support expert and novice users in completing key repository workflows?

Overall, the TIND RDR supports both expert and novice users in completing key repository workflows, with strong performance observed for foundational tasks such as dataset discovery, access, and routine management. However, effectiveness varied by workflow and user familiarity. Simpler, exploratory workflows were well supported, while more complex, multi-step workflows introduced usability challenges for both groups.

While the TIND RDR supports essential workflows, it would benefit from targeted improvements to complex workflows, clearer system feedback, and stronger support for users transitioning from legacy processes. Addressing these areas, which are discussed in detail in coming sections, would improve consistency, efficiency, and overall user experience across diverse users.

Expert

How well does the TIND RDR support expert users in completing core data management workflows, and what usability issues affect task completion, efficiency, and satisfaction?

The TIND RDR generally supports expert users in completing core data management workflows, with four of the eight users successfully completing all tasks. However, task performance and

efficiency were not uniform across workflows, revealing concentrated areas of usability friction. Expert users may experience greater friction in workflows that require multiple steps, system interpretation, or interaction with less familiar processes and features.

To what extent are expert users satisfied with the TIND RDR, and how do they perceive its ease of use?

Expert satisfaction with the TIND RDR was generally positive but not uniform. Four of the five participants reported being satisfied or very satisfied, and the majority perceived the system as easy or very easy to use. However, dissatisfaction emerged when users encountered complex or unfamiliar workflows.

EP5’s dissatisfaction was directly tied to perceived difficulty with some particular features, noting that the submission dashboard lacked clarity and that the ZIP preview functionality was confusing. Participants also acknowledged an adjustment period associated with the new interface. EP4 characterized the TIND RDR as having “more potential for growth,” noting that while the interface may take some getting used to, familiarity would likely improve ease of use over time. However, concerns were raised about changes to the submission process—specifically, the need to upload the dataset with the form, indicating that deviations from established workflows can negatively impact satisfaction even when the interface itself is usable.

Participant	Satisfaction	Ease of Use	Preference
EP1	Very Satisfied	Very Easy	TIND RDR
EP2	Satisfied	Easy	Workflow dependent
EP3	Satisfied	Easy	Neutral
EP4	Satisfied	Easy	Neutral
EP5	Dissatisfied	Difficult	Workflow dependent

How do expert users perceive the usability of the TIND RDR in comparison to the legacy RDR, and which system do they prefer and why?

Expert participants expressed mixed and nuanced preferences when comparing the TIND RDR to the legacy RDR. Two participants reported a neutral preference, indicating no strong inclination toward either RDR, while the remaining responses were split between a preference for TIND and a conditional preference that depended on the specific workflow being performed. This distribution suggests that experts do not view the TIND RDR as categorically better or worse than the legacy RDR. Overall, expert preference appears to be workflow-dependent and transitional, influenced by

how closely the TIND RDR aligns with existing mental models, how effectively changes from the legacy RDR are communicated, and how quickly users can recover from usability errors.

Novice

How well does the TIND RDR support novice users in locating, understanding, and downloading datasets?

The TIND RDR effectively supports novice users in locating and understanding datasets, with strong performance observed for discovery and initial evaluation tasks. All novice participants successfully completed the dataset discovery task, and it was consistently rated as easy to complete, indicating that search and navigation sufficiently support first-time users in identifying relevant data.

Support for downloading workflows was more variable. While batch downloading was completed successfully by all participants and perceived as easy, workflows requiring more complex interactions, such as downloading multiple files or organizing content into baskets, presented greater challenges. These tasks had lower completion rates and, in the case of basket creation, were rated as difficult, suggesting that novice users struggled with features that required understanding of system-specific conventions or multi-step interactions.

To what extent are novice users satisfied with the TIND RDR, and how do they perceive its ease of use?

Overall, novice users reported high levels of satisfaction and perceived ease of use when interacting with the TIND RDR. Four of five participants indicated that they were satisfied or very satisfied, and similarly, four of five rated the system as easy or very easy to use. These results further suggest that the interface effectively supports first-time users in accomplishing core tasks, particularly those related to dataset discovery and basic access.

One participant (NP5) reported being dissatisfied and rated the system as difficult. This divergence mainly stems from usability friction observed in workflows that require multi-step engagement or deeper experience of system-specific features. While initial impressions and exploratory interactions are largely positive, there remain some usability issues that need to be addressed and are further discussed in the sections that follow.

Participant	Satisfaction	Ease of Use
NP1	Very Satisfied	Easy
NP2	Satisfied	Easy
NP3	Satisfied	Easy

NP4	Very Satisfied	Very Easy
NP5	Dissatisfied	Difficult

Expert Workflow Analysis

High-level Overview

Workflows/Tasks	Completion Rate	Difficulty Rating	Time on Task
Depositing Data	60%	Easy	5.58
Downloading Usage Statistics	60%	Easy	1.15
Copying Citations	100%	Very Easy	.19
Previewing ZIP Files	40%	Difficult	2.38
Locating Globus Download	80%	Easy	1.28
Reviewing Deposit Status	100%	Easy	.50
Revising Datasets	100%	Easy	2.01
Versioning Datasets	100%	Easy	2.17

Depositing Data

Task: Upload the data.csv, which was sent to your email, to Duke's RDR using the following information.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Very Easy	3.36
P2	Completed	Easy	5.3
P3	Completed	Easy	4.56
P4	Failed	Easy	4.54
P5	Failed	Easy	10.12
Averages	60%	Easy (1.8)	5.58 min

Issues

Issue 1: Uploading Datasets

Severity ranking: Level 1, Severe

Participants 4 and 5 submitted the deposit form without uploading the dataset, resulting in task failure. Both participants attributed this error to a habitual behavior carried over from the previous RDR workflow, which involved a two-step process: (1) submitting a deposit request form and (2) uploading the dataset to a separate Box folder. Additionally, the current system allows form submission without a required dataset upload, which not only contributes to user error but also increases curator workload by necessitating follow-up requests for missing datasets.

Quotes

- P4: "I completely missed the first time around that the data was supposed to be submitted with the form info. That's my bias coming from the previous system; I assumed this was a two-step process. I would first submit the info about the data, then later drop the data somewhere else. This is a transition mistake. I went by habit."
- P5: "I guess, I thought it was a similar process to the old one, and I am now just realizing I should have uploaded the dataset. That might cause more work on the curator's end."

Considerations

- Implement a system-level requirement that prevents form submission until a dataset has been uploaded. *Note: If there are valid cases where a form may be submitted without a dataset, present a clear confirmation modal (e.g., "Are you sure you want to submit? No dataset has been attached.") to ensure the action is intentional (see figure 1).*
- Visually reinforce an upload requirement through labeling (e.g., "Required"), iconography, or helper text to reduce reliance on memory and to address prior workflow habits.
- Consider progressive disclosure for edge cases, allowing users to explicitly select a reason for submitting without a dataset when applicable, which may reduce follow-up work for curators (see figure 2).

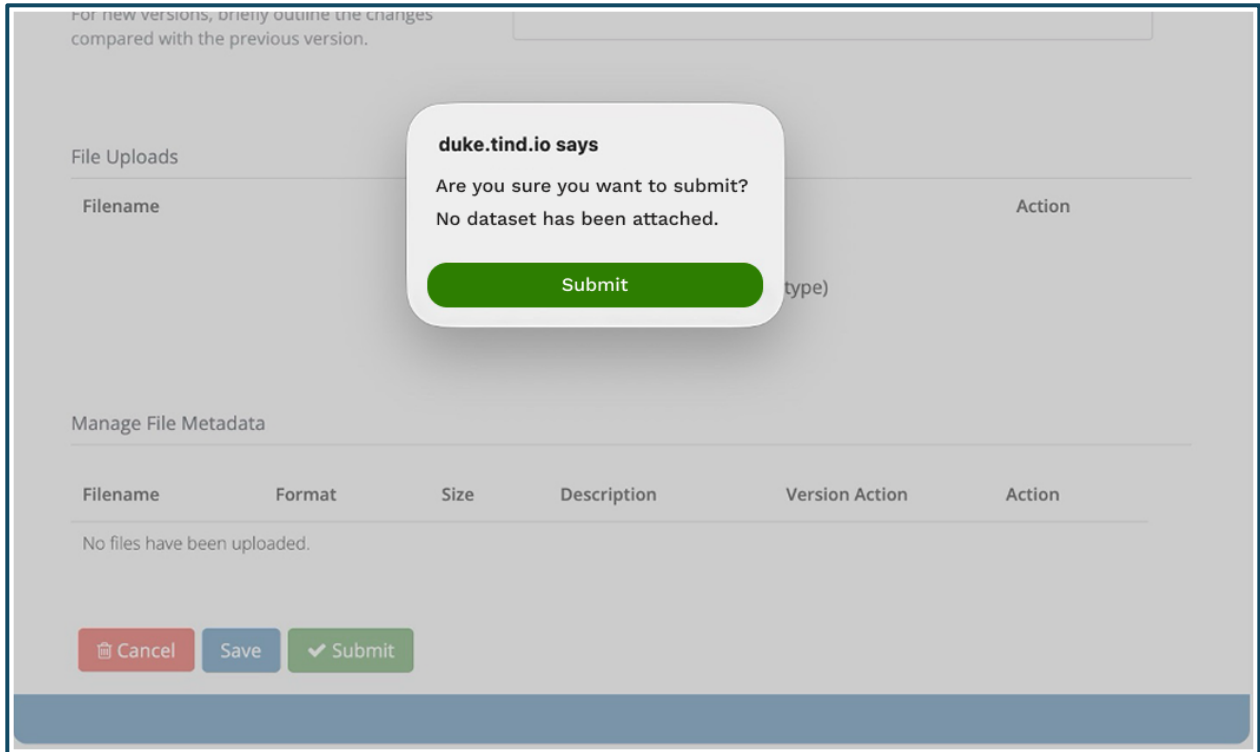


Figure 1 Example of Confirmation Modal

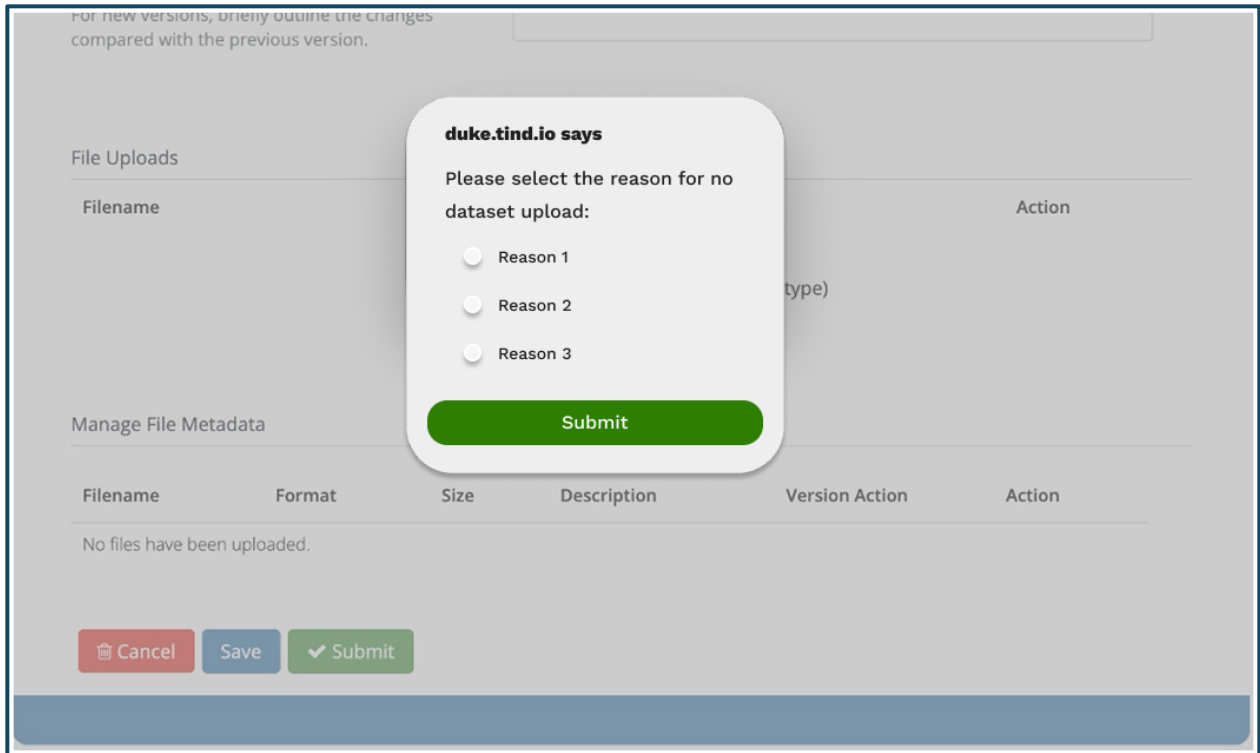


Figure 2 Reasoning Modal

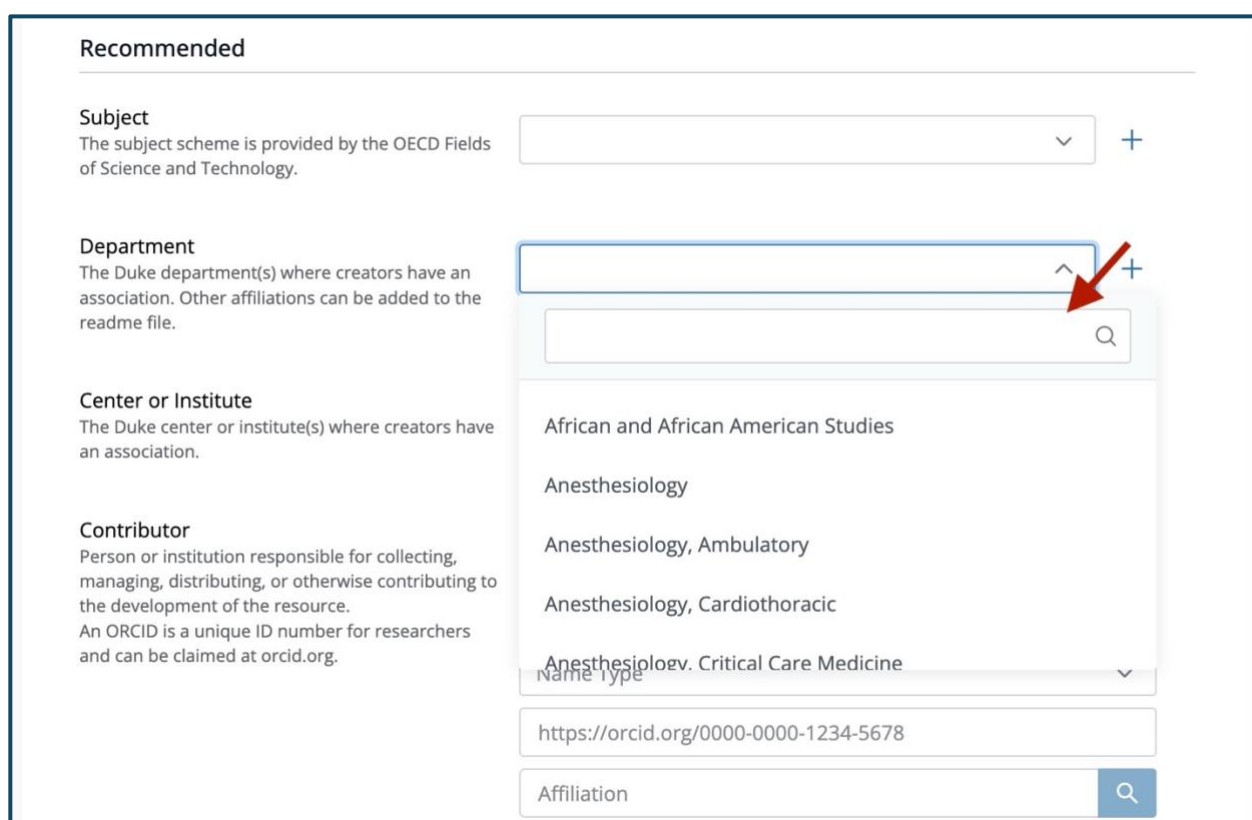
Issue 2: Searching Form Input Options

Severity ranking: Level 2, Serious

Four of the five participants (P1, P3, P4, and P5) experienced usability issues when searching for selectable options within the submission form (see figure 3). Participants reported that the input field frequently failed to return search results, forcing them to manually scroll through long lists; an interaction they described as frustrating and inefficient.

In addition, some participants observed inconsistent system behavior, including options unexpectedly disappearing and the input field intermittently flashing. In at least one case, this behavior required the participant to refresh the page to continue the task.

While these issues did not consistently prevent participants from completing the task, they likely contributed to increased time on task by introducing friction, interruptions, and unnecessary recovery steps during form completion.



The screenshot shows a form titled "Recommended" with four main sections, each with a search input field and a dropdown menu:

- Subject:** "The subject scheme is provided by the OECD Fields of Science and Technology." Input field is empty, dropdown shows a downward arrow and a plus sign.
- Department:** "The Duke department(s) where creators have an association. Other affiliations can be added to the readme file." Input field is empty, dropdown is open showing a list of departments: "African and African American Studies", "Anesthesiology", "Anesthesiology, Ambulatory", "Anesthesiology, Cardiothoracic", and "Anesthesiology, Critical Care Medicine". A red arrow points to a search icon in the dropdown.
- Center or Institute:** "The Duke center or institute(s) where creators have an association." Input field is empty, dropdown is empty.
- Contributor:** "Person or institution responsible for collecting, managing, distributing, or otherwise contributing to the development of the resource. An ORCID is a unique ID number for researchers and can be claimed at orcid.org." Input field contains "https://orcid.org/0000-0000-1234-5678", dropdown is empty.

At the bottom, there is an "Affiliation" input field with a search icon.

Figure 3 Submission Form Input Search

Quotes

- P1: "There were initial problems when searching for the department, then there was a weird flashing when searching."

- P3: “It looks like it won’t allow me to search for the CC-BY license, not sure why I have to scroll to find it.”
- P4: “When I chose a department, it wouldn’t allow me to start typing to find computer science; I had to scroll all the way down for a while. On one of the items, when I typed "national science foundation," it found it easily, but the other lists didn't work the same.”

Considerations

- Stabilize input field behavior to prevent visual disruptions (e.g., flashing or disappearing options), as these behaviors undermine user confidence and interrupt task flow.
- Optimize long option lists to prioritize search over manual scrolling, minimizing cognitive and interaction effort during form completion.

Issue 3: Lengthy Form & Non-Required Fields

Severity ranking: Level 3, Moderate

Two of the five expert participants (P2 and P3) reported that the deposit form contained an excessive number of non-required fields, resulting in unnecessary vertical scrolling. They indicated that the volume of optional fields made the form feel longer and more time-consuming than expected, particularly for users who may not have all the required information readily available. While this issue did not prevent participants from completing the task, it contributed to reduced satisfaction with the deposit process and increased perceived effort.

Quotes

- P2: “If I didn’t have the information provided to me, this would have taken an extra fifteen to twenty minutes to fill out the form completely. That’s just too long.”
- P3: “There are a lot of unrequired fields on the form, not sure if that is necessary.”

Considerations

- Evaluate whether non-required fields can be collapsed, deferred, or visually distinguished to reduce perceived form length and scrolling burden.
- Consider reordering the form to present required fields first, with non-required fields grouped toward the end of the form. This structure would help users quickly identify mandatory inputs, reduce the risk of missing required fields, and allow users to more easily scroll past optional fields when completing a minimal deposit.
 - Current form structure
 - Required (Title, Creator, Contact, Keywords, etc.)
 - Recommended (Subject, Department, Contributor, etc.)
 - Deposit Information – also required (License, Agreement, Human data, etc.)

- Version Information – not required (Version Note)
- File Uploads – not required (see [Issue 1](#))
- Manage File Metadata – dependent on File Uploads
- Potential form structure
 - Required (Title, Creator, Contact, Keywords, etc.)
 - Deposit Information (License, Agreement, Human data, etc.)
 - Recommended (Subject, Department, Contributor, etc.)
 - Version Information (Version Note)
 - File Uploads – not required (see [Issue 1](#))
 - Manage File Metadata – dependent on File Uploads

Consider providing a “Save and finish later” option to support users who may wish to complete non-required fields but do not have all information available at the time they started the deposit, reducing time pressure and frustration during completion.

Downloading Usage Statistics

Task: Locate the yearly quantitative data showing distinct views for the year 2025 of the datasets and export a copy.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Easy	.53
P2	Completed	Very Easy	2
P3	Failed	Difficult	1.54
P4	Failed	Very Easy	.22
P5	Completed	Difficult	1.48
Averages	60%	Easy (2)	1.15 min

Issues

Issue 1: Overlooked Unique Downloads Option

Severity ranking: Level 1, Severe

Two of the five participants (P3 and P4) failed the task after exporting statistics without switching the metric from Downloads to Unique Downloads (see figure 4). Participants did not notice that multiple download metrics were available, nor did they recognize that the default selection did not meet the task requirements.

One participant (P2) initially followed the same path and downloaded the statistics without changing the view to Unique Downloads. However, after reviewing the output, P2 recognized the discrepancy, returned to the interface, located the Unique Downloads option, and re-downloaded the data, ultimately completing the task successfully.

This pattern highlights a discoverability issue: the distinction between Downloads and Unique Downloads is not sufficiently visible or clearly communicated within the interface. While some users may recover through additional effort or prior knowledge, others proceed unaware that an incorrect metric has been selected, resulting in task failure or inaccurate data output.

Quotes

- P4: “I guess the button is fine, it was more that I didn’t see it or read carefully.”

Considerations

- Rename the “Downloads” selector to a metric-focused label (e.g., “Metric” or “Metric Type” or “Metric: Downloads”) to clearly indicate that users must choose which statistic is being viewed or exported.
- Increase the visual prominence and clarity of the metric selector so that users can easily distinguish between the options at the point of decision.
- Reevaluate the necessity of the statistics feature, as participants expressed limited perceived value for this information when interacting with datasets they do not own.

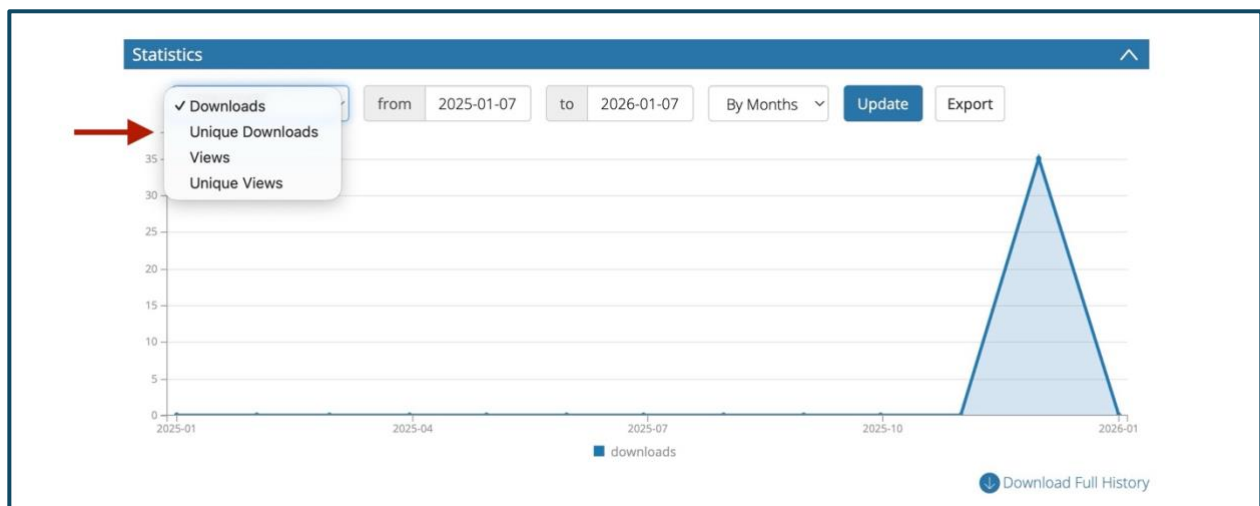


Figure 4 Statistics Unique Downloads Option

Issue 2: Placement & Extensive Scrolling

Severity ranking: Level 3, Moderate

The dataset usage statistics feature is currently located at the bottom of the dataset page, requiring user to rely on extensive vertical scrolling to locate it (mentioned by P1 and P3). This placement reduced discoverability and increased effort, particularly for users who expected key dataset actions and information to be visible near the top of the page. One participant suggested that a persistent page-level navigation or overview would better support content discovery, noting that similar patterns are used in other database platforms she has used. While participants were ultimately able to locate the statistics feature, the need to scroll contributed to their overall frustration.

Quotes

- P1: “Too much scrolling to get there and was hard to find. There should be a nav bar on the left side to indicate everything that is available on the page”
- P3: “Not obvious from the top what I’m looking for, if it’s all the way at the bottom”

Considerations

- Add a page-level overview or sidebar navigation (see figure 5 for an example), that utilizes in-page anchors or jump links, to help users quickly identify available sections and reduce reliance on scrolling.



Figure 5 Example of sidebar page overview/navigation

Issue 3: Failure to Update Statistics Metric

Severity ranking: Level 4, Subtle

Some participants didn't notice that the statistics metric required an explicit update when switching from downloads to unique downloads (figure 6). Because participants were able to recover and complete the task, the issue didn't prevent task success but resulted in increased task time and minor frustration.

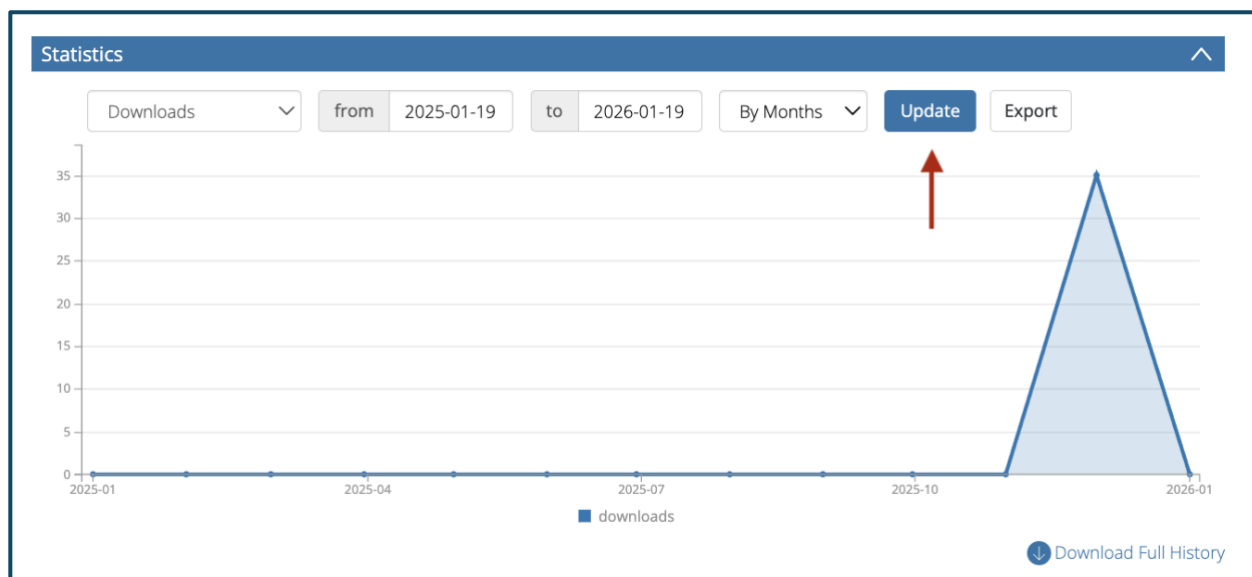


Figure 6 Statistics Update Button

Considerations

- Remove the Update button and automatically refresh the graph when statistics metrics or date ranges are changed by the user. This will eliminate the need for explicit confirmation and reduce user error.
- Provide immediate visual feedback when a metric selection change (e.g., loading state or subtle animation) to reinforce that the graph is responding to user input.

Issue 4: Relevance & Perceived Importance

Severity ranking: Level 4, Subtle

Participants perceived the dataset usage statistics feature as having limited relevance when viewing datasets deposited by others. This perception stemmed from users' primary interest in tracking engagement with their own datasets rather than exploring usage metrics for datasets they did not own.

Quotes

- P4: "I'm not sure I would be very interested in this information for other depositors; I'm only concerned about my own submissions"

Considerations

- Adjust the statistics toggle to be collapsed, by default, for non-owned datasets to better align the interface with users' priorities and reduce emphasis on low-relevance information.
- Adjust the placement of the usage statistics feature for dataset owners by moving it toward the top of the page to emphasize ownership and increase perceived relevance.
- Consider removing the usage statistics feature from non-owned datasets entirely.

Copying Citations

Task: Locate the “Chicago 18th” citation. Let me know when you are finished.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Very Easy	.18
P2	Completed	Very Easy	.16
P3	Completed	Easy	.21
P4	Completed	Very Easy	.14
P5	Completed	Easy	.30
Averages	100%	Very Easy (1.4)	.19 sec

Issues

Issue 1: Limited Citation & Download Options

Severity ranking: Level 4, Subtle

The citations feature was easy for participants to locate and use, as reflected in the task metrics. However, two participants (P3 and P4) indicated that the available citation options were limited, expressing a preference for BibTeX and RIS export formats rather than relying solely on copy-and-paste functionality (figure 7).

Quotes

- P4: “I would really need the BibTeX and RIS, and I would prefer to export rather than copy and paste.”

Consideration

- Add BibTeX and RIS export options to the citations feature to support common academic workflows and reduce reliance on manual copy-and-paste.



Figure 7 Citations Copy & Paste

Previewing ZIP Files

Task: Locate the ZIP folder, without downloading it, for the North Carolina dataset and tell me the title of the last file in the folder.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Difficult	1.17
P2	Completed	Very Easy	1.6
P3	Failed	Difficult	1.1
P4	Failed	Difficult	1.01
P5	Failed	Difficult	4.28
Averages	40%	Difficult (3)	2.38 min

Issues

Issue 1: Section Labeling Does Not Match User Expectations

Severity ranking: Level 1, Severe

The Files section label (figure 5) created a systematic expectation mismatch, leading participants to expect a comprehensive list of files contained within each ZIP archive (e.g., Delaware.zip, Virginia.zip), an expectation the interface did not meet. As a result, all participants initially navigated to the Files section and experienced extended task completion times. P1 and P2 were the only participants who successfully completed the task (average completion time = 1.38), doing so by navigating to the Preview ZIP section (figure 6) after much exploration. The remaining participants attempted to recover by exploring other areas of the interface, including the PDF section (P4 and P5) and the Stats section (P3 and P4); however, these efforts did not lead to task completion, and P3, P4, and P5 ultimately failed the task.

Action	Filename	Size	Access	Format	Description
Download	HabProj.xml	6.5 kB	Public	.xml	-
Download	Delaware.zip	3.4 MB	Public	.zip	-
Download	North Carolina.zip	25.5 MB	Public	.zip	-
Download	README - Blue carbon mapping ...	143.6 kB	Public	.pdf	-
Download	Virginia.zip	29.3 MB	Public	.zip	-
Download	Maryland.zip	13.2 MB	Public	.zip	-
Download	New York.zip	5.6 MB	Public	.zip	-
Download	New Jersey.zip	6.8 MB	Public	.zip	-

Batch Download ▾

Figure 8 Files Section

Preview

PDF ZIP

Select file: North Carolina.zip

✕ Collapse all

NC_HabProj_Int_2027.tif.ovr	631.65 KB
NC_HabProj_Int_2027.tif.aux.xml	1.30 KB
NC_HabProj_Int_2027.tif	2.59 MB
NC_HabProj_Int_2027.tfw	93 bytes
NC_CFlux_IntLow_MThax10.tif.xml	1.44 KB
NC_CFlux_IntLow_MThax10.tif.aux.xml	1.34 KB
NC_CFlux_IntLow_MThax10.tif	391.10 MB
NC_CFlux_IntLow_MThax10.tfw	93 bytes
NC_CFlux_Int_MThax10.tif.xml	583 bytes
NC_CFlux_Int_MThax10.tif.aux.xml	1.38 KB
NC_CFlux_Int_MThax10.tif	391.10 MB
NC_CFlux_Int_MThax10.tfw	93 bytes

Figure 9 Preview Section ZIP

Quotes

- P1: “I initially thought this would be completed in the section called files.”
- P4: “I’ve never seen a ZIP preview like this on another system before. I would have expected to find them in Files.”

Considerations

- Merge the Preview ZIP & Files sections to allow users to preview and download files from a single, consolidated location, reducing navigation overhead and aligning with user expectations.
- Remove the standalone Preview ZIP section, as participants did not expect to preview individual files, and they typically would want to download all data, rather than a single file or two.
- Clarify section labeling by renaming the Files and Preview sections to more explicitly communicate their respective functions (e.g., “File Downloads” and “File Preview”).

Issue 2: Preview ZIP Discoverability

Severity ranking: Level 2, Serious

The Preview section defaults to a PDF view, which reduces the discoverability of the ZIP option (figure 7), causing it to feel hidden within the interface. Participants P1 and P2 explicitly noted this, and it likely contributed to the elevated task failure rate observed among P3, P4, and P5, who did not discover the ZIP preview during task execution.

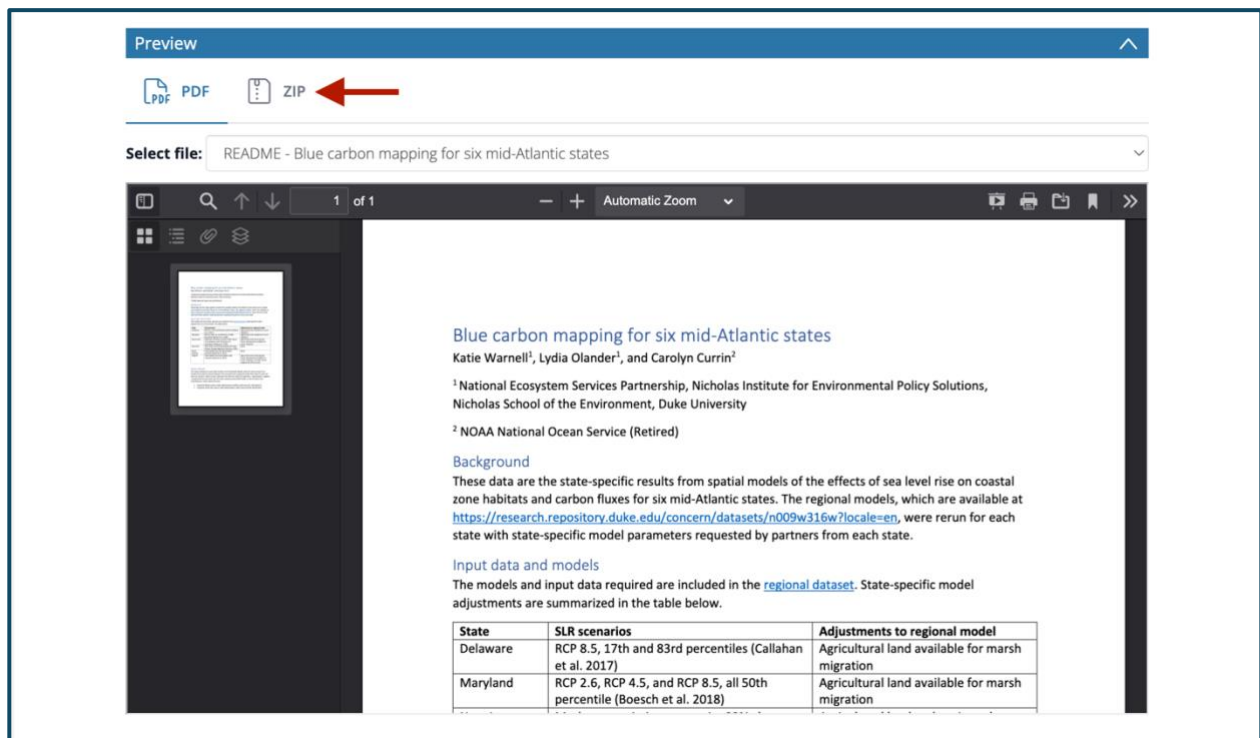


Figure 10 Preview Section PDF Default

Quotes

- P1: “This is not easy to figure out to preview the files Zip because the page defaults to PDF.”
- P3: “It’s not at all obvious that the preview section would have that functionality.”

Considerations

- Set the ZIP view as the default within the Preview section to improve file visibility and discoverability. *Note: Because file downloads are currently only available in the Files section, this change may introduce additional confusion and should be implemented only in conjunction with related interface updates (see Issue 1 considerations).*
- Enhance the visibility of the ZIP option through stronger visual emphasis, such as increased icon prominence, size, contrast, or more strategic placement within the interface.
- *Same as Issue 1:* Merge the Preview ZIP & Files sections to allow users to preview and download files from a single, consolidated location, reducing navigation overhead and aligning with user expectations.
- *Same as Issue 1:* Remove the standalone Preview ZIP section, as participants did not expect to preview individual files, and they typically would want to download all data, rather than a single file or two.

Locating Globus Download

Task: Locate the feature that allows you to download a larger dataset file from a third-party system.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Very Easy	.1
P2	Completed	Very Easy	1.3
P3	Completed	Very Easy	.16
P4	Failed	Very Difficult	1.54
P5	Completed	Very Easy	.26
Averages	80%	Easy (1.6)	1.28 min

Issues

Issue 1: Limited Understanding of Globus Download

Severity ranking: Level 3, Moderate

Although only one participant (P4) failed the task, multiple participants reported having a limited understanding of Globus. Participants also expressed confusion about when to use Download from Globus versus the standard Download option (figure 11).

This uncertainty indicates a mismatch between the system's terminology and users' mental models. The lack of clear differentiation between download methods increases cognitive load and forces users to make decisions without sufficient context, which may lead to hesitation, errors, or inefficient task completion.

- Quotes
- P1: "Yes, once or twice. I've muddled my way through, but I'm not super familiar with it. I know it helps you transfer files and you have to log into it separately; it's not part of Duke"
- P3: "I've heard of it, but all I know is that it's another version of a repository that is more widely used"
- P4: "I'm stuck, and I don't know what I'm looking for... Oh, I see. I've heard of Globus before but haven't used it and don't know a lot about it"

Considerations

- Avoid presenting multiple download options simultaneously when they are not equally applicable. If a dataset exceeds the size limits for standard downloads, surface only the Globus option at the top to prevent competing choices and reduce unnecessary decision-making.
- Remove the Download Globus and consolidate download options into a single primary action. Retain the standard Download option (at the top of the dataset page) as the default, and when a dataset exceeds the allowable size for direct download, present a system-triggered message explaining that the data must be accessed via Globus, with a clear path to proceed. This approach preserves a familiar workflow while introducing Globus only when required.
- Provide contextual explanations for Globus at the point of interaction. Use lightweight guidance, such as hover text or inline descriptions, to explain why Globus is offered and when it is necessary, helping users make informed decisions without requiring prior knowledge of the tool.

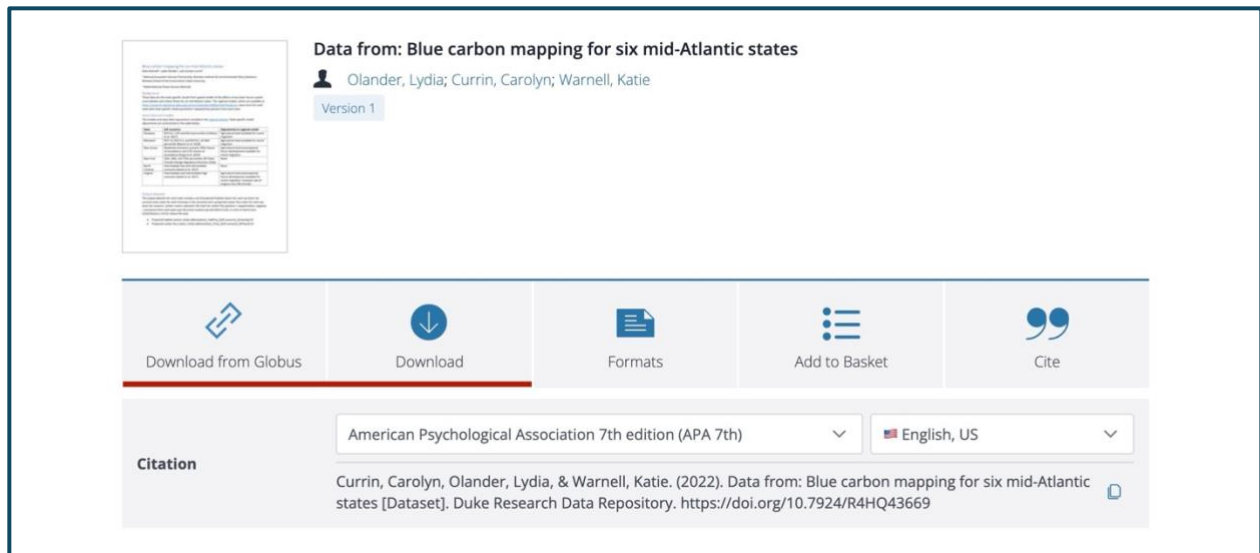


Figure 11 Download from Globus

Issue 2: Limited Usage

Severity ranking: Level 3, Moderate

Participants demonstrated limited familiarity with Globus, largely due to minimal prior use. Three participants (P1, P2, and P5) reported having used Globus only a few times, while two participants (P3 and P4) indicated they had never used it. This lack of experience contributed to uncertainty about when and why Globus should be used as a download option, increasing cognitive effort during task completion.

Considerations

- Educate RDR users about Globus through targeted library communications (e.g., emails, announcements, or brief instructional materials) to build baseline awareness and reduce uncertainty about when and why Globus should be used.

Issue 3: Unmet Expectations When Selecting Globus

Severity ranking: Level 3, Moderate

Some participants (P3 and P5) experienced unmet expectations when selecting the Globus download option, assuming the button would take them directly to Globus rather than presenting additional options. Encountering the intermediary choices (“Learn more” and “Go to Globus”) (figure 12) introduced friction and disrupted users’ expected workflow, increasing effort and momentary confusion during task completion. Participants indicated little interest in reading explanatory content about Globus at the point of action and expressed a preference for a more direct path to downloading. Three of the five participants explicitly suggested removing the “Learn

more” option entirely. One participant (P5) additionally noted that instruction content about Globus would be more appropriately provided by Globus, rather than by Duke.

Quotes

- P5: “If Duke has a partnership with Globus, I think it is their responsibility to provide instructional materials to our patrons.”

Considerations

- Remove the “Learn more” option and route the Globus button directly to Globus to align with user expectations and reduce unnecessary decision points.
- Explore a partnership with Globus to surface official instructional materials or guidance directly from Globus so that explanatory content is authoritative, up to date, and does not require Duke to maintain separate documentation or additional steps in the workflow.

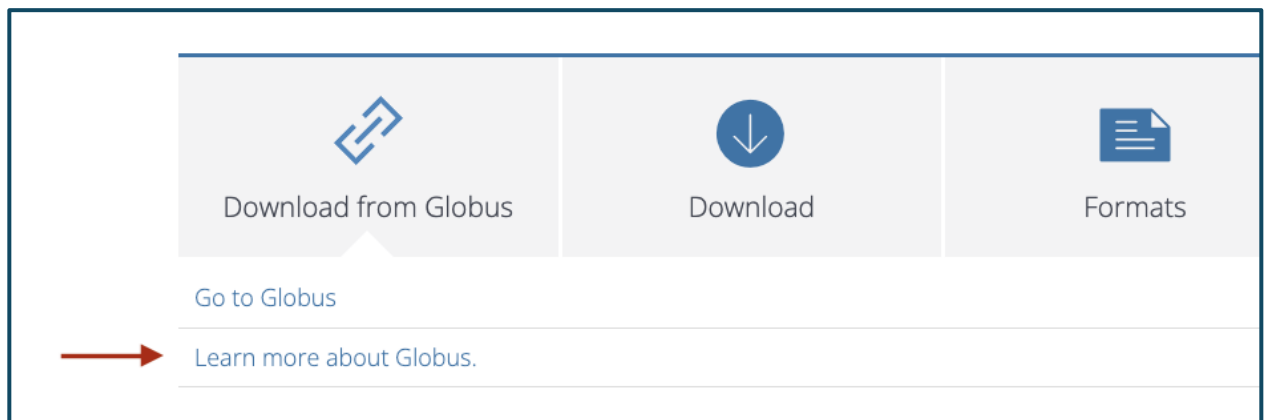


Figure 12 Learn more about Globus link

Reviewing Deposit Status

Task: Locate your deposited dataset within the Research Data Repository and describe its status in the review process.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Easy	.39
P2	Completed	Easy	.40
P3	Completed	Difficult	.38
P4	Completed	Easy	1.01

P5	Completed	Difficult	.35
Averages	100%	Easy (2.4)	.50 sec

Issues

Issue 1: Unclear Placement and Labeling of Deposit Status Information

Severity ranking: Level 3, Moderate

Several participants experienced brief confusion when attempting to locate their deposit status, particularly when expectations based on prior RDR workflows did not align with the new system. One participant (P3) noted that it “took a second” to locate the status under the Revision Requested section, while another (P4) initially did not expect the submission to be available because they had not personally submitted the dataset under the previous RDR process.

Additional confusion was observed around section terminology within the submission dashboard. One participant (P5) reported uncertainty in distinguishing between Drafts and My Submissions (see figure 13), indicating that section labels did not clearly communicate their contents or required actions.

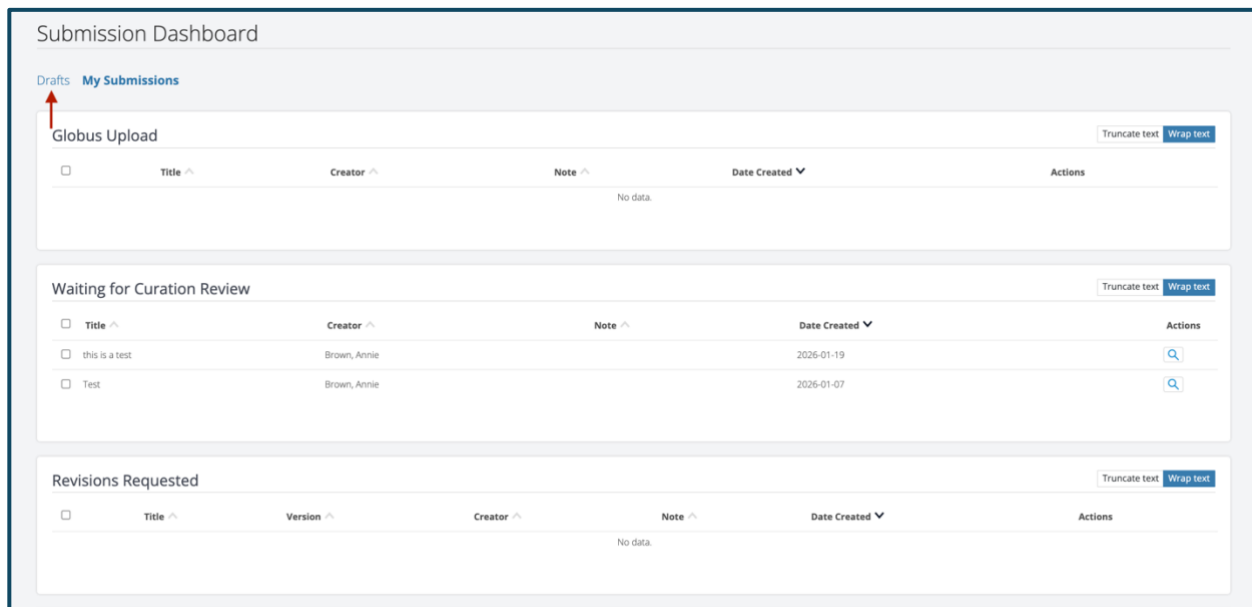


Figure 13 Drafts & My Submission Dashboard

Considerations

- Clarify the labeling of deposit status sections to better indicate required user actions.
- Differentiate Drafts and My Submissions more clearly through labeling or supporting text.

Revising Datasets

Task: Read the revision email carefully, then locate the pending dataset mentioned in the message. Upload the new readme.txt file, which was sent to your email, to that dataset, and send it back to the curator for review.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Easy	1.25
P2	Completed	Very Easy	3
P3	Completed	Easy	1.16
P4	Completed	Difficult	1.4
P5	Completed	Difficult	3.24
Averages	100%	Easy (2.2)	2.01 min

Issues

Issue 1: Revision Email Wrapping

Severity ranking: Level 3, Moderate

All participants ultimately completed the task; however, two participants (P4 and P5) rated the task as difficult, and all participants required more than one minute to complete it. Several participants reported difficulty reading the revision email because the content did not wrap within the email body (figure 14), requiring horizontal scrolling to view the full message.

This lack of text wrapping made it harder for participants to quickly locate and follow the link directing them to the dataset submission requiring revision. While the issue did not prevent task completion, it introduced unnecessary friction and likely contributed to increased time on task and perceived task difficulty.

Quotes

- P2: “Let me show you how the email shows up, it doesn’t wrap. That’s not ideal”

Considerations

- Ensure revision emails are responsively formatted with proper text wrapping so that all content is readable without horizontal scrolling across common email clients and screen sizes.

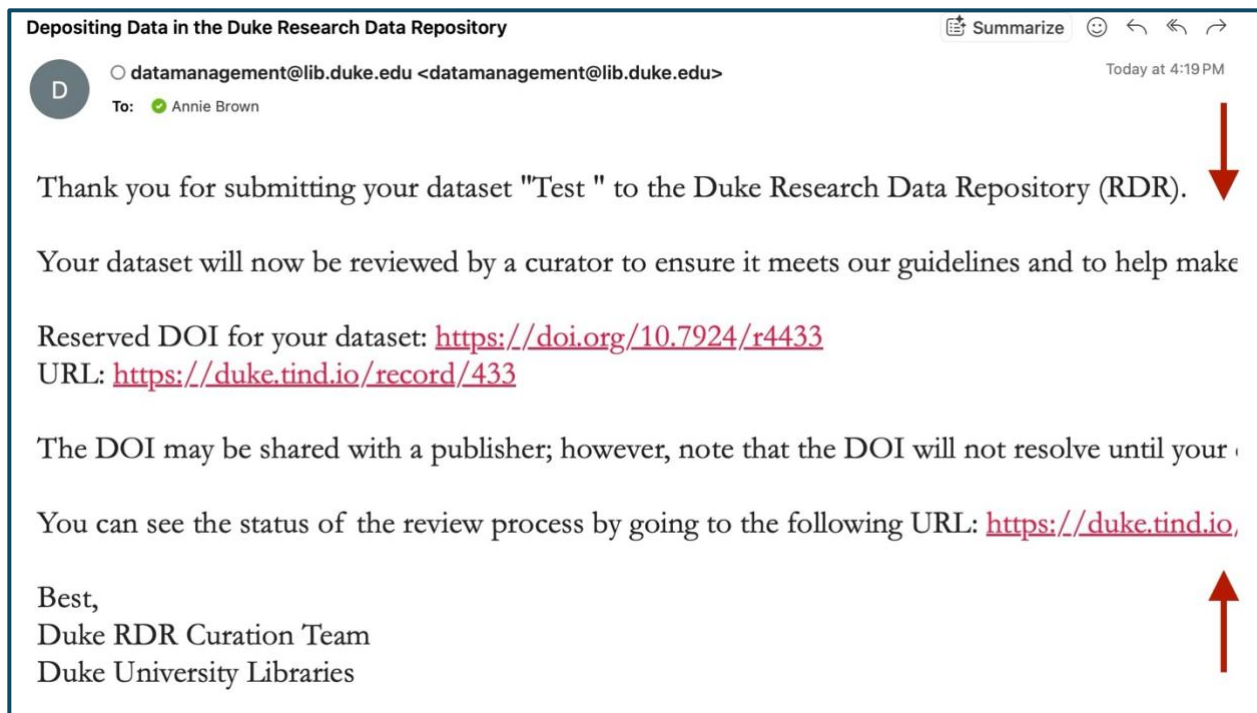


Figure 14 Revision Email Wrapping Issue

Issue 2: Revision Email Length & Clarity

Severity ranking: Level 3, Moderate

Three participants (P2, P4, and P5) reported that the revision email was confusing and overly long. Participants expressed uncertainty about specific terminology used in the message, particularly the meaning of the “revision requested table” (P2 and P5), which was not clearly explained or contextualized.

Additionally, participants noted that the tone and structure of the email felt automated and impersonal, rather than clearly written or tailored to guide them through the revision process. This lack of clarity required participants to spend additional time interpreting the message and determining the appropriate next steps. While the issue did not prevent task completion, it introduced unnecessary cognitive effort and contributed to hesitation during the revision workflow.

Considerations

- Provide clear and short step-by-step (Step 1, Step 2, etc.) revision instructions within the email to help users understand what has been requested, what actions are required, and how to complete the revision workflow with minimal interpretation.
- Include visual aids (e.g., annotated screenshots or simple diagrams) to reinforce key steps, such as where to find the revision request details and where to click to begin revisions.
- Visually prioritize the primary action link within the revision email (e.g., the link to the dataset requiring revision) to help users quickly identify the next step.

Issue 3: Dashboard Revision Requested Icons

Severity ranking: Level 3, Moderate

Participants 4 and 5 reported that the revision-related edit icons on the user dashboard were unclear and lacked sufficient context to convey their functions. P4 initially clicked into the magnifying glass, looking at its contents, rather than the pencil icon to edit its contents, making salient the requirement for trial and error. Additionally, in both cases, the participants also had to scroll horizontally to locate the icons, further reducing discoverability and increasing effort during task completion.

Quotes

- P4: “It’s not clear what these buttons are for.”
- P5: “I initially struggled because I had to scroll over to find the buttons; they were hidden from view. I’m not sure if that is because of my browser, or what.”

Considerations

- Add hover text or inline labels to revision-related icons to clearly communicate their purpose and reduce ambiguity.
- Delete the truncate text option, and wrap text by default, to avoid the need for horizontal scrolling.

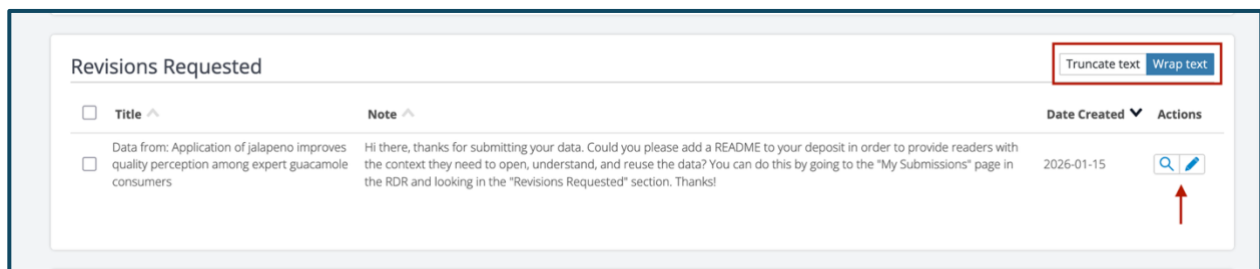


Figure 1515 Revision Requestion Icons & Wrap Text

Versioning Datasets

Task: Modify the [name] dataset with the addition of the code.r file, which was sent to your email.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Very Easy	1.16
P2	Completed	Very Easy	1.1

P3	Completed	Easy	1.25
P4	Completed	Easy	2
P5	Completed	Difficult	3.38
Averages	100%	Easy (1.8)	2.17 min

Issues

Issue 1: Clarity of Edit Version vs. Create New Version

Severity ranking: **Level 3, Moderate**

Three participants (P2, P4, and P5) reported uncertainty about when or why to choose between the Edit Version and Create New Version options (figure 16). Participants indicated that the purpose and implications of each option were unclear, making it difficult to determine the appropriate action.

Two participants (P2 and P4) noted that the presence of Minor and Major edit labels (figure 14) further increased confusion, as it was not clear how these classifications related to the versioning options. This lack of clarity required participants to pause and reason through the decision, introducing friction during task completion. While the issue did not prevent participants from completing the task, it contributed to hesitation and cognitive load, supporting its classification as a Level 3 (Moderate) usability issue.

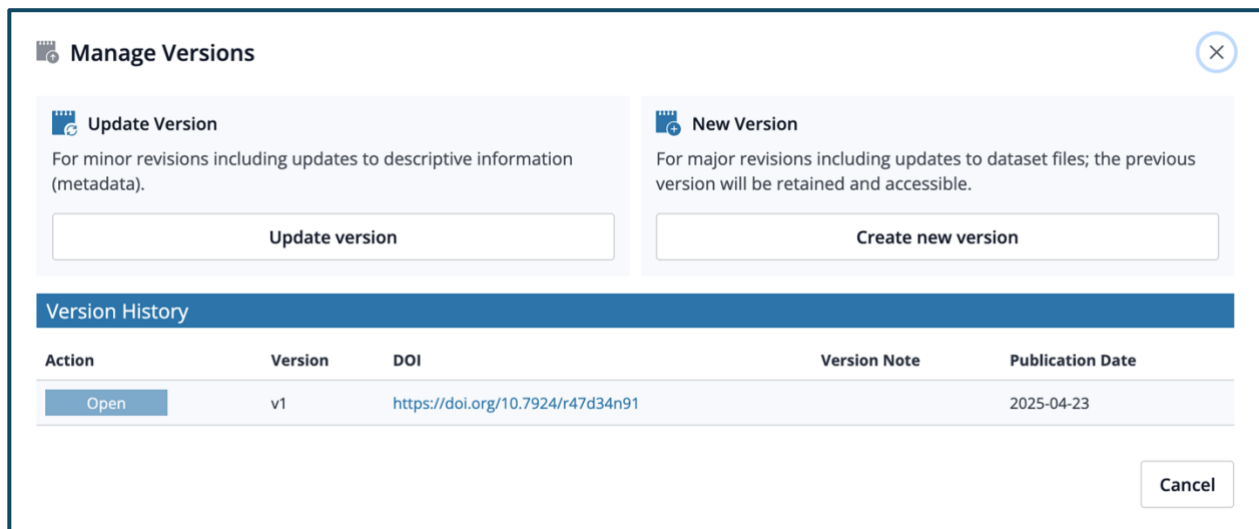


Figure 16 Update Version versus Create New Version

Quotes

- P2: "It didn't make sense to me why I clicked create new version. It doesn't make sense to me. When I see create new version, that means create a new dataset or a new deposit. Especially if I'm trying to just upload new code, to me I would have just preferred to make a quick edit to it. So, that was confusing, when and why I should click create new vs edit. Especially since the new version says, minor and major. What does that mean?"
- P4: "I wasn't sure what the versioning button would do. I didn't know if it was going to give me the choice to edit version 1/2/3, or if it would allow me to go back into different versions. It only allowed me to create a new version. "The last system had historical versions that you could edit, I was told It could be done on this system as well so I expected to do that."
- P5: "Add a way, in the system, to message the curators if something was changed or edited."

Considerations

- Clarify the distinction between "Edit Version" and "Create New Version" using plain, task-oriented language by explicitly stating that Update version does not add an entry to the version history, while New Version creates a new, retained version that appears in the version history displayed below the options (figure 16).

Themes

Theme 1: Task Path

Participants used two primary pathways to locate their dataset before creating a new version. Two participants (P3 and P4) used the homepage search to navigate directly to their dataset, while three participants (P1, P2, and P5) accessed their dataset through the submission dashboard via the account menu. Both paths supported successful task completion, suggesting that users rely on different navigation strategies depending on familiarity and preference.

Novice Workflow Analysis

High-level Overview

Workflows/Tasks	Completion Rate	Difficulty Rating	Time on Task
Locating & Articulating Datasets	100%	Easy	1.17
Downloading Multiple Files	60%	Easy	1.08
Downloading Batch	100%	Easy	.53
Creating Baskets	60%	Difficult	2.32

Locating & Articulating Datasets

Task: Use the Research Data Repository to find an appropriate dataset about American candy. Once you've located the dataset, click into it to view its contents.

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Very Easy	1.49
P2	Completed	Easy	.41
P3	Completed	Very Easy	.4
P4	Completed	Very Easy	1.11
P5	Completed	Easy	.46
Averages	100%	Very Easy (1.4)	1.17 min

Task Outcome

All novice participants successfully located an appropriate dataset and accessed its contents without assistance or major error, indicating that basic discovery and access workflows were effective. While no major issues occurred, several themes emerged during task completion.

Themes

Theme 1: Initial Impressions and Mental Models

All participants immediately recognized the RDR as a Duke-affiliated resource, pointing out the prominent institutional branding. Several compared the interface to other academic databases they regularly use, indicating that they approach the system with established mental models shaped by prior research tools. These expectations appeared to support, rather than hinder, task completion.

Theme 2: Section Comprehension

Participants generally demonstrated a clear understanding of most sections on the dataset file page. However, the Statistics section emerged as a recurring point of ambiguity. Several participants (P2, P4, and P5) expressed uncertainty about the purpose of the statistics, noting that it was unclear whether the metrics reflected dataset characteristics or platform-level engagement (e.g., views or downloads). This confusion did not prevent task completion but introduced momentary hesitation.

Theme 3: Information Hierarchy and Content Priority

Across sessions, participants consistently emphasized the importance of data files and previews when evaluating a dataset. Most participants (P1, P2, P3, and P5) indicated that the Files section should appear higher on the page, as it directly supports their primary goal of understanding and downloading dataset contents. These preferences suggest that novice users prioritize content that enables rapid assessment of dataset relevance over supplementary metadata or engagement information.

Theme 4: Interface Affordances and Visual Design

Participants responded positively to the use of collapsible sections, noting that this structure helped reduce visual overload and supported scanning (P2, P2, and P4). At the same time, some participants (P2 and P5) found the PDF preview to be distracting, especially when it has bright colors and highlights (figure 17), and the primary objective is to download the PDF.

Considerations

Although no usability issues were observed, participants consistently identified opportunities to improve clarity and efficiency:

- Clarify the Statistics section by adding brief explanatory text or iconography to indicate whether metrics represent dataset attributes or platform engagement.
- Reorder key content sections by elevating the Files section and PDF preview to better align with novice users' primary evaluation workflows.
- Revisit PDF preview visual styling to determine whether highlight colors are unnecessarily distracting, particularly for first-time users.

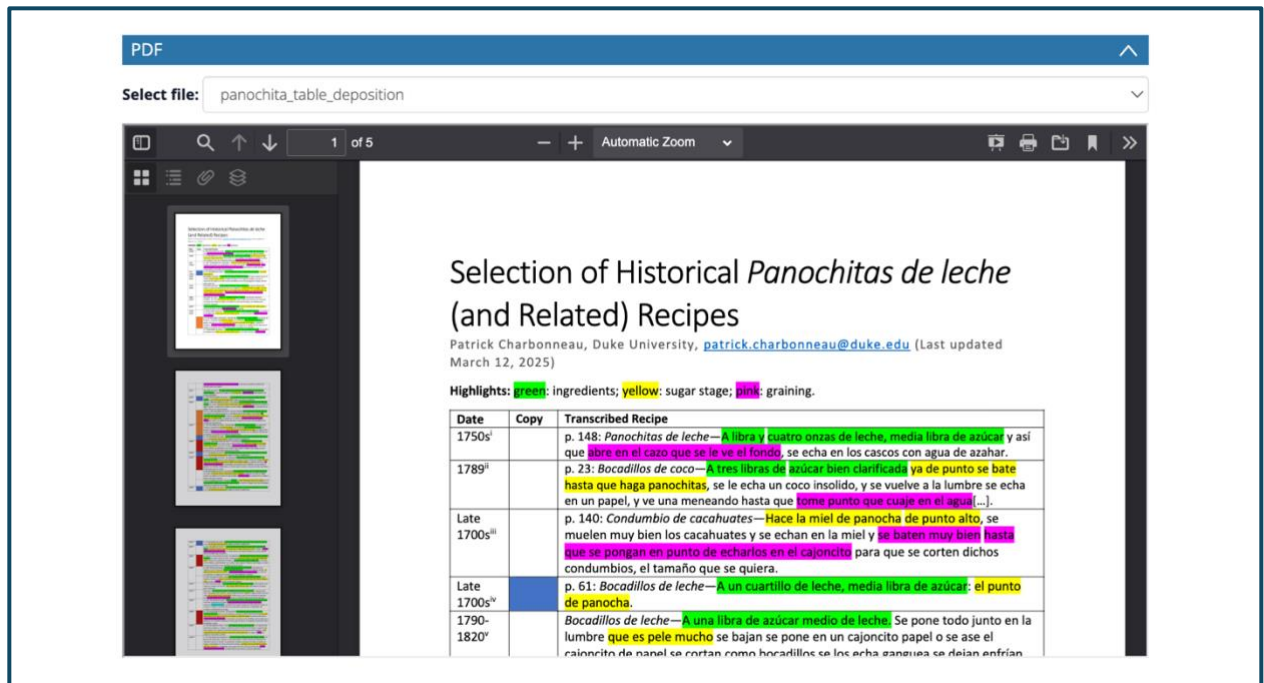


Figure 17 Preview PDF Highlights

Downloading Multiple Files

Task: Save a single ZIP folder containing only the .json and MANIFEST.txt files to your computer.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Very Easy	.42
P2	Failed	Easy	2.13
P3	Failed	Very Easy	.45
P4	Completed	Very Easy	1.03
P5	Completed	Very Easy	1.35
Averages	60%	Very Easy (1.2)	1.08 min

Issues

Issue 1: Unclear Workflow for Downloading Multiple Files

Severity ranking: Level 1, Severe

The current Files section supports two clear actions: (1) downloading all files at once via the Batch Download control (figure 18), and (2) downloading single files individually using the blue Download buttons (figure 18). However, the interface does not make it equally clear how to download multiple selected files (but not all files) as a single ZIP, despite this being a common and expected file-management workflow.

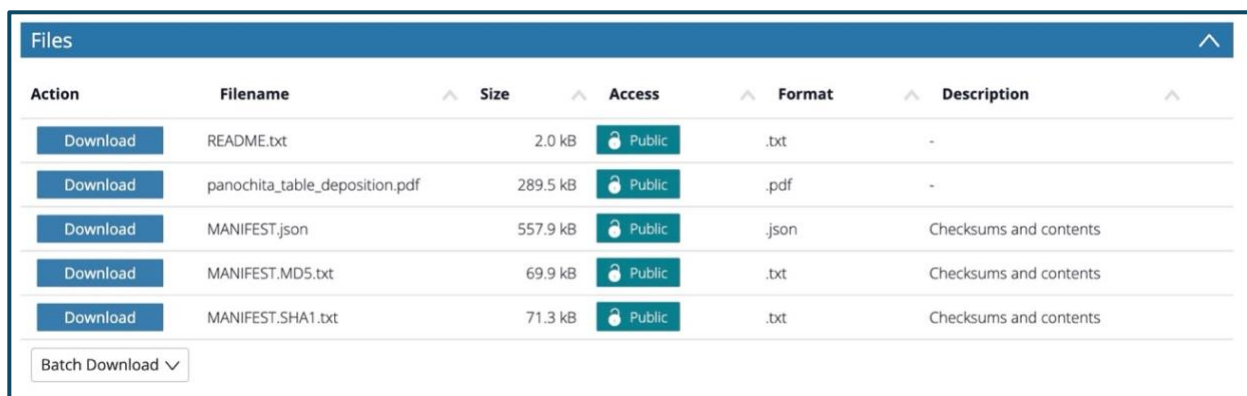
Two participants (P2 and P3) failed the task by downloading the required files individually using the blue Download buttons rather than selecting multiple files for batch download. Participants did not recognize that a multi-file download requires enabling the Select individual files toggle (figure 19), which is nested under the Batch Download menu and not visible by default.

Once the toggle is activated, checkboxes appear next to each file (figure 9), enabling multi-file selection. However, participants did not discover this interaction without trial and error, suggesting that the control is insufficiently discoverable. This design introduces unnecessary friction by requiring users to locate and enable a hidden setting before completing a common action. Reflecting this, participants P2 and P5 described the toggle-based workflow as tedious and recommended that the file selection checkboxes be available by default to reduce effort and improve efficiency.

Considerations

* Note: If most RDR users primarily download entire datasets and rarely select individual files, this recommendation may not be applicable.

- Make file-selection checkboxes visible by default to support immediate multi-file selection without requiring users to enable an additional toggle.
- Remove the “Select individual files” toggle and instead treat multi-file selection as a primary interaction.



The screenshot shows a 'Files' section with a table of files. Each row has a 'Download' button, a filename, size, access level (Public), format, and description. A 'Batch Download' button is located at the bottom left of the table.

Action	Filename	Size	Access	Format	Description
Download	README.txt	2.0 kB	Public	.txt	-
Download	panochita_table_deposition.pdf	289.5 kB	Public	.pdf	-
Download	MANIFEST.json	557.9 kB	Public	.json	Checksums and contents
Download	MANIFEST.MD5.txt	69.9 kB	Public	.txt	Checksums and contents
Download	MANIFEST.SHA1.txt	71.3 kB	Public	.txt	Checksums and contents

Batch Download ▾

Figure 18 Files Section

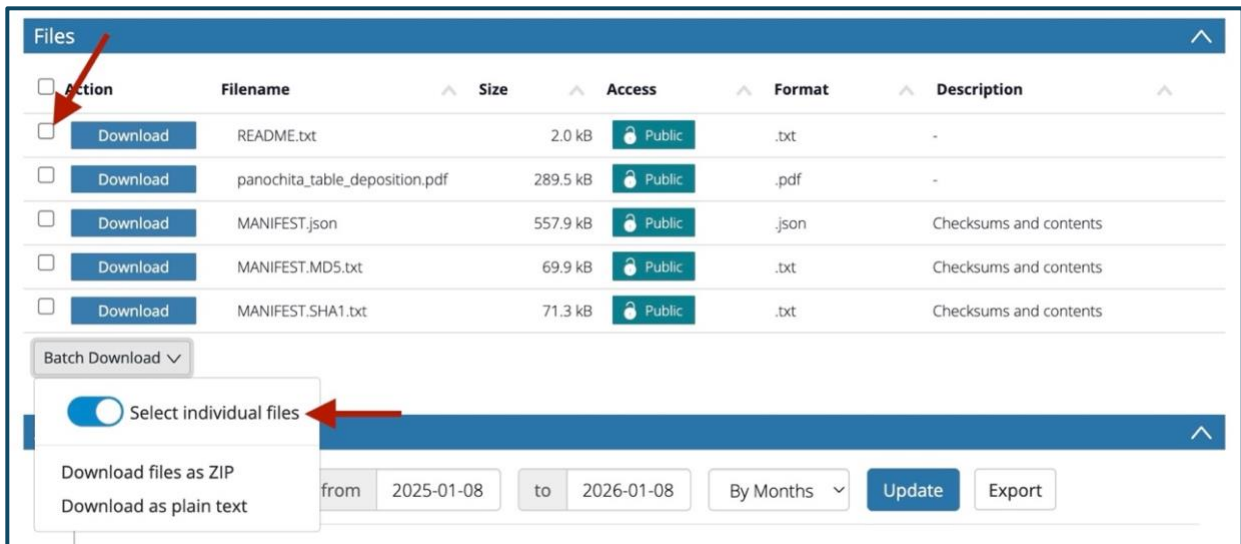


Figure 19 Select Individual Files Toggle & Checkboxes

Downloading Batch

Task: Save all dataset files to your computer at once and in a single ZIP folder.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Easy	.4
P2	Completed	Very Easy	.48
P3	Completed	Easy	.35
P4	Completed	Very Easy	.38
P5	Completed	Easy	1.05
Averages	100%	Easy (1.6)	.53 sec

Issues

Issue 1: Confusing Batch Download Feedback & Competing Actions

Severity ranking: Level 2, Serious

Participants (P1, P2, and P3) experienced confusion and usability errors during the batch download process due to unclear system feedback across two sequential modals. After initiating a batch download, users first encountered a modal indicating that the file archive was being built, which included a loading bar and an “OK” button (figure 19). Participants interpreted this button as a

confirmation that the download would begin; however, selecting “OK” dismissed the modal without initiating or completing the download, requiring participants to restart the process.

Once the archive was built, participants encountered a second modal containing both an “OK” button and a “Click here” link (figure 20). Participants again assumed that selecting “OK” would trigger the download. Instead, selecting “OK” dismissed the modal without downloading the files, resulting in repeated errors and additional task time. Only by selecting the “Click here” link did the download occur, routing users to a blank page where the files were downloaded. This sequence created repeated uncertainty about system state, expected outcomes, and correct actions.

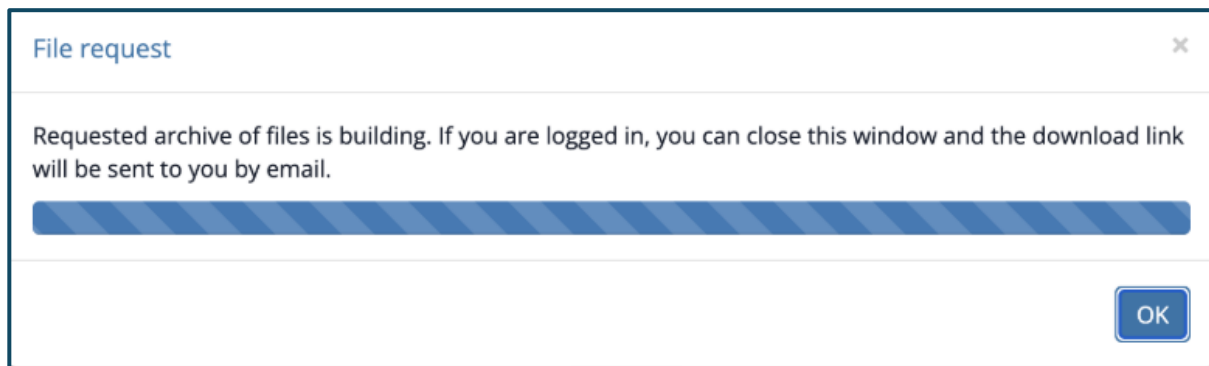


Figure 20 Batch Download - Modal 1

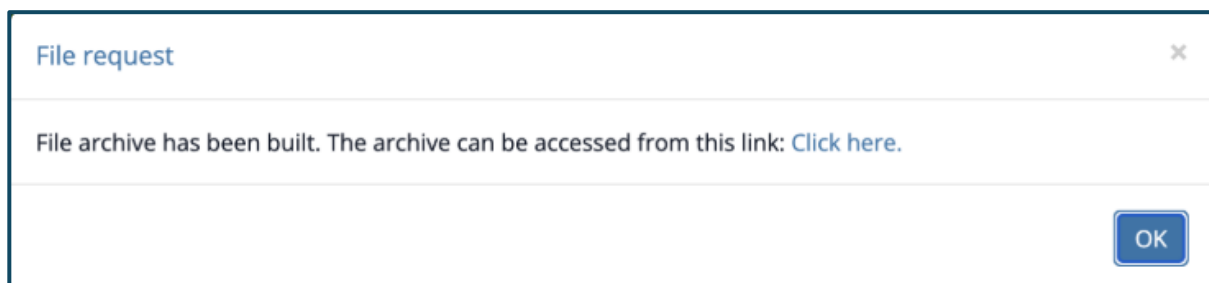


Figure 21 Batch Download - Modal 2

Considerations

- Modal 1: Remove the “OK” button from the first modal and retain only the loading progress indicator to prevent users from prematurely dismissing the archive building state and unintentionally restarting the process.
- Modal 2: Replace the “Click here” link with a clearly labeled primary action button (e.g., “Download Here”) to eliminate competing calls to action and explicitly trigger the download. Call to action should not be in body text.
- Eliminate the multi-step modal flow altogether by triggering an immediate download once the archive is ready, accompanied by a single, simple confirmation modal to acknowledge the action and reinforce system feedback.

- Revise system messaging to replace the phrase “requested archive of files” with “requested batch of files” to maintain terminology consistency and avoid language that may be unfamiliar to users.

Issue 2: Batch Download Button is Difficult to Discover

Severity ranking: Level 3, Moderate

Several participants (P1, P2, and P3) experienced difficulty locating the batch download button due to its placement below the data files section (figure 18). Because participants focused their attention on the file list when attempting to download content, the button was not immediately visible, increasing search effort before initiating the download. Two participants (P2 and P3) suggested moving the button above the files so that it is more obvious to locate.

Considerations

- Move the batch download button above the data files section to improve visibility.
- Emphasize the batch download by using similar call-out colors to the download buttons next to each file.

Creating Baskets

Task: Locate the feature that allows you to create a space for saving datasets. Once found, create a new folder and name it “Test - Candy”.

Data

Participant	Completion	Difficulty Rating	Time on Task
P1	Completed	Difficult	3.05
P2	Completed	Difficult	3.54
P3	Failed	Difficult	1.43
P4	Completed	Difficult	1.08
P5	Failed	Difficult	2.5
Averages	60%	Difficult (3)	2.32 min

Issues

Issue 1: Terminology Mismatch – Basket vs Users’ Mental Models

Severity ranking: Level 1, Severe

Despite the presence of multiple entry points for creating a Basket, including the Personalize navigation menu, the Personal Account area, the green Add to Basket button, and the gray Add to Basket option on individual dataset pages (figures 22-24), all participants expressed confusion about where and how to create what they consistently referred to as a “folder.”

Participants indicated that the term “Basket” did not align with their mental model for organizing datasets. All participants stated that they expected folder-based organization, and several participants (P2, P4, and P5) explicitly associated the term “Basket” with a shopping cart metaphor, which felt mismatched with the purpose and workflows of the Research Data Repository.

This terminology mismatch caused participants to struggle to understand the feature’s purpose and contributed directly to task failure and misinterpretation of system behavior.

Considerations

- Align terminology with users’ mental models by replacing “Baskets” with “Folders.” All participants expected folder-based organization, and several explicitly associated the term "Basket” with a shopping cart metaphor that did not match the purpose or workflows of the Research Data Repository.



Figure 22 Personal Account Basket Option

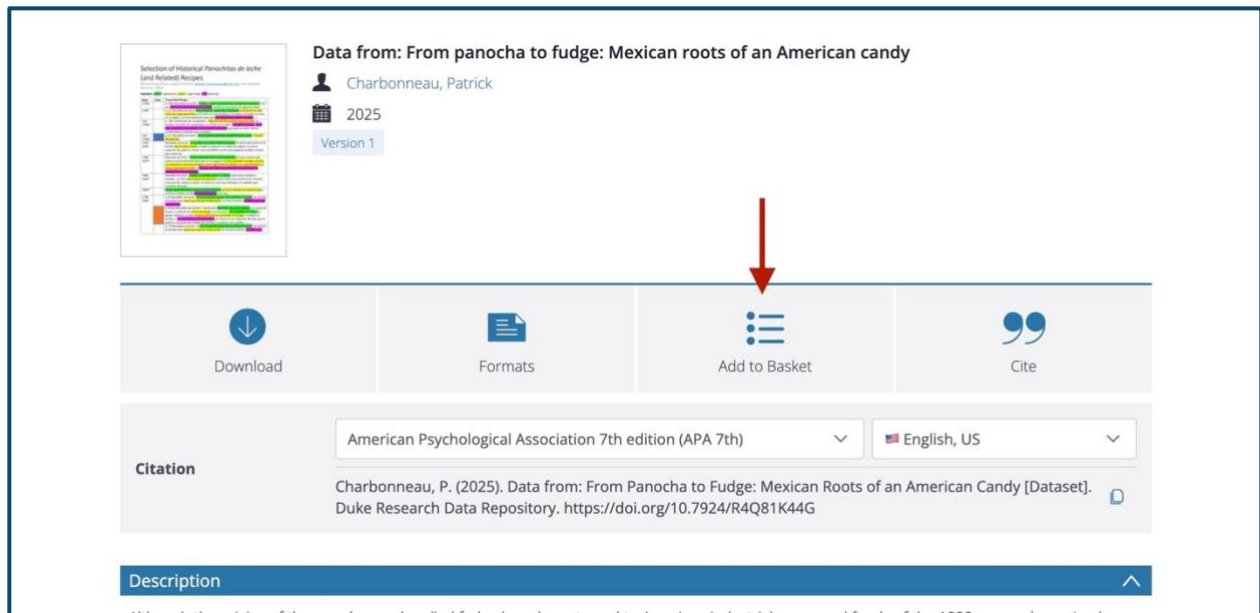


Figure 23 Dataset Page Basket Option

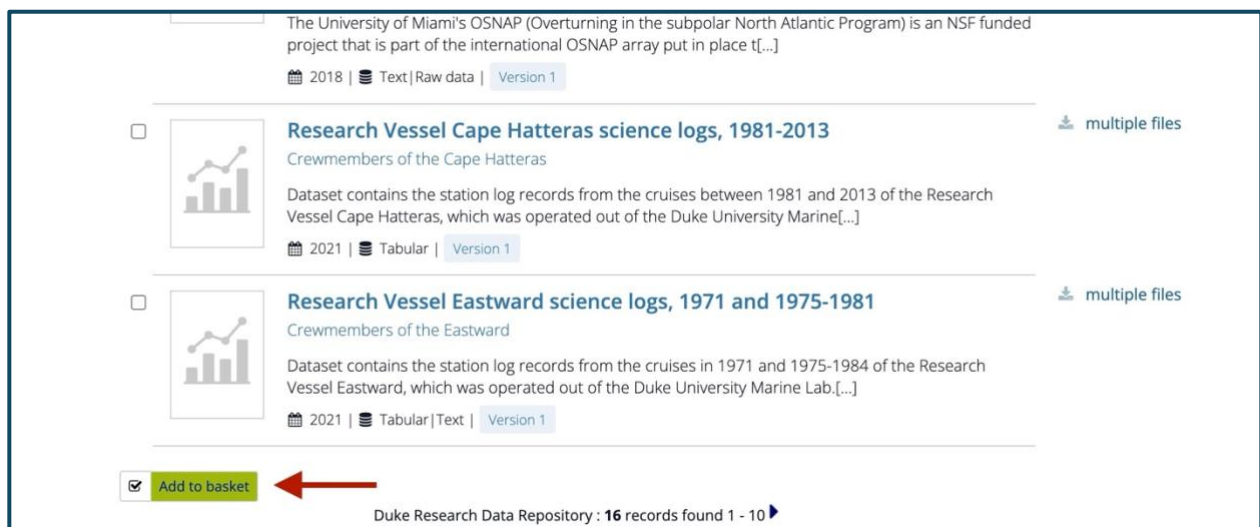


Figure 24 Search Results Basket Option

Issue 2: Unclear Navigation Labeling – Personalize Menu

Severity ranking: Level 2, Serious

Navigation terminology further compounded participants' confusion. Participants did not understand what the Personalize menu represented or what types of actions it would contain, and therefore did not expect to find account-related options, such as Account, Alerts, Baskets, Messages, Searches, and Submissions, under this label (figure 25).

Instead, participants anticipated locating these options under their username in the top-right corner of the interface, where account-related actions are conventionally placed (figure 10). This mismatch

between labeling and user expectations caused participants to search multiple areas of the interface before locating basket-related functionality, increasing time on task and frustration.

Considerations

- Rename or restructure the Personalize navigation option to clearly reflect its contents (e.g., “My Account”). Renaming or removing this menu would better align with common account navigation conventions.

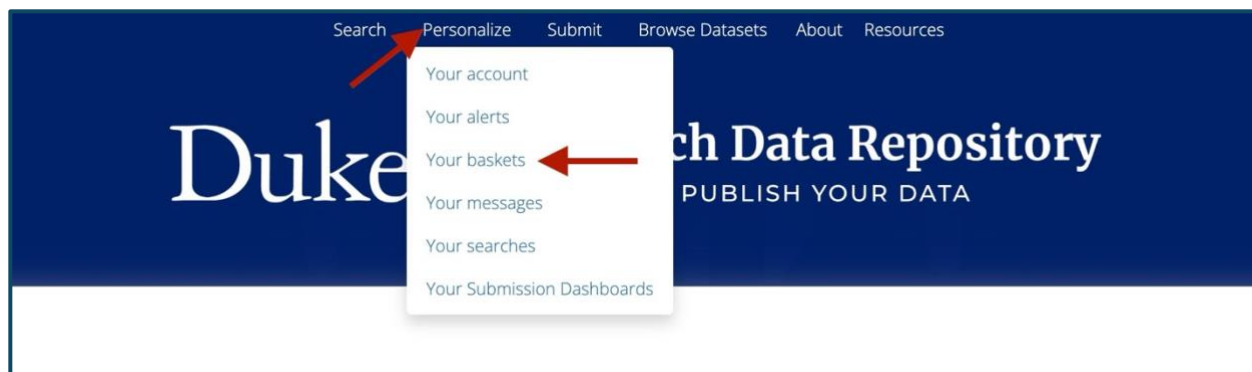


Figure 25 Personalize Menu

Issue 3: Ambiguous Hierarchy Between Topic & Basket

Severity ranking: Level 2, Severe

The most significant contributor to task failure for two participants (P3 and P5) was confusion between Topic and Basket labels during creation. Both participants inadvertently labeled the Topic rather than the Basket, leaving the basket labeled “Untitled Basket” (figure 26).

Participants who ultimately completed the task reported substantial difficulty understanding the purpose of a Topic, how it differed from a Basket, and how to edit either label after creation. The relationship between Topics and Baskets was not apparent, forcing participants to rely on trial and error rather than system guidance.

This ambiguity directly prevented successful task completion for some participants and represents a critical breakdown in information hierarchy.

Considerations

- Eliminate or significantly clarify the distinction between Topic and Basket. Confusion between these two concepts directly contributed to task failure. Consider removing the Topic layer entirely and supporting a single, clearly defined organizational structure (folders), or clearly explaining the hierarchy and purpose of each.

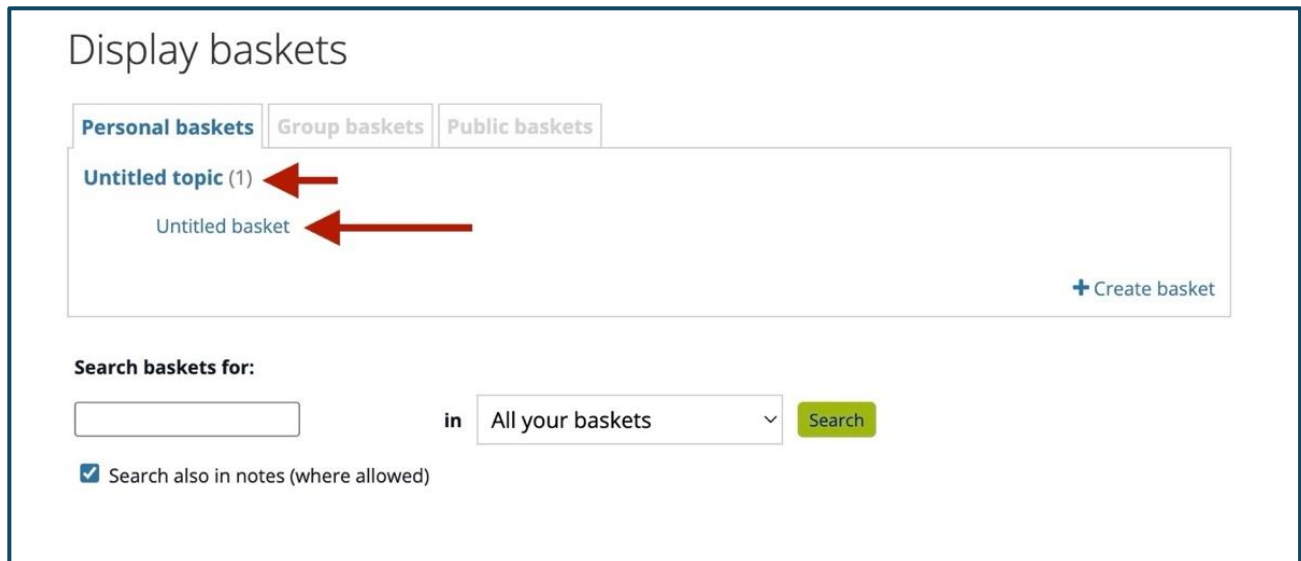


Figure 26 Topic & Basket Relation

Issue 4: Missing System Feedback During Folder Creation

Severity ranking: Level 3, Moderate

Additional confusion occurred during basket creation itself. After naming a basket, participants received no visible confirmation that the basket had been successfully created, leaving them uncertain about whether their action had worked.

While this issue did not prevent task completion on its own, it compounded existing confusion and contributed to hesitation and increased cognitive load during the workflow.

Considerations

- Provide clear confirmation feedback upon successful folder creation. Visible confirmation would reassure users that their action was successful and reduce uncertainty during task completion.

Appendix A: Usability Script

TIND RDR Usability Script

Pre-Study Discussion

Question Type	Question
Intro	<p>Hello, ___Name___. How are you doing today? [Pause and respond appropriately.]</p> <p>My name is ___Name___, and I am the UX researcher on the AUXS team at Duke University. Thanks for taking the time to meet with me today. Your participation is greatly appreciated and will be highly valuable in helping our team with this study.</p> <p>I would like to introduce my colleague, ___Name___, who will be observing today’s session and taking notes. They will remain muted, with their camera off, for the duration of our session and will not be participating in the discussion.</p>
<i>Study Overview</i>	
Background	<p>Duke’s Research Data Repository, the platform where Duke researchers can publish and share their data, has recently transitioned to a vended platform called TIND. This migration introduces several changes to the features and design. Today, we are interested in understanding how users like you experience and navigate the new design.</p>
Session Structure	<p>Our time together will be divided into two parts:</p> <ul style="list-style-type: none"> • Initial Questions – We will begin by asking you a few questions to understand your prior experience with the Research Data Repository. • Task-Based Exploration – We will then ask you to complete several tasks using the website. I will read the task to you and send it to the chat, so you have it for reference. Please keep in mind that this is not a test of your knowledge or skills. Our objective is to evaluate how effectively the platform supports its users and identify areas where we can improve the design.
Think-Aloud Protocol	<p>As you work through the tasks, we encourage you to “think aloud.” This means narrating your thought process, what you are doing, why you are making certain choices, and what you expect to happen when you interact with the website. This provides us with valuable insight into your decision-making process.</p>
Time Commitment & Incentive	<p>The session will take approximately 45 minutes. To express our appreciation for your time, we will provide you with a \$15 Amazon gift card following the session.</p>
Recording Permission	<p>To ensure we capture your feedback accurately, we typically record these sessions. Are you comfortable with us recording today’s session?</p> <p>[Pause for response and respond appropriately.]</p> <p>Great, please quickly fill out the consent form that I’ll send you in the Zoom chat.</p> <p>[Send this link in the Zoom chat] (sending after session)</p> <p>Wonderful, thank you for doing that. I’ll go ahead and start the recording.</p> <p>[Press Record]</p>

Check-In	<p><u>Experts</u> We recently sent you an email with attached files. Were you able to download and save those files to your computer?</p> <p>If yes: Great! Please take a moment to locate them and have them ready to use during our session.</p> <p>If no: No problem. Please take a few minutes now to download the files to your computer; we'll need them at a few points in the session.</p> <p><i>[Pause here and wait for user to locate or download datasets]</i></p> <p><u>Novice</u> Before we begin the questions and tasks, do you have any questions for me?</p> <p><i>[Pause and respond appropriately]</i></p>
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Background Questions

Question Type	Question
Role & Affiliation	What is your current role at Duke University? <ul style="list-style-type: none"> • Graduate Student • Faculty • Staff • Other
<i>[Share screen & show the user the current RDR]</i>	
Prior Experience	Have you used Duke's Research Data Repository (RDR) before? <ul style="list-style-type: none"> • Yes <i>[expert user]</i> • No <i>[novice user]</i> <p><i>[If the user says no, ask the following]</i></p> <ul style="list-style-type: none"> • Looking at the current RDR, what are your initial impressions?
<i>[Branching: Only ask the following questions if the user selected "Yes" and is an expert user]</i>	
Familiarity	How familiar are you with the current version of the Research Data Repository (RDR)? <ul style="list-style-type: none"> • Very Unfamiliar • Unfamiliar • Familiar • Very Familiar
Purpose of Use	What is the primary purpose you use the current Research Data Repository (RDR) (uploading datasets, browsing datasets, collecting data, etc.)?
Perceived Ease of Use	Overall, how difficult or easy is it to use the current Research Data Repository (RDR)? <ul style="list-style-type: none"> • Very Difficult • Difficult • Easy • Very Easy

Satisfaction	<p>How satisfied are you with the current Research Data Repository (RDR)?</p> <ul style="list-style-type: none"> • Very Dissatisfied • Dissatisfied • Satisfied • Very Satisfied
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Expert Users

1. Send the user the [TIND RDR link](#) in Zoom Chat.
2. Prompt user to log in with their Duke account.
3. Ask user to share their screen.
4. Prompt user that the task will be read aloud and pasted into the Zoom chat.
5. Ask user to speak aloud as they complete the tasks.

Tasks

Task Type	Task
Deposit Data	<p>Scenario: You are a researcher submitting a publication to a top journal in your field. The journal's open data policy requires you to upload your data to a public repository.</p> <p>Task: Upload the data.csv, which was sent to your email, to Duke's RDR using the following information:</p> <p><i>[send the user the following form info in the Zoom chat]</i></p> <p>Form Sections</p> <p>Mandatory</p> <ul style="list-style-type: none"> • Title: Usability Practice • Creator: Last, First, Duke University • Contact: Last, First • Keywords: User Experience • Description: Submitting a dataset <p>Recommended</p> <ul style="list-style-type: none"> • Department: Computer Science • Funding Source - Funding Agency: US National Science Foundation <p>Deposit Information</p> <ul style="list-style-type: none"> • License: CC-BY-NC: Creative Commons: Attribution-Noncommercial • Deposit Agreement Acknowledgement: Agree • File Structure & Size: My data are under 50 GBs and are in a flat structure or folders are packaged (e.g., zipped, tarred, gzipped, etc.) (upload via form below) • Human Data: My data do not contain human data and are not classified as sensitive or restricted <p><i>[wait for user to complete task]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy

	<ul style="list-style-type: none"> • What, if anything, would you change about the process of depositing data? <ul style="list-style-type: none"> ○ Do you have any thoughts about the form?
<p><i>[On the backend, the TIND team will request that the user revise the submission].</i></p> <p><u>Curator steps:</u> Go to RDR Review Dashboard > wait for dataset to appear in Assign Curator table > Send the Request Revisions email (text below)</p> <p>Request Revisions email text:</p> <p>Hello <i>[tester first name]</i>,</p> <p>We have reviewed your dataset and would like to request that you add a README file to help others understand your data. Please see our template to get started: https://research.repository.duke.edu/documentation/README_Template_RDR.txt. See the instructions below to revise your dataset.</p> <p>Best, <i>[Curator Full Name]</i></p> <p>After sending the email, check the TIND email notifications log to ensure the tester received the email: https://duke.tind.io/notifications/emails</p>	
<p>The Following Tasks: <i>Blue Carbon Mapping Dataset</i></p> <p><i>[Send user to the dataset in the Zoom chat]\</i></p> <p>We will use the “Data from: Blue Carbon Mapping for Six Mid-Atlantic States” dataset for the following tasks.</p>	
<p>Statistics</p>	<p>Scenario: You’re preparing an annual report for your funding agency to demonstrate the impact of the shared dataset “Blue Carbon Mapping”.</p> <p>Task: Locate the yearly quantitative data showing distinct views for the year 2025 of the datasets and export a copy.</p> <p><i>[wait for user to complete task]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy • What, if anything, would you change about the statistics feature?
<p>Citation Display</p>	<p>Task: Now, locate the “Chicago 18th” citation. Let me know when you are finished.</p> <p><i>[wait for user to complete task]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy

	<ul style="list-style-type: none"> ○ Very Easy ● What, if anything, would you change about the citation display?
<p>Preview – ZIP NC</p> <p><i>Skip follow-up questions for p4/5</i></p>	<p>Scenario: As part of your annual report, you need to review the data files that are relevant to North Carolina.</p> <p>Task: Locate the ZIP folder, without downloading it, for the North Carolina dataset and tell me the title of the last file in the folder.</p> <p><i>[wait for user to complete task]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> ● How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy <p><i>Skip these questions for P5 & P5 (got saturation)</i></p> <ul style="list-style-type: none"> ● <i>How would you explain the relationship between the preview NC ZIP folder and the Files NC ZIP folder?</i> ● <i>Is the preview feature helpful? Why or why not?</i> ● <i>What, if anything, would you change about the Preview ZIP display?</i>
<i>Downloading Datasets</i>	
<p>Globus Download</p>	<p>Scenario: Next...</p> <p>Task: Locate the feature that allows you to download a larger dataset file from a third-party system.</p> <p><i>[wait for user to complete task... they don't need to download from Globus]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> ● How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy ● <i>Have you used globus before? skip for p4 & p5</i> <ul style="list-style-type: none"> ○ <i>If not, have you heard of it?</i> ○ <i>What do you know or think about it?</i> ● <i>Is the “learn more about Globus” link to documentation useful? Why or why not?</i> <ul style="list-style-type: none"> ○ <i>Would you use the “learn more” link? Why or why not?</i> ○ <i>Any feedback about the Globus instruction page?</i>
<i>** [Curator should message the moderator if additional time to complete backend steps is needed]</i>	
<i>[Only if curator messages]</i>	Scenario: Finally, you need to review the dataset’s documentation.

<p>Download Multiple Files</p>	<p>Task: Using the same dataset, “Blue Carbon Mapping,” create a single ZIP folder that includes the following files:</p> <ul style="list-style-type: none"> • Virginia.zip • New York.zip • New Jersey.zip • HabProj.xml <p>Once you’ve selected those files, save the ZIP folder to your computer.</p> <p><i>[wait for user to complete task]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy
<p><i>[Only if curator messages]</i></p> <p>Batch Download</p>	<p>Scenario: You decide that you want to review all available data files offline.</p> <p>Task: Download every available file attached to the dataset into a ZIP all at once.</p> <p><i>[wait for user to complete task]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy • What, if anything, would you change about the process of downloading dataset files?
<p><i>[Inform user that we will now use the dataset that they submitted earlier]</i></p>	
<p>Deposit Status</p>	<p>Scenario: You remember the dataset you submitted earlier and need to confirm that the deposit was successful.</p> <p>Task: Locate your deposited dataset within the Research Data Repository and describe its status in the review process.</p> <p><i>[wait for user to complete task]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy • What, if anything, would you change about the process of reviewing your submissions? • Submission Dashboard Sections: <ul style="list-style-type: none"> ○ Walk me through what you believe each section of the submission dashboard is for? ○ How do you see these sections relating to or connecting to one another?

	<ul style="list-style-type: none"> ○ Is there anything you would change, add, or remove to make each section/dashboard more useful or clear?
<p>Revision</p>	<p>Scenario: You’ve received an email from the curator notifying you that your dataset deposit requires revisions. The curator has asked you to add a README file to your existing submission before it can be approved.</p> <p>Task: Read the revision email carefully, then locate the pending dataset mentioned in the message. Upload the new README.txt file, which was sent to your email, to that dataset, and send it back to the curator for review.</p> <p><i>[wait for user to complete task]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy • Do you have any feedback about the revision email? • What, if anything, would you change about the process of revising your submissions? <p><i>[Inform user that after they submit their changes and the files are reviewed, they would receive a final dataset publication email, but not during this test]</i></p>
<p>Versioning <i>(post submission approval)</i></p>	<p>Scenario: As you explore your submitted datasets, you notice that [DATASET NAME BELOW] is missing a code.r file.</p> <p>Question: What first step would you take to address this?</p> <p><i>[Send the link to the participant specific dataset in the Zoom chat]</i></p> <ul style="list-style-type: none"> • P1 Katie: Data From Costal Protection • P2 William: Assessing data management & sharing plans • P3 John: Classical variational phase-field models • P4 Patrick: Glass-like caging with random planes • P5 Hannah: Dictionary of Art Historians <p>Task: Modify the [DATASET NAME] dataset with the addition of the code.r file, which was sent to your email.</p> <p><i>[wait for user to complete task]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy • <i>Manage Version pop-up window (window that pops up after clicking versioning button – Edit Version & New Version):</i> What are your initial thoughts about this window? Is there anything you would change? • What, if anything, would you change about the versioning process and feature?

[Inform user that they received an automated email, but they can disregard it.]

Outro Questions

Task Type	Task
Perceived Ease of Use	Overall, how difficult or easy is it to use the new TIND Research Data Repository (RDR)? <ul style="list-style-type: none">• Very Difficult• Difficult• Easy• Very Easy
Satisfaction	How satisfied are you with the new TIND Research Data Repository (RDR)? <ul style="list-style-type: none">• Very Dissatisfied• Dissatisfied• Satisfied• Very Satisfied
Comparison & Preference	<ul style="list-style-type: none">• When comparing the new TIND Research Data Repository (RDR) website to the current one, which was shown at the very beginning, how would you describe the experience?• Which RDR version do you prefer? Why?
Dislikes	When completing the tasks on the new TIND Research Data Repository, was there anything particularly difficult?
Likes	When completing the tasks on the new TIND Research Data Repository, was there anything that went particularly well?

Closing

- Ask the user if they have any questions.
- Thank user.



Novice Users

1. Send the user the [TIND RDR link](#) in Zoom Chat.
2. Prompt user to log in with their Duke account.
3. Ask user to share their screen.
4. Prompt user that the task will be read aloud and pasted into the Zoom chat.
5. Ask user to speak aloud as they complete the tasks.

Tasks

Task Type	Task
Locate & Understand Datasets	<p>Scenario: You are a new researcher who has recently joined a project team studying the influence of Mexican traditions on American sweets. As part of your first assignment, you've been asked to find a relevant dataset in the Research Data Repository (RDR).</p> <p>Task: Use the Research Data Repository to find an appropriate dataset about American candy. Once you've located the dataset, click into it to view its contents.</p> <p><i>[correct dataset: "From panocha..."]</i></p>

	<p><i>[wait for user to click into the dataset]</i></p> <p>Follow-up Questions</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy • As you look at the dataset, what are your initial impressions? Please be specific. • What do you understand about each section listed on this dataset? Please describe each section's function. <ul style="list-style-type: none"> ○ What do you assume the statistics feature is used for? • What, if anything, would you change about the layout or design of the dataset?
<i>Downloading Datasets</i>	
<p>Download Multiple Files</p>	<p>Scenario: After locating the “<i>From Panocha to Fudge: Mexican Roots of an American Candy</i>” dataset, you’ve been asked to review and download some of its contents.</p> <p>Task: Save a single ZIP folder containing only the .json and MANIFEST.txt files to your computer.</p> <p>Follow-up Questions</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy
<p>Batch Download</p>	<p>Scenario: You’ve decided to review all available data files from the dataset offline.</p> <p>Task: Save all dataset files to your computer at once and in a single ZIP folder.</p> <p>Follow-up Questions</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy • What, if anything, would you change about the process of downloading data?
<i>Baskets</i>	
<p>Create a Basket</p>	<p>NOTE: Ask user to return to RDR search screen</p> <p>Scenario: As you continue collecting datasets on American sweets, it becomes important to stay organized. You need to group multiple datasets in the Research Data Repository.</p> <p>Task: Locate the feature that allows you to create an space for saving datasets. Once found, create a new folder and name it “Test - Candy”.</p> <p><i>[Move forward based on fail or success]</i></p>

 <i>FAIL</i>	<p>No problem. If you were going to group datasets here, what would you expect to see and do?</p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How do you typically organize your data for your research? <p><i>[Direct them to the basket's menu item]</i></p> <ul style="list-style-type: none"> • When you see the “baskets” button, what’s your first impression? • Would this feature be useful to you? What, if anything, would you change about it? <p><i>[Now move on to the next questions]</i></p>
 <i>SUCCESS</i>	<p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy • What, if anything, was particularly difficult about creating a basket? <p><i>[Move on to the next questions]</i></p>
<p>Add to a Basket</p>	<p>Task: Now that you’ve created a basket titled “Test - Candy”, add the “<i>From Panocha to Fudge: Mexican Roots of an American Candy</i>” dataset to it.</p> <p><i>[Wait for user to complete task]</i></p> <p>Follow-up Questions:</p> <ul style="list-style-type: none"> • How difficult or easy was it to complete the task? <ul style="list-style-type: none"> ○ Very Difficult ○ Difficult ○ Easy ○ Very Easy • What, if anything, was particularly difficult about using the basket feature? • What, if anything, would you change about the basket feature?

Outro Questions

Task Type	Task
<p>Perceived Ease of Use</p>	<p>Overall, how difficult or easy is it to use the new TIND Research Data Repository (RDR)?</p> <ul style="list-style-type: none"> • Very Difficult • Difficult • Easy • Very Easy
<p>Satisfaction</p>	<p>How satisfied are you with the new TIND Research Data Repository (RDR)?</p> <ul style="list-style-type: none"> • Very Dissatisfied • Dissatisfied • Satisfied • Very Satisfied

Dislikes	Overall, was there anything particularly difficult when completing the tasks on the TIND Research Data Repository?
Likes	Overall, was there anything that particularly went well when completing the tasks on the TIND Research Data Repository?

Closing

- Ask the user if they have any questions.
- Thank user.

Appendix B: Recruiting Emails

STEP Recruiting Email

- **Who:** Graduate Students from the STEP list
- **When:** Send Friday Nov 7th
- **Actions:** Block out times on Annies & Als work calendars

Subject Heading: Get an Inside Look at the Newly Designed Research Data Repository!

Hey Students,

We have an exciting opportunity for you to take part in meaningful research and earn a **\$15 Amazon gift card!** The Research Data Repository (RDR) has recently been updated with new designs and features, and we're looking for feedback from students like you.

If you participate, you'll meet with Annie Brown, the AUXS Researcher, for a 45–60-minute session. During this time, you'll be asked a few questions and complete some simple tasks.

Never used the RDR before? That's totally okay! We welcome feedback from all students, regardless of experience level.

If you're interested in participating, please fill out the short survey linked [here](#). If you have any questions, contact Annie at akb112@duke.edu

Thanks so much,

Annie Brown

Data Files, Consent Form, & Chrome Request

- **Who:** Expert Users
- **When:** Two days before users scheduled meeting
- **Actions:** Store users consent forms on RDR teams files

Subject Heading: Preparing for our upcoming TIND RDR Meeting

Hi **Name**,

We look forward to meeting with you on **Date** to explore the new TIND version of the Research Data Repository. During our session, you will complete several activities, including uploading documents.

To ensure everything goes smoothly, we have attached the necessary files (code.r, data.csv, README.txt) to this email. Please **download and save each of them to your computer** prior to our meeting and **have them ready to use on the day of**. If possible, please come ready to use Chrome as your browser choice.

To help us accurately capture your feedback and observe how you navigate the Research Data Repository, we typically record the session. Please **complete this recording consent survey prior to your meeting**.

If you have any questions or concerns, please let me know.

Thank you,

Annie Kiele Brown

Appendix C: User Personas & Journey Maps

The image displays a user persona card for Samariah Griffith. On the left, a dark blue vertical sidebar contains the Duke University logo at the top, followed by the text 'Date: January 2026', 'Client: TIND.io & Duke', and 'Project: TIND RDR UX Research'. The main title 'EXPERT USER PERSONA' is written vertically in large white letters, with the subtitle 'An overview of Duke's TIND RDR users' below it. The main content area features a portrait of Samariah Griffith, a woman with dark curly hair and glasses, wearing a black blazer. To the right of the portrait, her details are listed: Name: Samariah Griffith, Job Title: Faculty, Department: Physics, and Location: Durham, NC. A paragraph describes her role as a staff member who interacts with the Research Data Repository (RDR) on an occasional basis to upload data and review datasets. Below this, several sections provide insights into her experience and goals: 'Experience Level Legacy RDR' (Low to High scale), 'Satisfaction Legacy RDR' (Low to High scale), 'Satisfaction TIND RDR' (Low to High scale), 'Mental Models' (How users think about the RDR), 'Pain Points' (Workflow changes, ambiguous terminology, lack of system constraints), 'Primary Goals' (Efficient deposit/revision, minimize curator follow-up, maintain workflows), and 'Key Workflows' (Depositing, Revising, and Versioning Datasets).

Duke UNIVERSITY


Date: January 2026

Client: TIND.io & Duke

Project: TIND RDR UX Research

EXPERT USER PERSONA

An overview of Duke's TIND RDR users



Name: Samariah Griffith
Job Title: Faculty
Department: Physics
Location: Durham, NC

Samariah is a staff member who interacts with the Research Data Repository (RDR) on an occasional basis to upload data and review datasets submitted by faculty and staff. She is moderately familiar with the system, having prior experience with the legacy RDR, and typically engages with workflows such as depositing datasets and responding to curator requests. She values efficient, clearly structured workflows and expects the system to support task completion without requiring extensive relearning or unnecessary interpretation.

Experience Level Legacy RDR

Low ————— High

Satisfaction Legacy RDR

Low ————— High

Satisfaction TIND RDR

Low ————— High

Mental Models
How users think about the RDR

- Expects clear, enforced steps and parity with legacy workflows
- Assumes the system will prevent critical mistakes

Primary Goals

- Deposit and revise datasets efficiently
- Minimize curator follow-up
- Maintain established workflows

Pain Points

- Workflow changes that conflict with prior habits
- Ambiguous terminology (e.g., Personalize menu option)
- Lack of required system constraints leading to avoidable errors

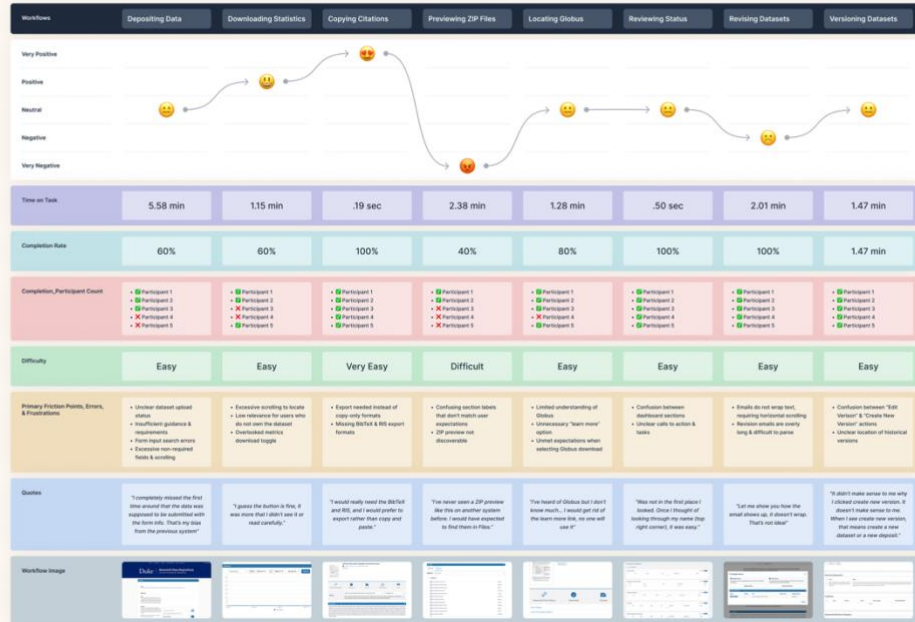
Key Workflows

- Depositing Datasets
- Revising Datasets
- Versioning Datasets



Expert User Journey Map

This map offers a comprehensive view of the expert user experience by closely examining each workflow within the user's journey when using the Research Data Repository.



NOVICE USER PERSONA

An overview of Duke's TIND RDR users



Name: Jonah Michaels
Title: Graduate Student
Department: School of Law
Location: Durham, NC

Jonah is a graduate student in the Law School who has used the Research Data Repository (RDR) once in response to a faculty request. He has limited experience with the system and only a general understanding of its purpose and functionality. As an infrequent user without an established mental model, Jonah primarily seeks to locate and download datasets efficiently and depends on clear navigation, familiar file-management patterns, and explicit system feedback to complete tasks with confidence.

Experience Level Legacy RDR



Satisfaction Legacy RDR



Satisfaction TIND RDR



Mental Models

How users think about the rdr

- Expects common file-management patterns
- Relies on visible cues and default technology behaviors

Primary Goals

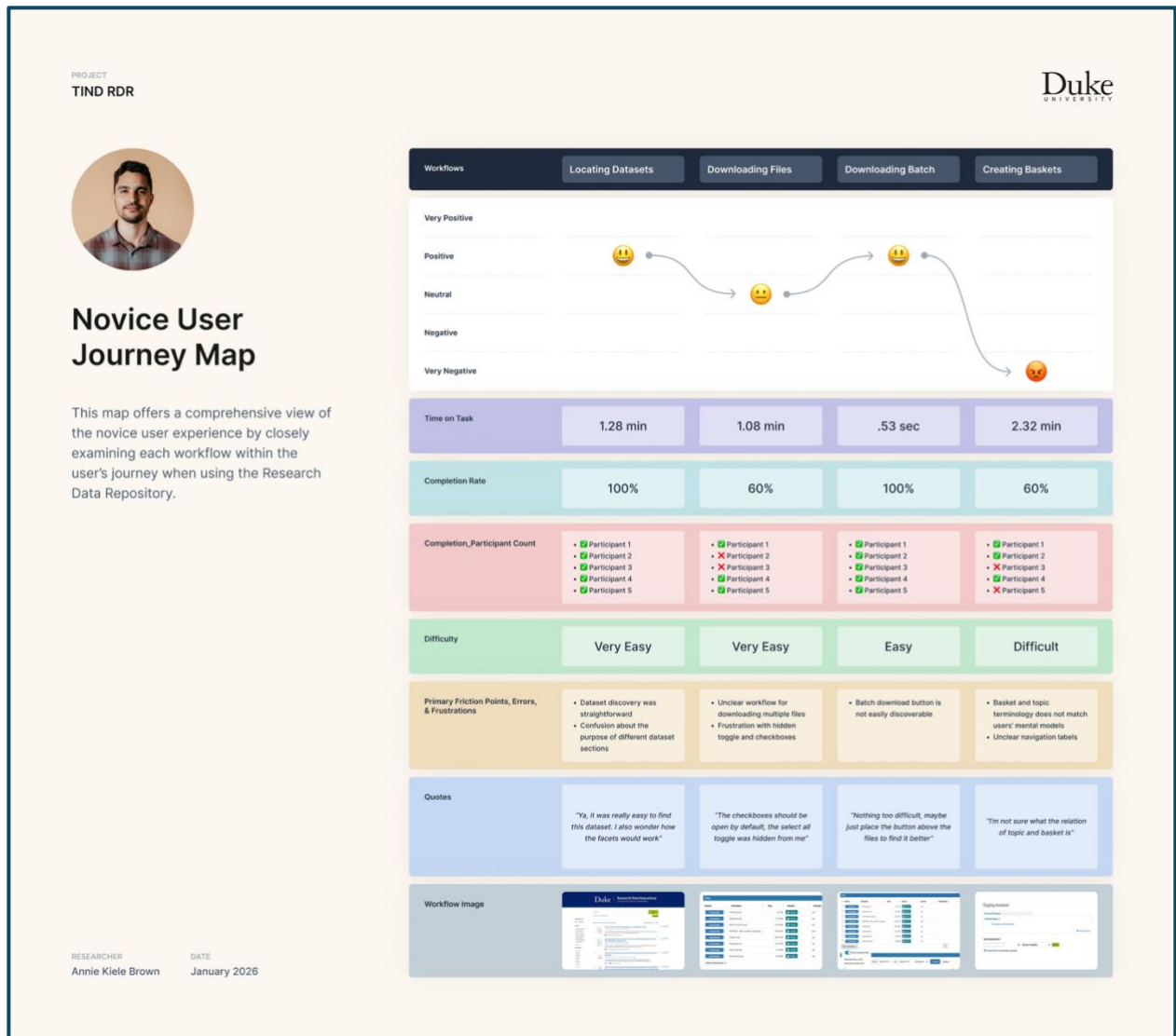
- Locate relevant datasets
- Download files accurately
- Understand available features with ease

Pain Points

- Unclear terminology and navigation labels (e.g., Basket vs Topic)
- Hidden controls for common actions
- Uncertainty about system feedback and or success

Key Workflows

- Searching datasets
- Downloading files
- Creating baskets



Appendix D: Recommendations Matrix & Coding

Duke RDR Team Presentation: Decision Matrix – determining which recs to deliver to TIND

