User Guide *for*

MetaReviewer v1.2

Sarah Peko-Spicer, Joshua R. Polanin, Charlie Ebersole, Megan Austin, Sara Mitchell, & Laura Michaelson

Methods of Synthesis and Integration Center (MOSAIC) at AIR

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AIR® Headquarters
1400 Crystal Drive, 10th Floor
Arlington, VA 22202-3289
+1.202.403.5000 | **AIR.ORG**

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About MetaReviewer

MetaReviewer 1.2 is a browser-based, collaborative, user-friendly tool designed to support researchers conducting a quantitative systematic review and meta-analyses. MetaReviewer 1.2's primary function is to assist users in the study coding - sometimes referred to as data extraction - process. Study coding is often considered the most time consuming and tedious aspect of the review process (Pigott & Polanin, 2020). As part of the MetaReviewer's v1.2 release, users can also manage and screen full-text studies.

MetaReviewer reduces the burden on study screeners, coders, reconcilers, and project managers by:

1. Helping project leads develop easy-to-use coding forms, based on their project-specific, pre-defined codebooks,
2. Automating the process of transferring a coding form to a data extraction system that automatically applies principles of hierarchical relational databases,
3. Providing an easy-to-use system that allows multiple coders to extract data from studies simultaneously and conduct all typical project management functionality,
4. Calculating 13 effect sizes in real-time as well as identifying the appropriate information required to estimate an additional 32 different effect size types, and
5. Exporting the collected data in a manner that can be easily imported to R or any other data processing software.

We designed MetaReviewer primarily for quantitative review projects. It can, however, easily be adapted for qualitative syntheses that seek to extract information from eligible studies. Regardless of the review's epistemological foundation, in this user guide, we assume you are ready to create a full-text or data extraction coding form and that you have a spreadsheet of citations that are ready to be imported. We will walk you through how to use MetaReviewer for this purpose.

Key Changes from v1.0 to v1.2

We launched MetaReviewer 1.0 in the fall of 2022. Referred to as the Beta launch, MetaReviewer launched with multiple key functionalities. At the end of 2022, we deployed several additional updates that Beta users had access to. We referred to this version as MetaReviewer 1.1. The current version, launched on December 1, 2023, also deployed numerous updates and as such, we are referring to it as version 1.2. We did not release a new User Guide along with v1.1, so we are providing the key changes from v1.0 (Beta) to v1.2 (current).

The key changes from v1.0 to v1.2 represent:

- **Support for the screening of full-text studies.** MetaReviewer v1.0's primary functionality was the extraction of data during the 'coding' portion of the systematic review process. MetaReviewer v1.2's project management pages, as well as export functionality, allows for users to screen full-text studies as well. This addition represents an increased usability of 20% (based on the typical percentage of time it takes review teams to conduct full-text screening).

- **Reconciliation.** MetaReviewer v1.0 allowed for multiple users to code a single study independently, represented as multiple responses for that particular study. Project managers were forced, however, to export the two users' responses and manually compare the extracted information. MetaReviewer v1.2 now includes functionality to compare two users' collected information, a process we refer to as 'reconciliation'.
- **Percent agreement among coders.** Reconcilers – individuals who compare two coders collected information – will also see how often the two coders agreed on a particular code. MetaReviewer v1.2 refers to this as 'percent agreement', and it was not available for MetaReviewer v1.0.
- **Real-time effect size estimation.** MetaReviewer v1.0 assisted users in identifying the required information to estimate an effect size for 45 effect size types. However, v1.0 would not estimate any effect sizes and forced users to export the data and use another program to see the findings. MetaReviewer v1.2 estimates 13 commonly used effect sizes in *real-time* within the effect size page. Users can verify and confirm what they've entered, providing valuable assurances and training opportunities.
- **Export of full citation information.** MetaReviewer v1.0 only exported the 'primary' citation information along with the collected data. MetaReviewer v1.2 includes the option to export all the citations, and their associated data, regardless of their relationship to an included study.
- **Project management on the study portal.** MetaReviewer v1.2's Study Portal page allows users to filter and sort in ways that are more natural to the review process. Users can filter on multiple columns and then sort within the filtered list.
- **Project management on the individual study page.** MetaReviewer v1.2 has a redesigned layout on the individual study page. In addition to the project management of full-text screening, users will find new project management options along with a designed look and feel.
- **Adaptive coding forms.** MetaReviewer's v1.0 coding form would often 'squish' information on the page, making it difficult for users to see all available fields. MetaReviewer v1.2's coding form adapts appropriately to a user's screen; it will also insert a horizontal scroll bar when needed.
- **Adding users to projects.** MetaReviewer v1.0 allowed users to see and add all other users who had a MetaReviewer account. MetaReviewer v1.2 requires that project managers provide the email associated with the intended user's account.
- **General user interface and user experience updates.** MetaReviewer v1.2 includes numerous user interface and user experience updates that render the experience much more pleasant, efficient, and aligned with software best practices. When applicable, we added icons to represent functionality. We redesigned the Project landing page to realign with the review workflow. We renamed pages and button to better articulate their capabilities.

Recommended Citation

Users can cite MetaReviewer using the following APA reference:

Polanin, J. R., Austin, M., Peko-Spicer, S., Ebersole, C., Michaelson, L., Clements, J. Soule, C., Lee, S., Ezzat, Y., Williams, S., Mitchell, S., & Williams, R. T. (2023). *MetaReviewer* (Version 1.2) [Computer software]. American Institutes for Research. https://www.metareviewer.org/

Users can cite this User Guide using the following APA reference:

Peko-Spicer, S., Polanin, J. R., Ebersole, C., Austin, M., Mitchell, S., & Laura Michaelson. (2023). *User Guide for MetaReviewer Version 1.2*. American Institutes for Research. https://metareviewer.org/

User guide orientation

In this user guide, we will use a systematic review and meta-analysis of interventions to decrease cyberbullying perpetration and victimization as an example project. Codebooks, review protocols, analysis plans, and data for the cyberbullying example can be found on the Open Science Framework Registry. A citation file with a small sample of studies and citations from the cyberbullying synthesis can be found here: https://www.metareviewer.org/resources.

In this user guide, we use grey callout boxes, like the one pictured below, to support users who would like to learn about and test MetaReviewer's functionality before getting started with their own projects.

CYBERBULLYING VICTIMIZATION AND PERPETRATION EXAMPLE

Project Background

The example project was motivated by the hypothesis that intervention and prevention programs to address violence and bullying in general, and cyberbullying in particular, can affect students' cyberbullying perpetration and victimization outcomes. **The purpose of the cyberbullying project was to synthesize all available published and unpublished information of the effects of school-based programming on cyberbullying perpetration and victimization.** For more information about this project, see Polanin et al., 2022.

Throughout this user guide, you will also see alert boxes, like the one pictured below. Alert boxes are meant to draw your attention to important tips for making the best use of MetaReviewer.

Alert boxes will look like this. They will contain important information about the dos and don'ts of MetaReviewer.

Finally, this user guide will include multiple images of the MetaReviewer software. In these images, important features (e.g., buttons to click) will be circled in a **bright green** box. For example, the image below points out where to go to get started as a brand-new MetaReviewer user.

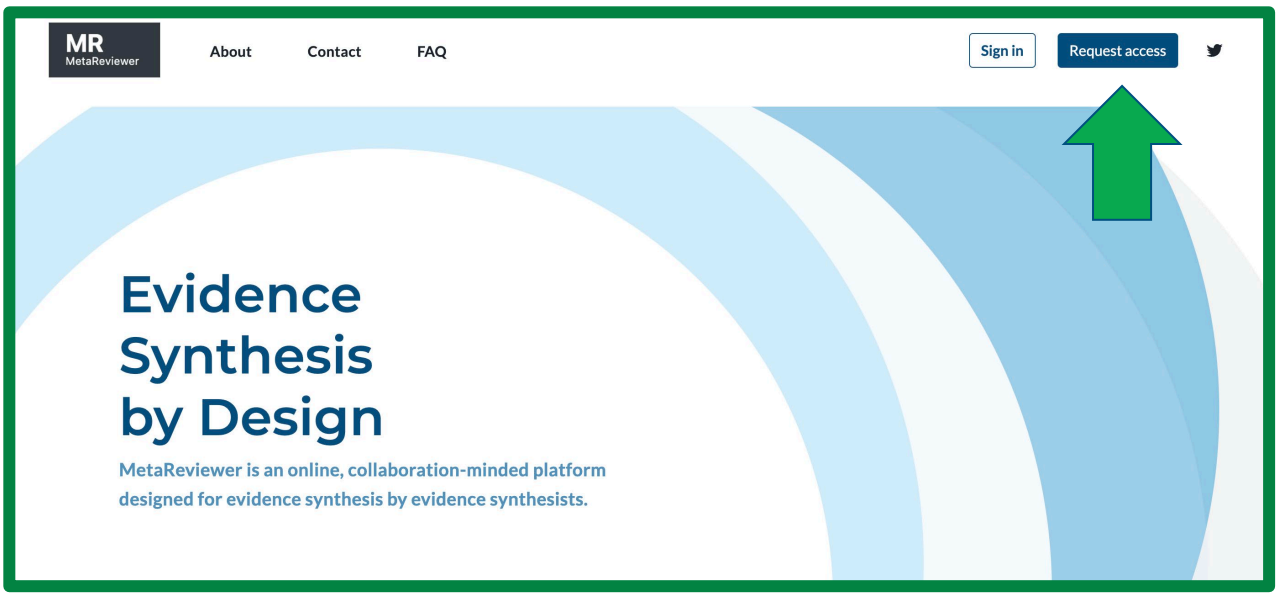


Image: MetaReviewer home page with green arrows pointing towards the Request access button.

What to know before getting started

In this section, we will orient you to a few key features of an efficient study coding process and describe how they operate within MetaReviewer.

Codebooks and coding forms

In a systematic review, a codebook contains information about study features that the project team will be extracting from each study and documenting in a place (e.g., spreadsheet, database, on paper) until all studies have been reviewed and the data are ready for synthesis. A high-quality codebook includes sample characteristics, intervention core components (if applicable), comparison condition characteristics (if applicable), measurements or constructs, setting, research design including methodological quality, and effect size information (Pigott & Polanin, 2020). You can find the codebook for our example project on cyberbullying perpetration and victimization here. Note that the process for taking information from a study and storing it in a place that can be manipulated later is referred to as coding, reviewing, or extracting. We use the terms interchangeably.

Codebooks are what you will use to create *coding forms* in MetaReviewer. Coding forms are where extracted study data are entered and stored. In MetaReviewer, coding forms look like multi-page surveys:

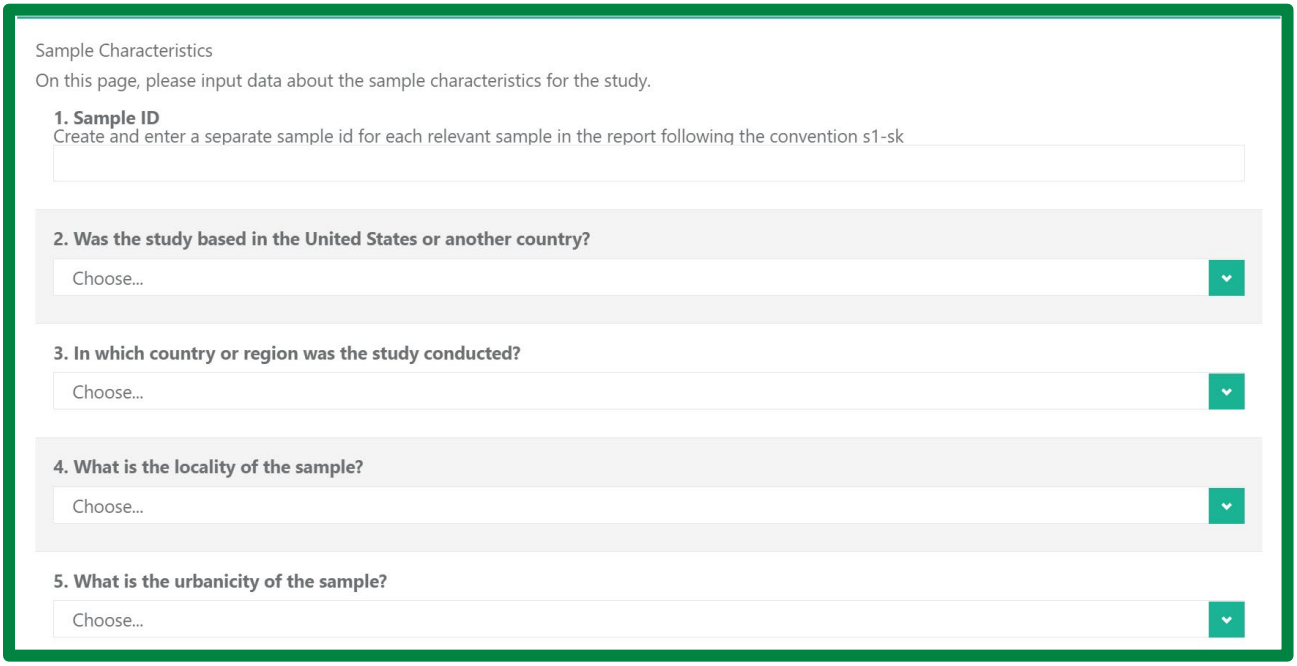


Image: The Sample Characteristics page of a coding form, as rendered in MetaReviewer. The form page looks like a five-item survey, with dropdown menus for each item response.

Coding forms—and the infrastructure that supports them—have a number of features that accommodate the complexities that arise in reviews. For instance, a study might include multiple samples and corresponding analyses. The MetaReviewer coding form templates leverage matrix-style questions to allow users to enter data about each sample without having to worry about how it will be formatted in the final spreadsheet. As a result, coders only have to fill out one coding form per study. On the backend, all the information that is extracted from each study is organized into a spreadsheet that the project lead can export at any point during the review process. The spreadsheet is currently structured so that each row is an effect size. An exported spreadsheet will look something like this:

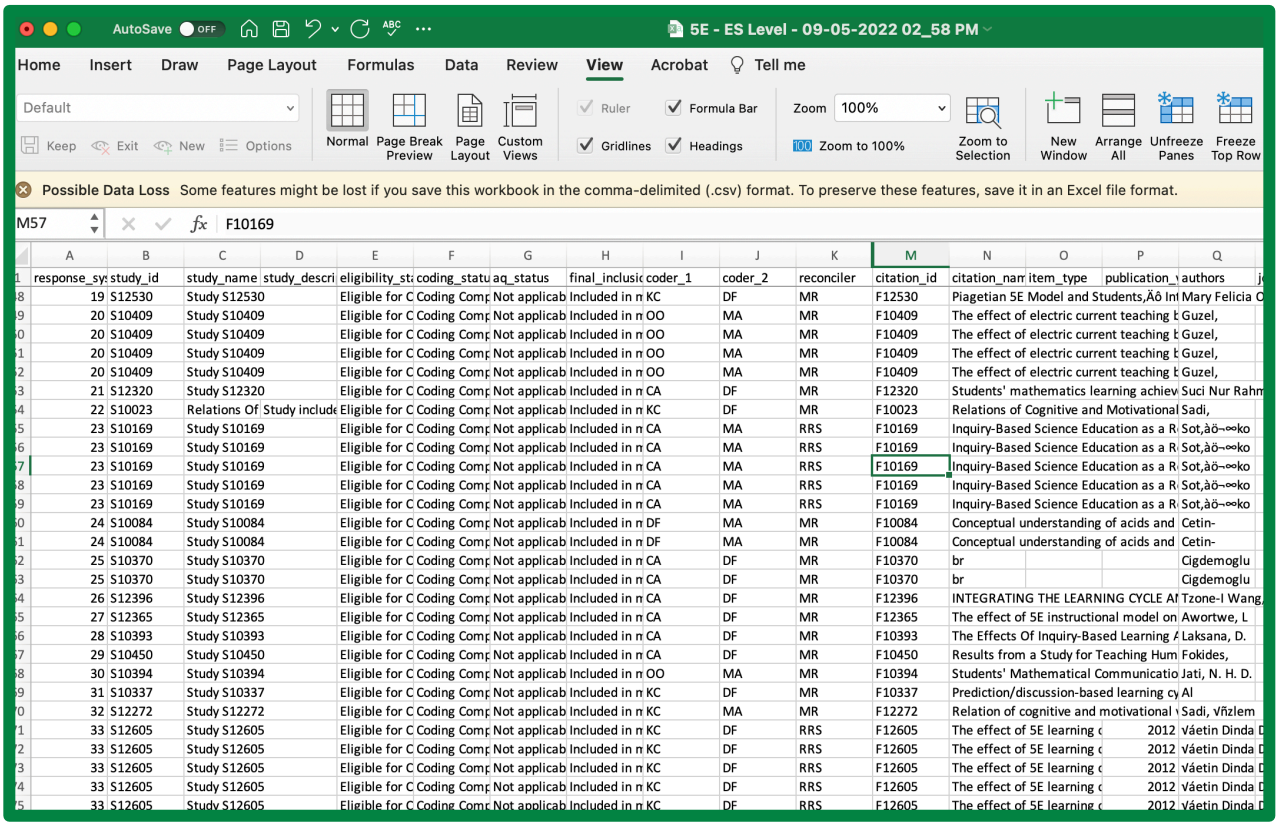


Image: An exported spreadsheet that shows extracted information from each study once coding has been completed.

To streamline the study coding process, MetaReviewer provides users with 36 coding form templates based on study variables that are commonly coded and uses a Coding Form Wizard to help you select the most appropriate coding form for your review.

Although MetaReviewer provides coding form templates based on study variables that are commonly coded, **we encourage you to have a clearly defined codebook before using MetaReviewer.** A clearly defined codebook will allow you to customize coding form templates to meet the specific needs of your review and meta-analysis.

Identifiers

In a simple research project, every effect in a meta-analysis is associated with a single study, a single citation, a single sample, a single intervention, and a single construct. Alas, meta-analyses are rarely that straightforward. A citation can be associated with multiple studies, each of which might evaluate more than one intervention or construct. Or, in your screening process, you might uncover multiple citations that are all about the same study. One of the more tedious aspects of pulling together a meta-analytic data set is making sure that each effect size is linked to the appropriate citation, study, sample, intervention, and construct. MetaReviewer streamlines this process for users by using the principles of a relational, hierarchical database. To do so, the user creates a record for each sample, intervention, comparison group, and measure, so as to identify—at the end of the coding form—each individual contrast or effect size. In order to match the characteristic data to the effect size data, users create unique identifiers (IDs) for each characteristic record. Users then merely have to input IDs as needed for each ID type. MetaReviewer will take all the information from the coding forms, including all of the various IDs, and generate a final data set that accurately represents all of the nuance that exists in meta-analytic data.

In Exhibit 1, we provide descriptions of each ID in the coding form template, examples of how they are used and show up in MetaReviewer and the exported data set, and suggested formats for each ID.

Exhibit 1. ID types available in MetaReviewer coding form templates

ID Type	Use and Example	Suggested Format
Citation ID	Every reference in MetaReviewer's citation database has one citation ID. This ID identifies the particular publication or report from which study data is being extracted. Note that a single citation ID can be linked to multiple study IDs. For instance, in the cyberbullying example, Barlinska, Szuster, & Winiewski (2018) contains two studies (i.e., samples do not overlap). In MetaReviewer, this will result in one citation page linked to two study pages. In the final data set, any effects associated with this citation will have one citation ID and two study IDs.	For citation IDs, we recommend using a 6-digit ID that begins with C: C10001.
Study ID	The study ID identifies the particular investigation that produced data and is meant to serve as a sample-specific indicator. Note that a single study ID can be linked to multiple citation IDs. For instance, in the cyberbullying example, Palladino, Nocentini, & Menesini (2012) and Menesis, Nocentini, & Palladino (2012) are two articles about the same study. In MetaReviewer, this will result in one study page linked to two	For study IDs, we recommend using a 6-digit ID that begins with S: S10001.

	citation pages. In the final data set, any effects associated with this study will have one study ID.	
Sample ID	The sample ID identifies a unique sample within a study. For studies with a multiple groups design, sample IDs can be used to identify the aggregate sample (i.e., the study sample), samples for each experimental condition (e.g., treatment, control), or samples for groups of individuals relevant to the meta-analysis (e.g., Black students). For studies with a single group design, sample IDs can be used to identify the aggregate sample (i.e., the study sample) and samples for groups of individuals relevant to the meta-analysis (e.g., Black students).	For sample IDs, we recommend using a two-digit number, then a condition identifier (if applicable), and the sample type: 01-int-ovr.
Condition ID	The condition ID identifies unique interventions and comparison conditions across studies. These are useful when you are extracting data about intervention or program characteristics. For example, in the cyberbullying example, Wolfer et al. (2013) conduct a study of both a short and long version of a cyberbullying intervention called MediaHeroes. In the example, these receive different condition IDs. The condition ID does not impact the individual citation or study pages in MetaReviewer. However, including the condition ID when extracting data tells MetaReviewer to generate rows in the final data set for each effect observed for each intervention. In the example, MetaReviewer takes the data extracted from Wolfer et al. (2013) and generates three rows for effects observed for the long version of MediaHeroes and three rows for effects observed for the short version of MediaHeroes.	For condition IDs, we recommend using a two-digit number, the condition, and a name: 01-int-secstep.
Measure ID	The measure ID identifies unique baseline or outcomes measures within a study. Like the intervention/program ID, the measure ID has no impact on the individual study or citation pages in MetaReviewer. However, including the measure ID when extracting data tells MetaReviewer to generate rows in the final data set for each effect observed for each measure. In the cyberbullying example, Bumpas (2015) calculates an effect size for each of two measures: cyberbullying victimization and cyberbullying perpetration. For the final data set, MetaReviewer uses the measure IDs to generate two rows for the study ID: one for each effect-measure pair.	For measure IDs, we recommend using a two-digit number, a timing indicator, and a short name: 01-pre-math.

	Another study in the cyberbullying example calculates two effect sizes for each of three measures: cyberbullying victimization, cyberbullying perpetration, and "other" positive internalizing behaviors. In each case, the effect sizes are based on data collected from two different time points. For the final data set, MetaReviewer generates six rows for the study ID, one for each effect-time-measure triad.	
Effect Size ID	The effect size ID identifies a unique contrast or relationship within a study. Note that the data set you export form MetaReviewer will have a unique row for each effect size ID.	For effect size IDs, we recommend using the acronym ES and a two-digit number: ES01.

User roles

There are three default roles that users can have in MetaReviewer: project administrator, project member, and data reader. Each role comes with different default permissions for navigating the software, with only the administrator having full permissions. Permissions that are most relevant to the purpose of MetaReviewer are listed in the table below. Project administrators may want to consider these permissions when assigning user roles (e.g., if a project administrator wants more control over the process, make most team members data readers).

Exhibit 2. User roles and permissions

User Role	Default Permissions
Project administrator	Project administrators can: • Create, view, edit, submit, delete and archive coding forms • Create, delete, and change user roles and role permissions • Assign users to a study • Create, view, add, edit, and delete studies or citations • Create, view, edit, and delete project information • Alter system configuration
Project member	Project members can: • Assign users to a study • Create, view, edit, submit, delete, and archive coding forms • Create, view, edit, and delete studies or citations • Create, edit, and delete project information • Alter system configuration
Data reader	Data readers can: • View coding forms and project • Create and delete project information • Delete citations • Update their account (e.g., name/email address)

Help desk and other resources

In addition to this user guide, there are a handful of resources available to support your use of MetaReviewer:

- **Frequently asked questions (FAQs).** For general questions about MetaReviewer, go to the FAQ page at https://www.metareviewer.org. Here, you will find information about what MetaReviewer 1.2 has the functionality to support and what you need to have ready to get started in MetaReviewer.

- **MetaReviewer webinar.** The MetaReviewer team has recorded a webinar demonstrating the functionality of MetaReviewer. You can access the webinar here, or by selecting "Resources" on the MetaReviewer welcome page.

- **Brief instructional videos.** Some aspects of MetaReviewer are easier to understand through demonstration! The MetaReviewer team has recorded some brief instructional videos to support your use of the software. You can find these videos here, or by selecting "Resources" on the MetaReviewer welcome page. The MetaReviewer team will continue to update our video library based on feedback.

- **Need help? Button.** The MetaReviewer webinar and instructional videos can be accessed at any time by clicking the floating "Need help?" button that appears on all project pages.

- **MetaReviewer help desk.** If you are having a specific problem with MetaReviewer that cannot be addressed by the user guide, FAQs, webinar, or instructional videos, you can reach out to the MetaReviewer support team at metareviewer@air.org.

- **MetaReviewer blog.** If you are interested in learning more about specific MetaReviewer features, go to the Learn page at https://www.metareviewer.org/learn/. Here, you can find blog posts that further explore MetaReviewer's new features.

- **Social media.** For updates and additional resources, check out MetaReviewer on X (formerly Twitter) and LinkedIn.

Logging into MetaReviewer

To log into MetaReviewer, go to https://www.metareviewer.org. Navigate to the website banner and click on **Sign In**. On the log-in page, enter your email address and password and click **Log In**. If you have trouble logging into MetaReviewer, please send an email to metareviewer@air.org.

Creating a project

To create a project, begin by logging into MetaReviewer. Once you are logged in, you will be automatically directed to your "Welcome to MetaReviewer" page. Click on the **New project** tile, circled in the image below.

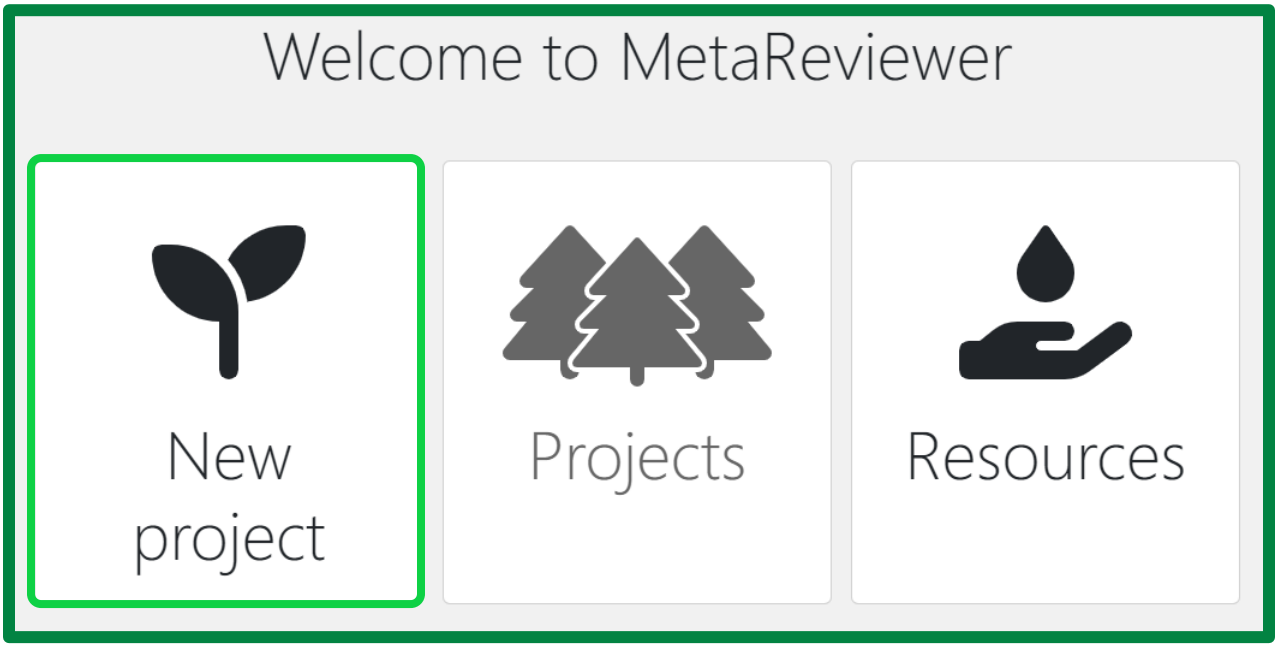


Image: The MetaReviewer Welcome page, with three tiles in a row: the "New Project" tile, the "Projects" tile, and the "Resources" tile.

This will take you to the **MR project setup** tool, which you can use to create a new project in MetaReviewer. This tool walks users through five key steps: (1) creating a project name, (2) adding users to the project, (3) creating a coding form, (4) importing a customized coding form, and (5) importing citations. In this section, we will provide more detail about each of these steps.

Creating a project name

Enter your project name on the first page of the MR project setup tool and click **Create project**.

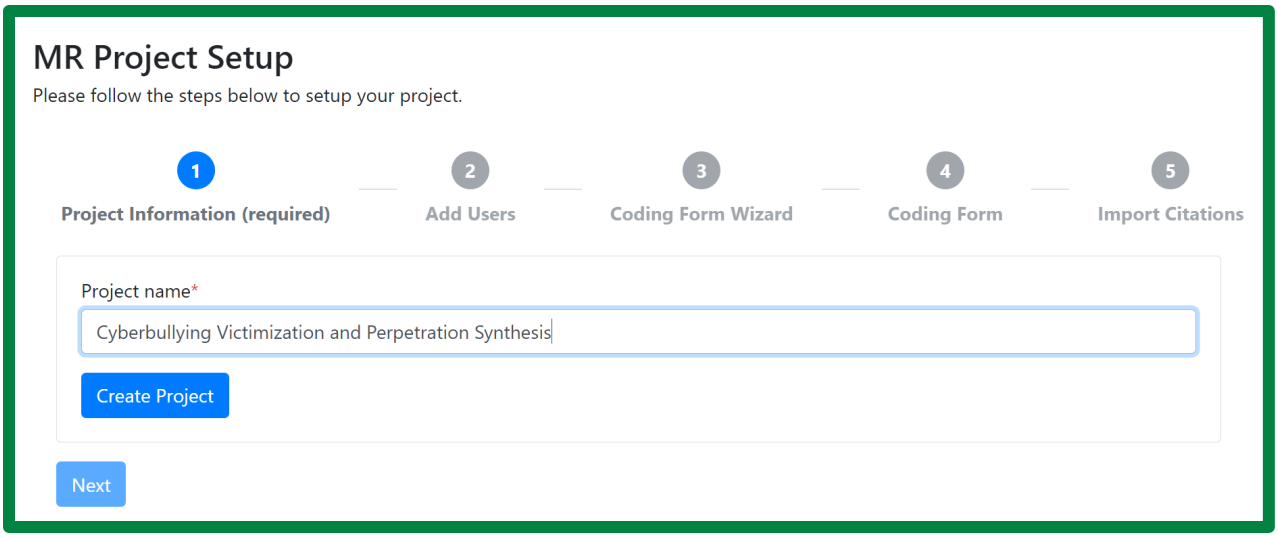


Image: MetaReviewer project setup tool with a project name typed out in the Project name field.

You will see a pop-up in the upper-right corner of your window notifying you that your project has been successfully created and saved. Click **Next** to begin adding users to your project.

The only required step for project setup is to create a project name. The remaining steps can be completed through the MR project setup tool or through other avenues in MetaReviewer.

Adding users to a project

There are two ways you can add users to a project: through the MR project setup tool or through the Manage users pane on the project's Project management page. We will describe the first approach below. To see how to add users through the second approach, go to Project Team Management.

Adding users through the MR project setup tool

Continue on in the MR project setup Tool by clicking **Next**. Navigate to the first field to enter the email address of the user you want to add to the project. You must enter a valid email address and the email address must be associated with an active MetaReviewer account. Navigate to the second field and use the dropdown menu to assign a project role (e.g., data reader) to the user. To learn more about the three user roles in MetaReviewer, go to User Roles.

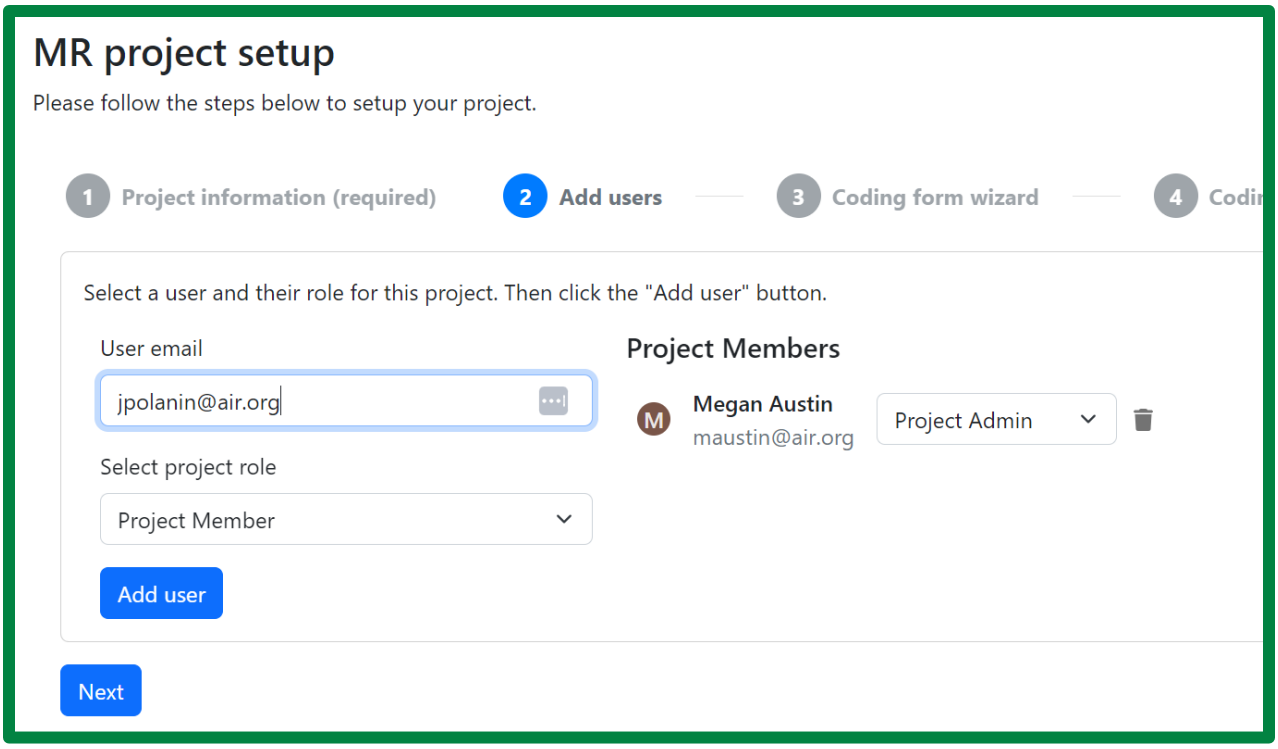


Image: The Add users section of the MR project setup tool, which shows the field for adding a user email and the dropdown for selecting a project role.

Finish adding the user to your project by clicking on the **Add user** button. If the email address of the user you would like to add is not associated with an active MetaReviewer user, you will receive an alert instructing you to ask the user to request an account before proceeding. If the email address is associated with an active MetaReviewer account, the user will be added to your project. Complete these steps for all the users you wish to add to the project. When you have finished adding users to the project, click **Next** to create a coding form.

Creating a coding form

In the MR project setup tool, you will see two options for creating a coding form: creating your own coding form from scratch (not recommended for new users) and using a coding form template (recommended). In the following sections, we will explore each option.

Creating a coding form using a MetaReviewer template

MetaReviewer has a library of 36 coding form templates to help get users started. We highly recommend that you use these customizable templates rather than creating a coding form from scratch, as the latter option requires familiarity with SurveyJS and relational databases. Creating a coding form using an existing template involves two steps: selecting a template and customizing the template.

Selecting a coding form template. To build your coding form using a template, select the **Use a MetaReviewer coding form template** option in the MR project setup tool. You will be asked a handful of questions about your review, the answers to which will help MetaReviewer select the most appropriate coding form template for your project needs. Below, you will see the answers that select the coding form template for the cyberbullying example.

CYBERBULLYING VICTIMIZATION AND PERPETRATION EXAMPLE

Selecting a coding form template.

For the example, we will use the following answers to select our coding form template.

- First, do you plan to synthesize quantitative information across the studies in your review (e.g., effect sizes, descriptive statistics, inferential statistics) or do you plan to conduct a narrative review of studies (e.g., components of interventions? **I plan to synthesize quantitative information.**
- Next, we'd like to know more about the kinds of studies you will be coding. Will the studies in your review use multiple group designs or single group designs**? Multiple group designs.**
- Does the sample of interest for this review include children, adults, or both? **Only children.**
- Reviews that examine the effect of a particular intervention or type of program will often include evaluations of implementation fidelity of that intervention. Would you like to have questions regarding implementation fidelity of a program in your coding form? **Yes.**

When you have finished answering these questions, click **Complete.** You will then see a link to a Google document which contains the coding form template for your project.

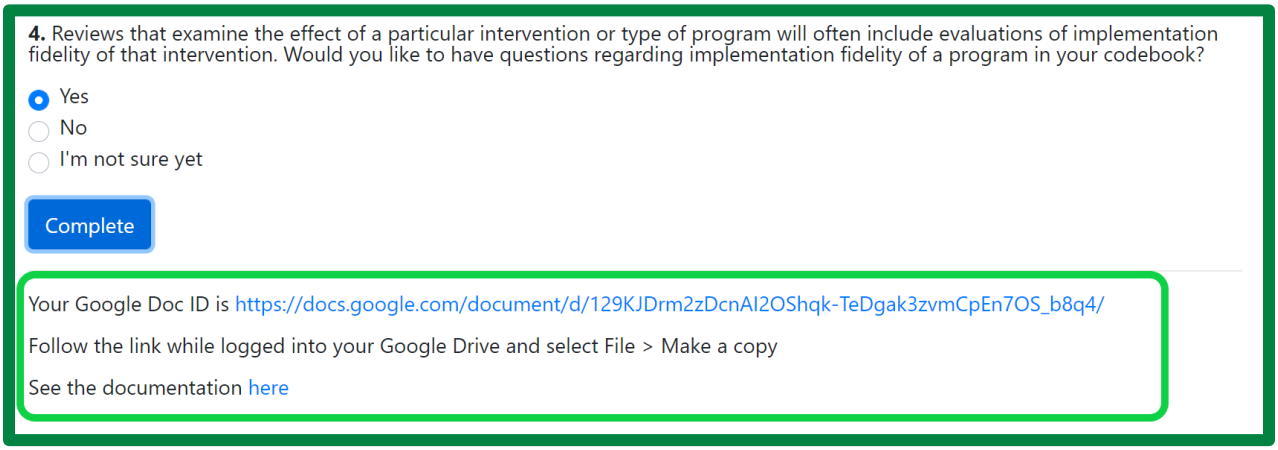


Image: A question from the MetaReviewer Project Setup tool that says, "Reviews that examine the effect of a particular intervention or type of program will often include evaluations of implementation fidelity of that intervention. Would you like to have questions regarding implementation fidelity of a program in your codebook?" The answer 'Yes' is selected. The Google Doc ID to the coding form template with instructions that say, "Follow the link while logged into your Google Drive and select File > Make a copy" is circled in green.

Before accessing the coding form template, make sure that you are logged into the Google account with which you want the coding form to be associated. Once you are logged into the appropriate

Google account, click on the link to access your coding form. This link will take you to a Google Doc containing a coding form template. The picture below is of the coding form template selected for the cyberbullying example.

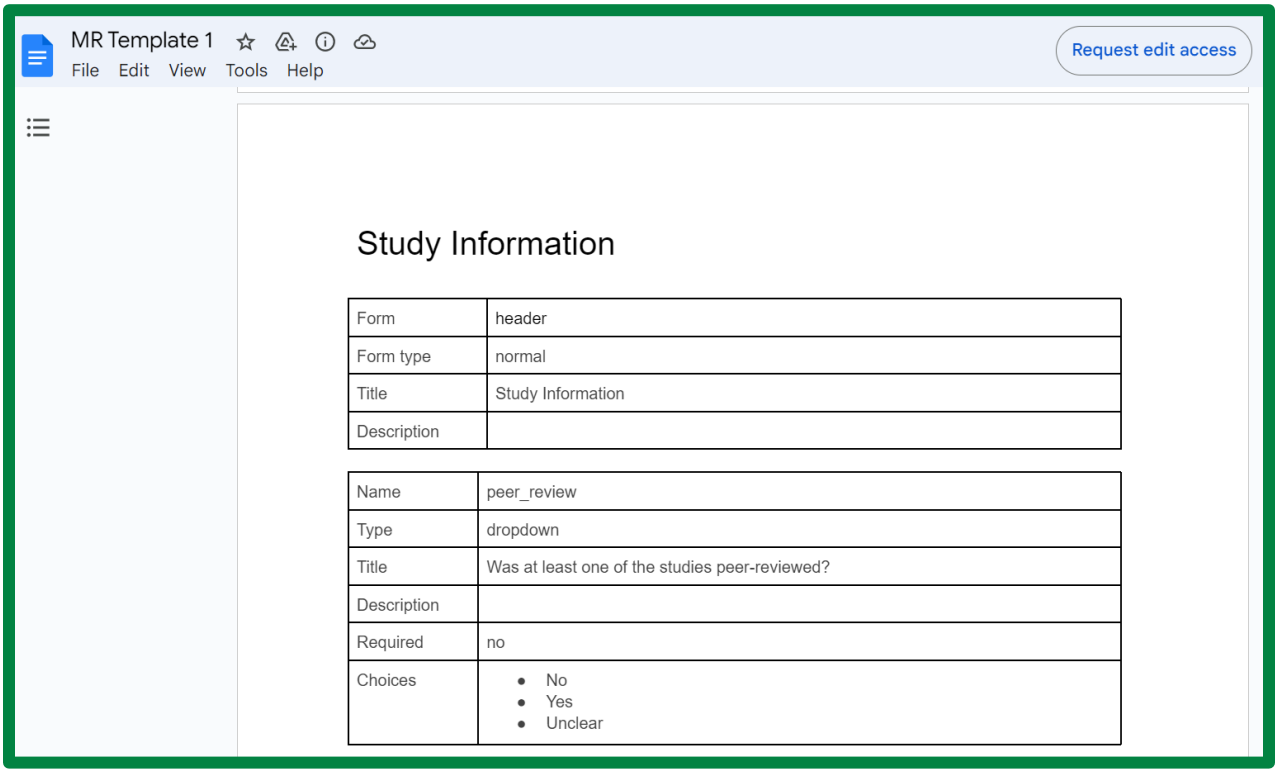


Image: A coding form example with two boxes from the Study Information section that feature the header and a sample dropdown question for peer_review. The peer_review question is not required and has 'No,' 'Yes,' and 'Unclear' response options.

Before customizing your coding form, be sure to make a copy of the template to work in. To make a copy of the template, select **File > Make a Copy**. Click on the **Name** text box to enter a new title for your coding form.

All coding form titles within your workspace on MetaReviewer must be unique. So, when giving your coding form a title, make sure that the title you choose does not match an existing coding form title in your workspace.

When you have renamed your coding form, click **OK**. The named coding form will automatically appear in a new tab. You may close out of the downloaded template and begin customizing the named template.

Customizing a coding form template. Each coding form template consists of a series of tables within your Google document. These tables will be imported into MetaReviewer and will populate

the pages of the user-friendly, survey-like coding forms that your data readers will use. Tables fall into one of two categories: ***form tables*** and ***question tables***.

Form tables determine the number of distinct pages in your coding form. Form tables contain the following information:

Label	Description	Example
Form	• This is the name/ID of the form (page). • This will not appear in the rendered form. • This field is **required.**	header
Form type	• The form type is either ***normal*** or ***matrix-vertical*** (examples shown below). • In a ***normal*** form, questions are laid out one below the other, as in a regular survey. • In a ***matrix-vertical*** form, questions are laid out one next to the other in columns. You can add an observation by adding a new row, like in a data frame. This is useful when a set of questions need to be answered per observation (e.g., per sample). • This field is **required.**	normal
Title	• This is the heading of the form (page) and appears at the top of the page. • This field is not required.	Study Information
Description	• The description text will appear in smaller print beneath the Title on the coding form. • This is a space for the project administrator to provide further guidance, specific to each coding form page, to the data readers. • This field is not required.	Please fill out one form per study.

Form tables that use a ***normal*** form type will render in MetaReviewer like this:

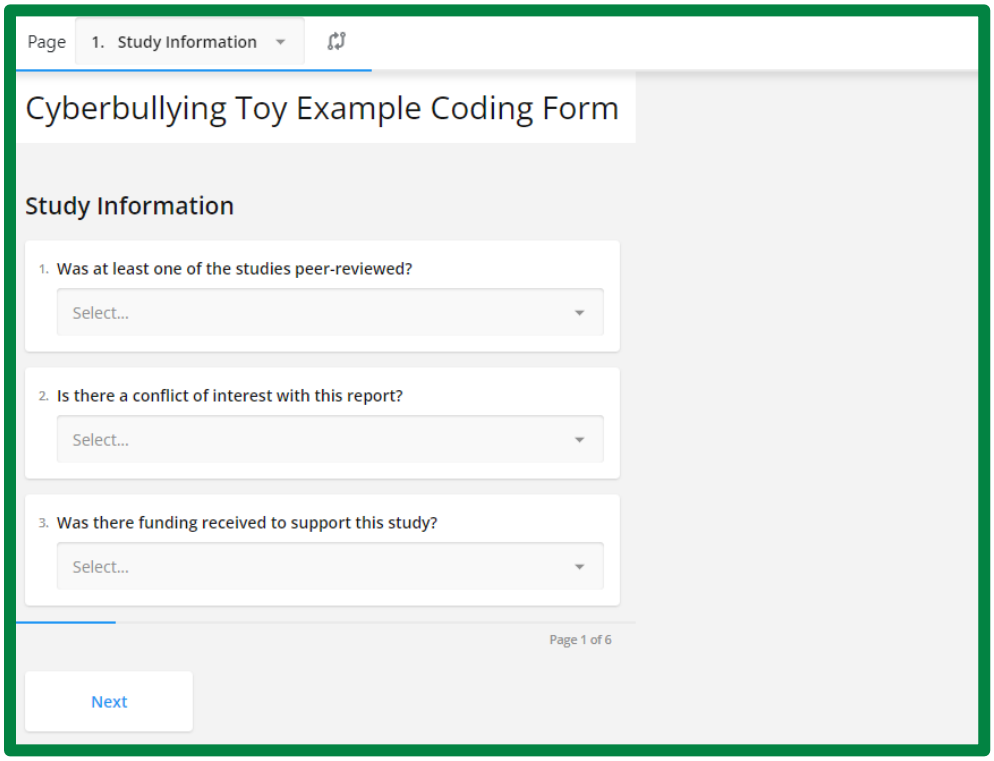


Image: A normal form type page with dropdown questions in the center of the page.

Form tables that use a ***matrix-vertical*** form type will render in MetaReviewer like this:

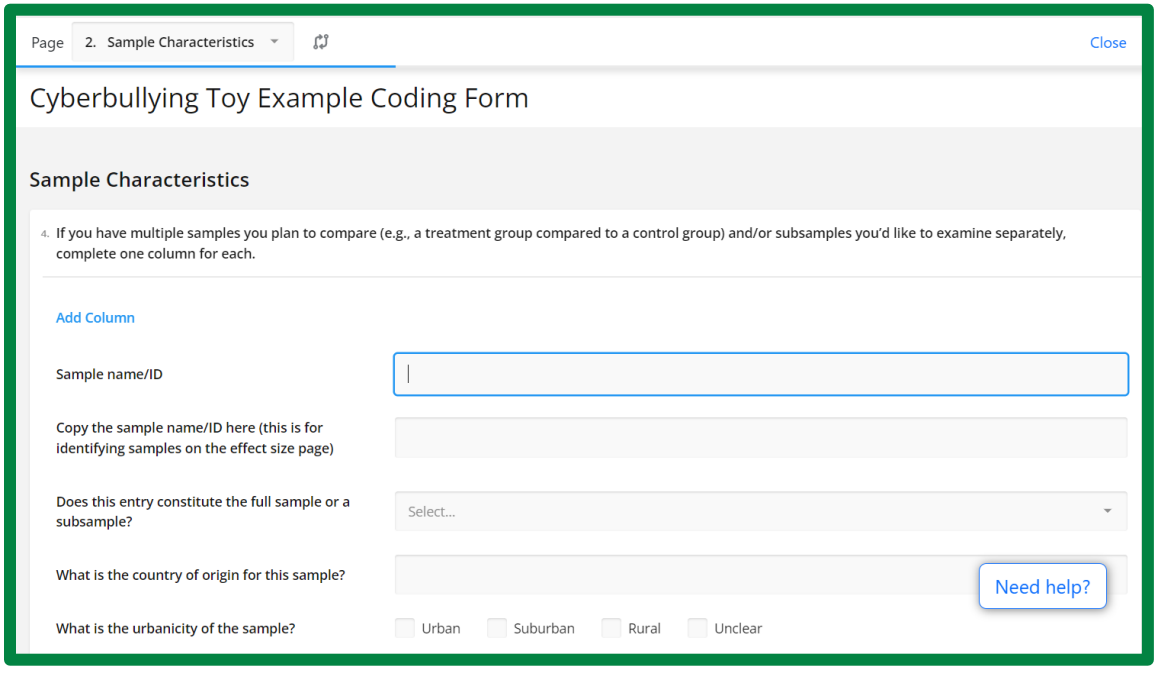


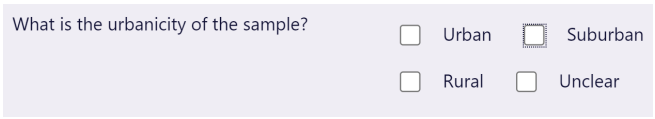
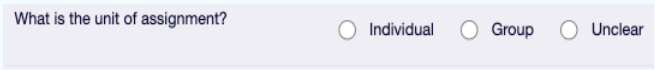
Image: A matrix-vertical form type page with write-in, dropdown, and checkbox questions in the center of the page.

Question tables will create the variables in your coding form for which data readers will extract information. Question tables contain the following information:

Label	Description	Example
Name	• This is the name of the variable/question. • Variable names cannot include spaces. You may use a number of naming conventions to distinguish between words in a variable name, including snake case (e.g., this_is_snake_case) or camel case (e.g., ThisIsCamelCase). • This field is **required.**	full_or_subsample
Type	• This is the type of question (e.g., text, dropdown, checkbox, radiogroup). • This field is **required.**	text
Title	• This is the content of the question. • This field is **required.**	Does this entry constitute the full sample or a subsample?
Description	• This will appear in smaller print beneath the question and can be used to provide guidance to data readers. • This field is not required.	.
Required	• This indicates whether the data reader must answer this question. • The default answer is *no*. • If you change the default answer to *yes*, the user will not be able to move onto the next page of the coding form until the question is answered. • This field is not required.	yes
Choices	• If a question has response options (e.g., a dropdown question), they must be input here. • The response options must be formatted as a bulleted list. • This field is not required.	full sample

There are two categories of question types that you can use in your coding form: (1) questions with response options and (2) questions without response options.

Questions with response options provide coders with multiple responses to select from when coding that variable. These include questions using type *checkbox, radiogroup,* and *dropdown*. The table below depicts how questions of each type will render in MetaReviewer.

Question type	Rendering in MetaReviewer
checkbox	
radiogroup	
dropdown	

To use questions with response options, input one of these three types into the **Type** row of a question table and then list the response options you'd like data readers to select from in the **Choices** row, formatted as a bulleted list. Do not leave any blank rows when listing your choices; this will cause an error when reading your coding form into MetaReviewer. For example, both of the following Choices formats would result in an error:

Choices	Example 1	• Response 1 • Response 2 • Response 3 •
Choices	Example 2	• Response 1 • Response 2 • Response 3

Questions without response options are used when coders should type in a unique response to a prompt. There are three types of questions without response options: *text, number,* and *comment* (*comment* provides a larger response space than *text*). When using these options, be sure to leave the Choices row blank.

In addition to being able to customize existing questions in the coding form template, you may also add or delete questions. To add a question, we recommend copying an existing question table that has a similar format to the new item you would like to add and making edits within the copied table. To delete a question, right-click on the question table and select **Delete Table** from the pop-up menu.

There are a few guidelines to keep in mind while customizing your coding form:

- When importing Google documents, MetaReviewer reads each document from top to bottom, left to right. Numbers of pages and questions are automated accordingly. Therefore, you should place content in the order you want it to appear.
- Fill out one table for each question and form.
- MetaReviewer will only import content that is included within a table. Everything outside of a table, including comments on content within a table, will not be imported.
- Each row in a table should contain one piece of information (e.g., Name, Type, Title) about the question or form. Do not add or delete any rows or columns to/from the tables.
- Stick to one font format (e.g., font type, font size) in the coding form.
- Do not edit any of the form tables or the question tables about effect sizes. The MetaReviewer team has included all the fields you will likely need in a coding form for effect sizes. If you make changes to these pages, we cannot promise that the software will work smoothly

Creating a coding form from scratch

Again, we encourage users to create a coding form by downloading and customizing a MetaReviewer template. Should you prefer, however, to create a coding form from scratch, select the **Create my own coding form from scratch** option in the MR project setup tool.

This will take you to a portal where you can build a coding form using SurveyJS Creator, an online visual survey creator and form building tool (like Qualtrics). For more information on using SurveyJS Creator, please consult the SurveyJS documentation.

When you have finished making your coding form, click on **Save Survey** at the top of the portal page. You will see a pop-up in the top-right corner of your screen, notifying you that your coding form was successfully saved.

Uploading your coding form to MetaReviewer

To upload your coding form to MetaReviewer, you must make your Google Document publicly accessible. This will allow MetaReviewer to process your coding form. To make your coding form publicly accessible, click on the **Share** button in the top-right corner of your window. Clicking this button will bring up the sharing options menu. Click the text "**Change to anyone with the link."** Then, click **Done**.

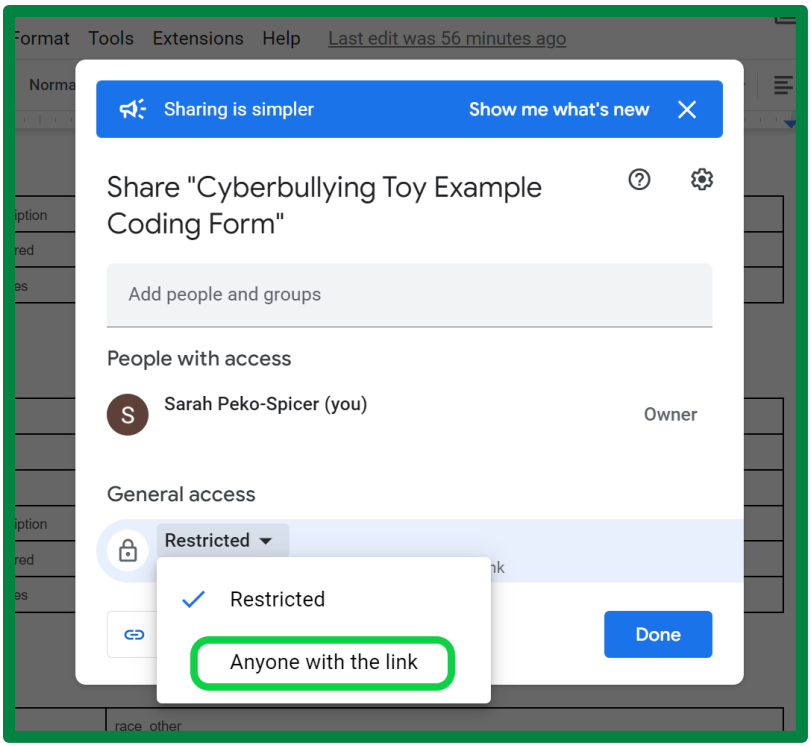


Image: Sharing options menu within Google Docs, with the 'Anyone with the link' option circled in green.

Now you are ready to upload your coding form to MetaReviewer. There are two ways to do this: using the MR Project Setup tool or through the Coding Forms page. In what follows, we walk you through each option.

Uploading your coding form using the MR project setup tool

We recommend uploading your coding form using the MR project setup tool if you are ready to import both your coding form and your citations. To do so, navigate to the page 4 of the MR project setup tool.

You will be asked to import your customized coding form by entering its document ID. The document ID can be found in the URL of the Google document for your customized coding form. To locate the ID, look in the address bar on your web browser when you open the customized coding form in Google documents. Copy the document ID as shown in the image below and paste it into the textbox in the MR project setup tool. Click **Import coding form**.

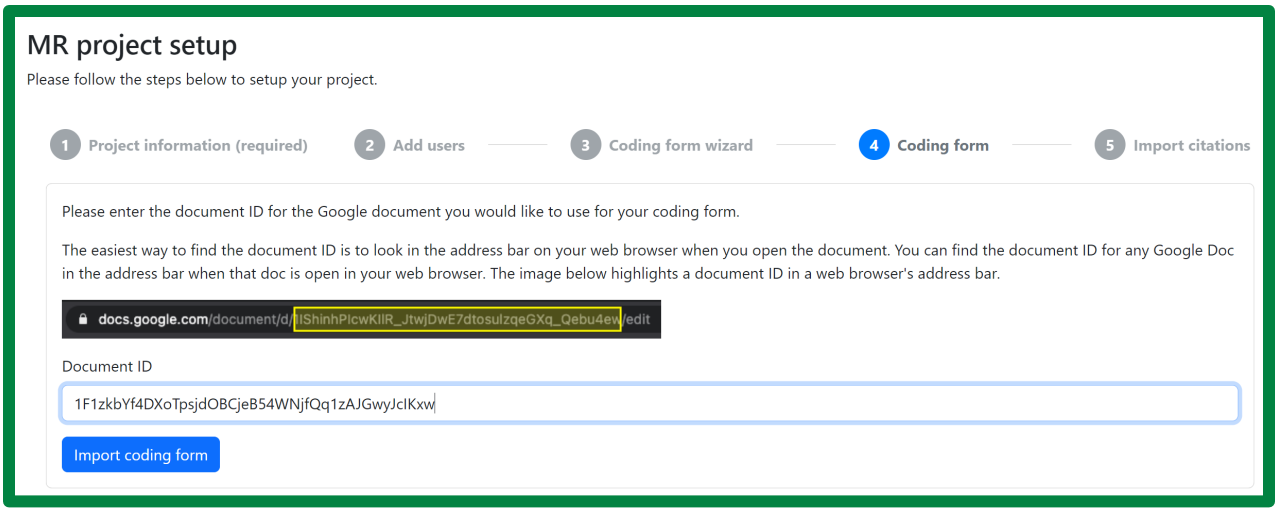


Image: Coding Form section of the project setup tool, showing a document ID in the Document ID field in the center of the page.

If this is your first time importing a coding form to MetaReviewer, you will receive an additional prompt to grant Google access to view the documents associated with this account. You must check the box granting this permission in order to upload your coding form to MetaReviewer.

If your coding form has been successfully imported, you will see a green pop-up notification in the top-right corner of your window indicating that the form has been successfully saved to the project. If your coding form was not successfully imported, you will see a red pop-up notification communicating that an error has occurred. If you need help resolving this error, please contact the MetaReviewer help desk at metareviewer@air.org.

For guidance on the next step of the MR project setup tool, go to importing an initial batch of citations.

Uploading your coding form using the coding forms page

If you are not yet ready to upload your coding form as part of a project setup *or* if you have more than one coding form you would like to upload to MetaReviewer, we recommend uploading your coding form using the tools on the individual project page. This approach assumes that you have completed the required parts of project setup (i.e., creating a project name) such that you have an individual project page associated with your project.

To upload your coding form outside of the MR project setup tool, begin by navigating to the individual project page. Under the **Manage [Project Name]** pane, select **Create coding form**.

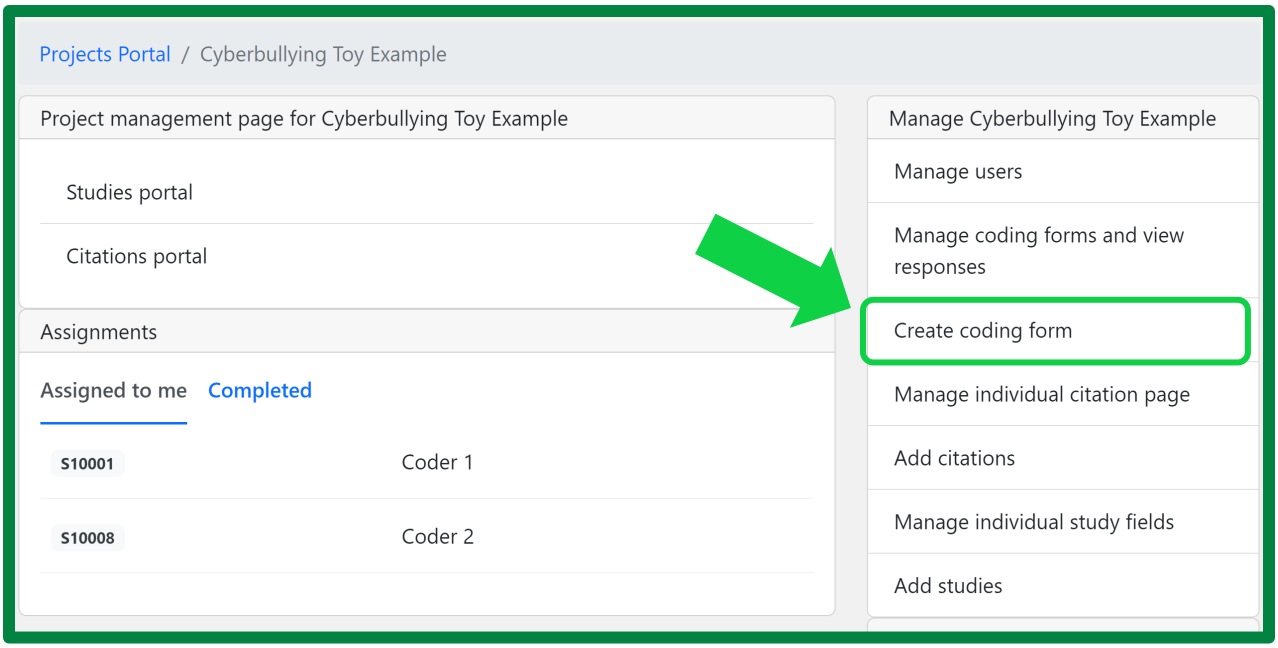


Image: Project page with the Create coding form button on the right-hand side of the page circled in green.

This will take you to the coding form wizard, where you will be prompted to complete the same steps listed above.

You also can begin the process of creating a new coding form by selecting **Manage coding forms and view responses** under the **Manage [Project Name]** pane on the individual project page. This will take you to the Coding forms page, which will display a list of all coding forms associated with your project. To add a new form, simply click on **Add new form** in the blue highlighted box on the top right of the page. This will take you to the template uploader, where you can upload your coding form template. Clicking on the arrow on the Add new form button gives you two options: the template uploader, or a GUI interface to create your own template.

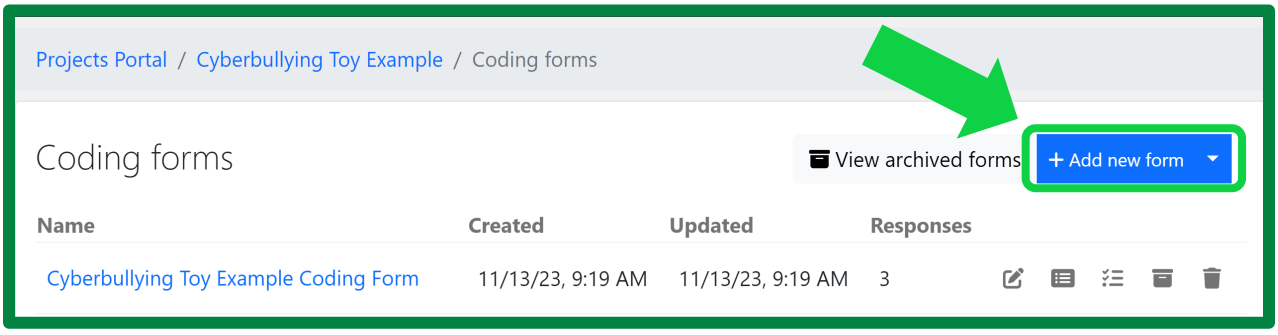


Image: Coding forms page with the Add new form button in the upper-right circled in green.

This will take you through the same steps as the MR project setup tool: selecting a coding form template, customizing the coding form template, and uploading your customized coding form.

Importing an initial batch of citations

After you have imported your coding form using the MR project setup tool, click **Next.** You will be prompted to import an initial batch of citations. We designed MetaReviewer's citation importer to serve three functions: (1) import citations to populate the citation database, (2) create study records that will be full-text coded, and (3) link 'related' citations within a single study.

For convenience, MetaReviewer provides a spreadsheet template for use in batch citation uploads. To download this template, click on the hyperlink in blue for "here." Doing so will automatically download the spreadsheet template to your computer.

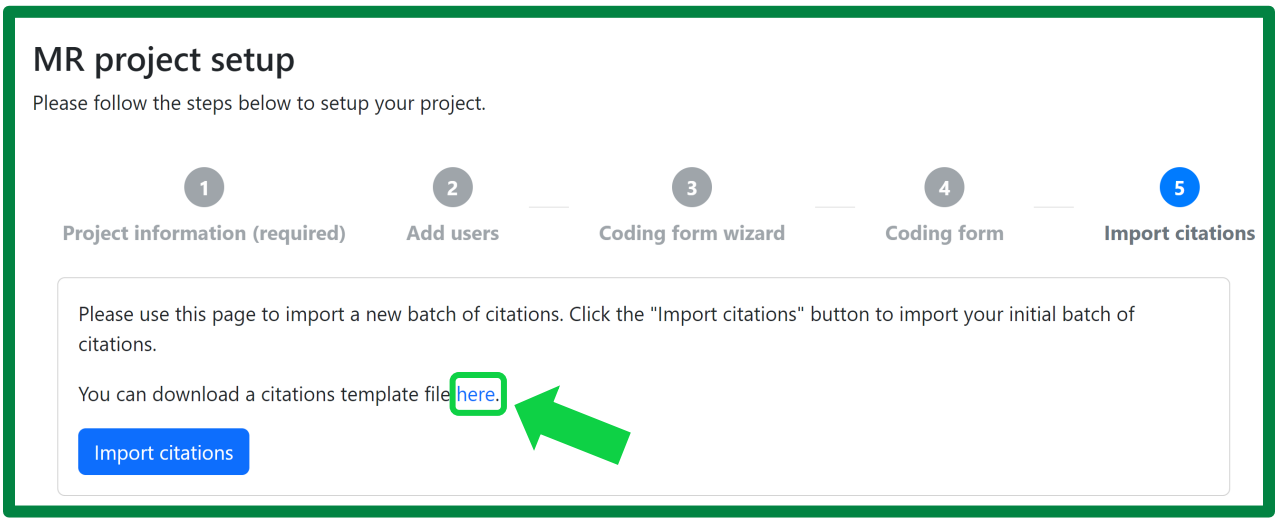


Image: Import citations section of the MR project setup tool, with where you can download a citation template file using the hyperlink circled in green in the middle of the page. The blue **Import citations** button is on the bottom left-hand side of the page.

Open the citations template using your preferred spreadsheet software program (e.g., Microsoft Excel). The template will be pre-populated with the following column headers:

- CIT_ID
- PDF_ID
- Study_ID
- Item_Type
- Publication_Year
- Author_List
- Title
- Publication_Title
- DOI
- URL
- Abstract
- Pages
- Issue
- Volume
- Publisher
- Place
- Library_Catalog
- Editor
- Conference
- IsMainCitation

Populate the template with your initial batch of citations. At a minimum, users must enter the citation ID (i.e., CIT_ID). We recommend that you follow the ID format described in Identifiers,

with your first citation being C10001. Doing so will allow MetaReviewer to populate the citation database with the included citations (function 1 of the citation importer, described above).

To accomplish function 2 of the citation importer, creating study records, users must provide a study ID for all citations that will be full-text coded. For some systematic reviews, each citation will have an associated study ID resulting in all citations being coded by the review team. In other systematic reviews, some citations will be 'dropped' after screening, but the review team wishes to retain a record of these drops in MetaReviewer. Leaving the study ID cell blank, in the citation row, will remove the citation from future coding. Should that study need coding, users will need to manually create a new study record and ID and manually link the appropriate citation(s) to the new study record. For study IDs, we recommend that you follow the ID format described in Identifiers.

To accomplish function 3 of the citation importer, linking citations within studies, users should repeat the study ID across linked citations. A study with 2 'linked' citations, therefore, will share a single study ID; for example, citation IDs C10001 and C10002 are linked because they each share the study ID S10001. MetaReviewer automatically recognizes this linking structure when importing the citation file. Users can also link citations to studies manually within the Individual Study Page.

The citation file for the cyberbullying example is pictured below.

	A	B	C	D	E	F	
1	CIT_ID	PDF_ID	Study_ID	Item_Type	Publication_Year	Author_List	Title
2	C10000		S10000	Journal article	2013	Wolfer, R., Schultze-Krumbholz, A., Zagorscak, P., Jakel, A., Gobel, K., & Scheithauer, H.	Prevention 2.0: Targeting cyberbullying@scho
3	C10001		S10001	Journal article	2013	Williford, A., Elledge, L. C., Boulton, A. J., DePaolis, K. J., Little, T. D., & Salmivalli, C.	Effects of the KiVa Antibullying Program on Cy
4	C10002		S10002	Journal article	2012	Palladino, B. E., Nocentini, A., & Mensini, E.	Online and offline peer led models against bu
5	C10003		S10003	Dissertation	2014	Harshman, K. L.	Assessing effectiveness of age-appropriate cu
6	C10004		S10004	Journal article	2018	Barlinska, J., Szuster, A., & Winiewski, M.	Cyberbullying among adolscent bystanders: R
7	C10004		S10005	Journal article	2018	Barlinska, J., Szuster, A., & Winiewski, M.	Cyberbullying among adolscent bystanders: R
8	C10005		S10006	Dissertation	2015	Bumpas, S. N.	Cyberbullying prevention: Intervention effect
9	C10006		S10002	Journal article	2018	Schoeps, K., Villanueva, L., Prado-Gasco, V. J., & Montoya-Castilla, I.	Development of emotional skills in adolescen
10	C10007		S10007				Test Additional Import

Image: An Excel spreadsheet where each row captures information about a citation to be uploaded to the Cyberbullying Toy Example project in MetaReviewer.

CYBERBULLYING VICTIMIZATION AND PERPETRATION EXAMPLE

Importing citations into MetaReviewer.

The cyberbullying victimization and perpetration citation file contains 8 citations. You'll see that two of these citations (C10002, C10006) are linked to one study (S10002). One of the citations (C10004) is linked to two studies (S10004, S10005). In a later section, we will see how this shows up in the citations database, studies database, and on the individual citation and study pages.

Once you have populated the template with your initial batch of citations, save the spreadsheet file. Then, return to the MR project setup tool and click **Import citations**. You will be prompted to either drag and drop the citations spreadsheet into the upload box or browse your file management system for the citations spreadsheet. Select your citations spreadsheet and click **Upload file**.

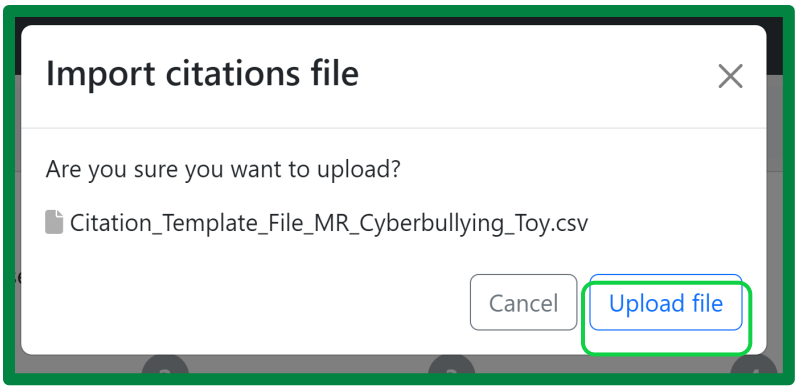


Image: Import citations file window with the Upload file option circled in green in the bottom right.

You should see a green pop-up message in the top-right corner of your window confirming that your citations were successfully uploaded. You will additionally see a message in the MR project setup tool indicating the number of records that were processed. Check to make sure that the number of records processed matches the number of entries in your citations spreadsheet. Then, click **Finish.** You will be automatically taken to the **Citations Database** where you will find your initial batch of citations.

If your citation file was *not* successfully uploaded, you will receive a generic error message. For information on what to do in this case, go to troubleshooting a failed citation import.

Renaming a Project

Users with a Project Admin role can rename a project after it has been created. To rename a project, navigate to the **Project management page** for the project you wish to rename. Once there, click on the black **Rename project** button at the bottom corner of the projects page.

Deleting a Project

After creating a project, you may decide to delete it. To delete a project, navigate to the **Project management page** for the project you wish to delete. Once there, click on the red **Delete project** button at the bottom-right corner of the projects page.

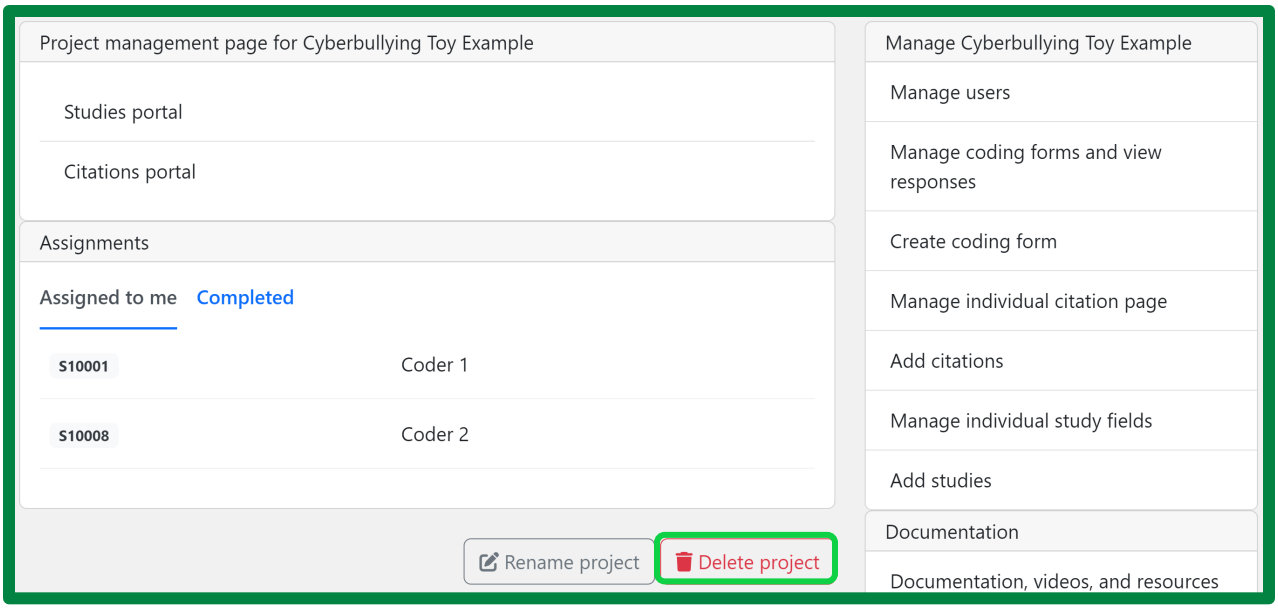


Image: Project management page with the Delete project button circled in green in the bottom right.

Project management

In this section, we will describe how to manage users on your project team in MetaReviewer after you have created a new project. Begin by selecting the **Projects** tile on your Welcome page.

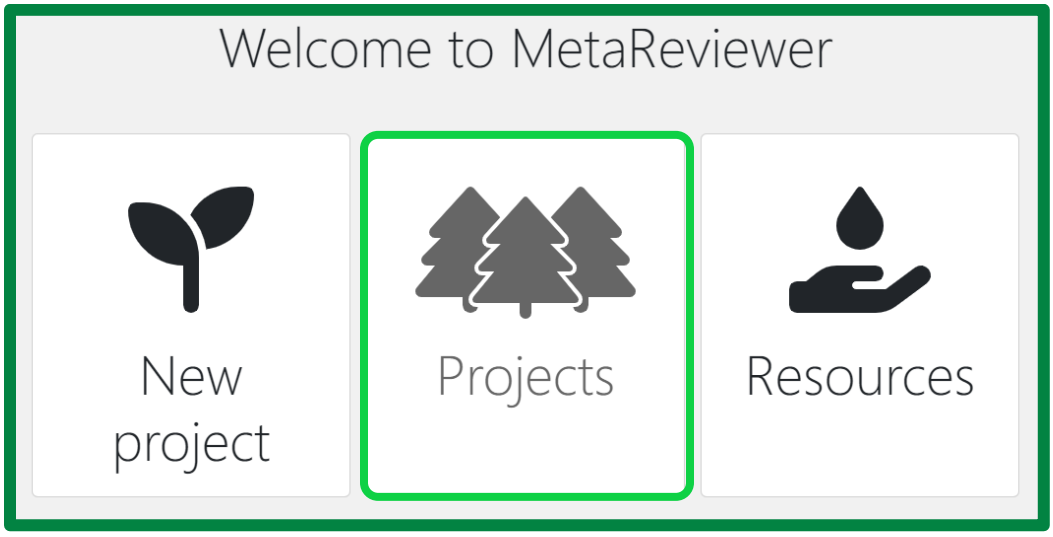


Image: The MetaReviewer Welcome page, with the second tile, the Project tile, circled in green.

This will take you to your **Projects Portal**, pictured below.

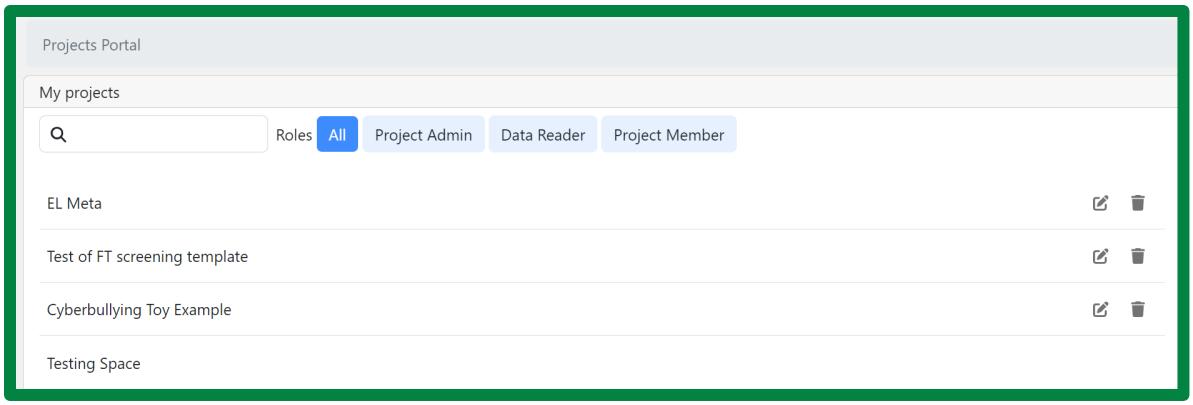


Image: Individual Project page with the Manage [Project name] pane on the right-hand side of the page.

From your Project Portal, select the project you would like to open by clicking on the row with its name.

Adding users to a project through the individual project page

After creating a project, you may need to add users to your workspace. To do so, begin by clicking on the desired project on the **Projects Portal**. This will take you to the **Individual Project** page.

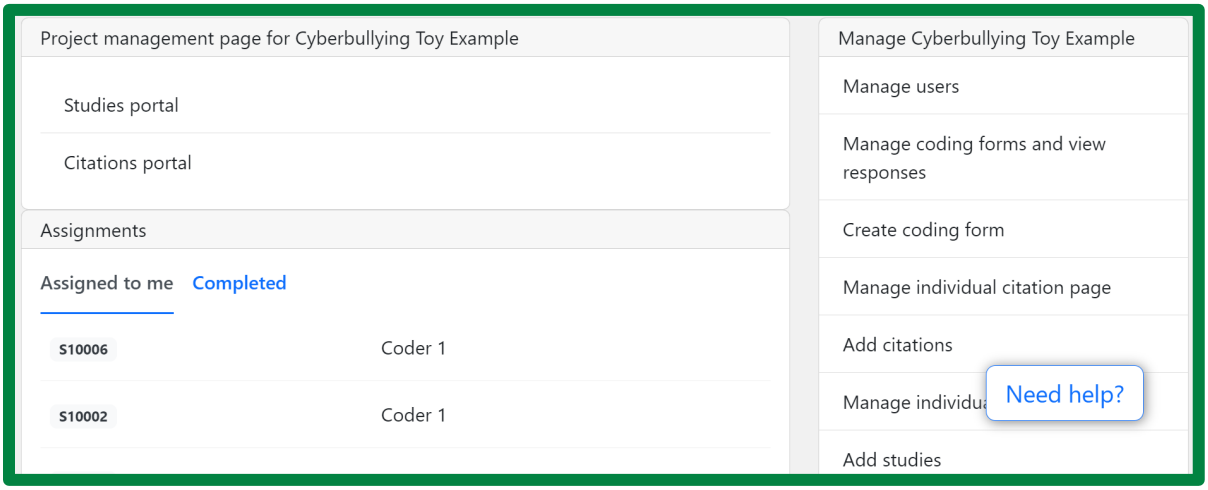


Image: Individual Project page with the Manage [Project name] pane on the right-hand side of the page.

In the **Manage [Project name]** pane, click on **Manage users.** This will take you to a page with a list of all users currently assigned to your project:

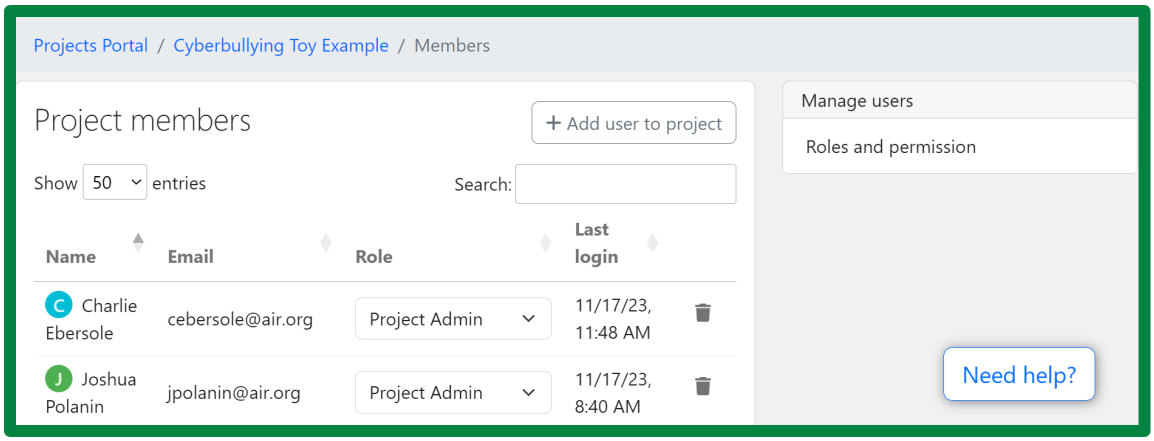


Image: A list of project members on the Project Members page.

To add a user, click on **Add user to project**. You will be prompted to enter the email address for the user you would like to add. You will also be asked to assign them to a Role. There are three default project roles in MetaReviewer: Project Admin, Project Member, and Data Reader. For more information about the permissions associated with each role, go to user roles.

To update a user's Role, click on the dropdown menu in the Role column of that user's row. You will then be able to select a different Role from the dropdown menu.

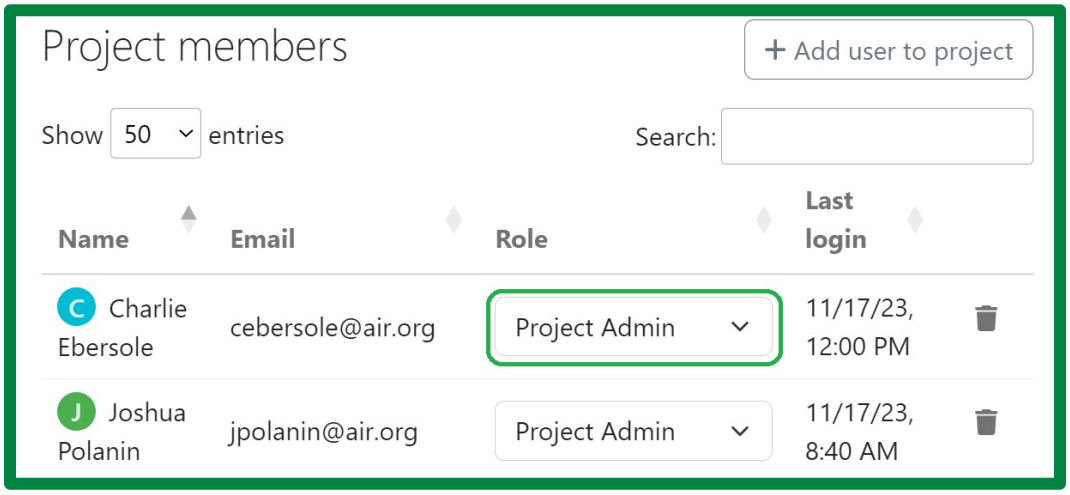


Image: A list of project members on the Project Members page, with the Role dropdown menu circled in green.

Editing a project name or deleting a project

You can edit project names or delete them entirely via the **Project Portal**. Locate the row for the project you wish to alter. On the right side of the screen, there will be two icons – one for changing the project name and one for deleting the project. Select that action you wish to take.

Image: A list of project names in the Project Portal, with the Rename project and Delete project buttons circled in green.

Editing role permissions

To edit role permissions for your project, begin by click on the desired project in the **Project Portal**. This will take you to the **Individual Project** page. In the **Manage [Project name]** pane, click on **Manage users.** Then, on the Manage users page, select **Roles and permission**, highlighted in green in the image below.

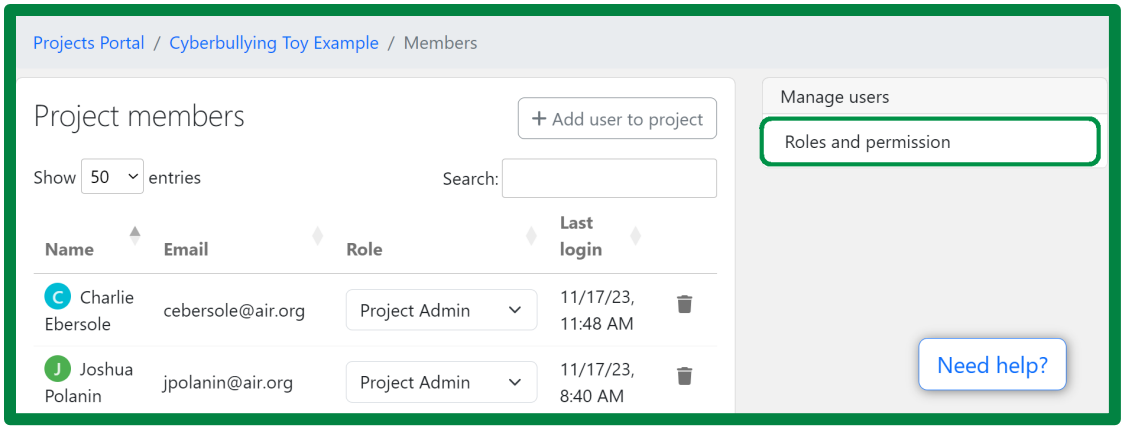


Image: Individual Project page, with the Roles and Permission button circled in green on the right-hand side of the page.

This will take you to the following page:

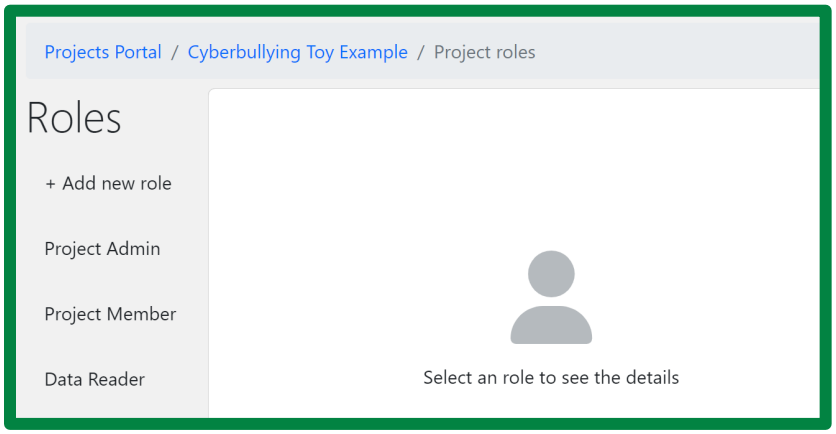


Image: Roles and permission page.

To edit the permission for a role, click on the role in the left-hand panel. In the main panel, the role name and the possible permissions will appear.

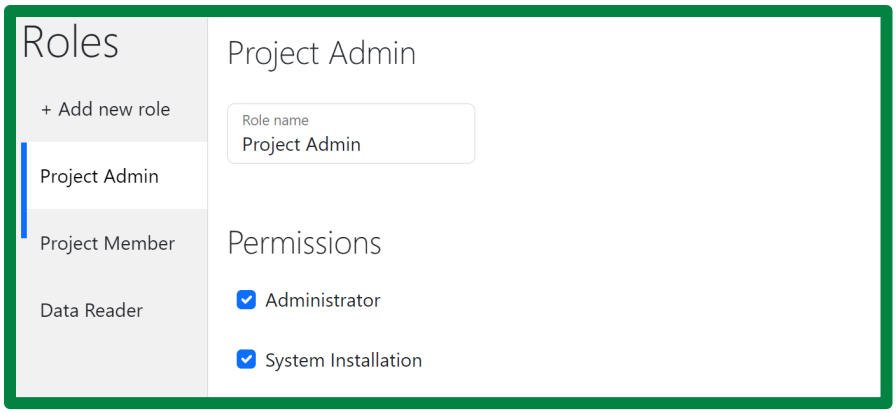


Image: Permissions page, with the Archive Data Collection Form, Assign to a Case, and Assignable to a Case fields selected.

To add or remove a permission, simply check or uncheck the box next to the permission description. When you have finished making changes to the permissions, click on the **Save** button in the bottom-right corner of the main panel.

To remove a role, simply select the trashcan icon that appears next to the role name on the left-hand side of the page. You will be prompted to confirm the deletion.

Removing users from a project

To remove a user from a project, begin by clicking on the desired project in the **Projects Portal**. This will take you to the **Individual Project** page. In the **Manage [Project name]** pane, click on **Manage users**. Here, you will see a list of all the users on your project. To remove a user, find the row with their name. At the end of the row, you will see a grey trashcan icon that becomes red when you hover your curser over it (🗑). Click on the trashcan icon to remove the user from your project. You will be prompted to confirm the user's remove. Click **Remove** if you are sure that they should be removed from the project. Otherwise, click **Cancel**.

Coding form management

In this section, we will review how to manage your coding form(s) after creating a project in MetaReviewer.

Locating your coding form(s)

To find your coding form in MetaReviewer, navigate to your **Individual Project page.** Under the **Manage [Project name]** pane, click **Manage coding forms and view responses**, circled in green in the image below.

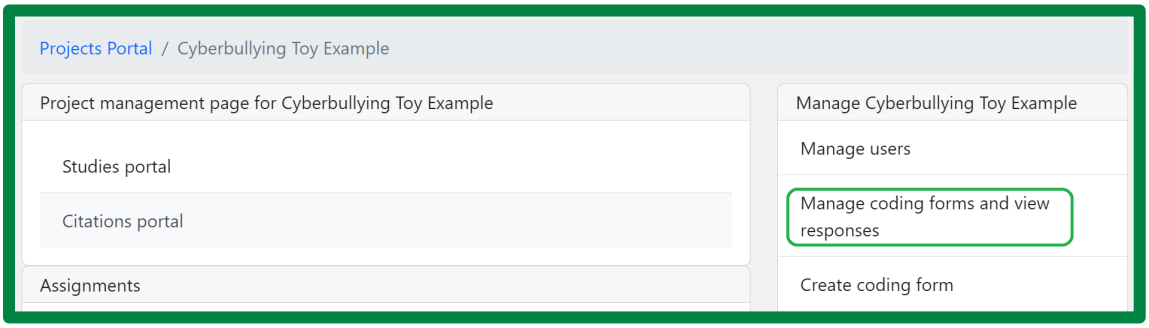


Image: Individual Project page, with the Manage coding forms and view responses button circled in green under the Manage [Project name] pane on the right-hand side of the page.

You will find a repository of coding forms relevant to this specific project. On the right side of the screen, there are icons representing various actions you can take for each coding form. They are (in order from left to right), Edit form, View responses, Select fields, Archive form, and Delete.

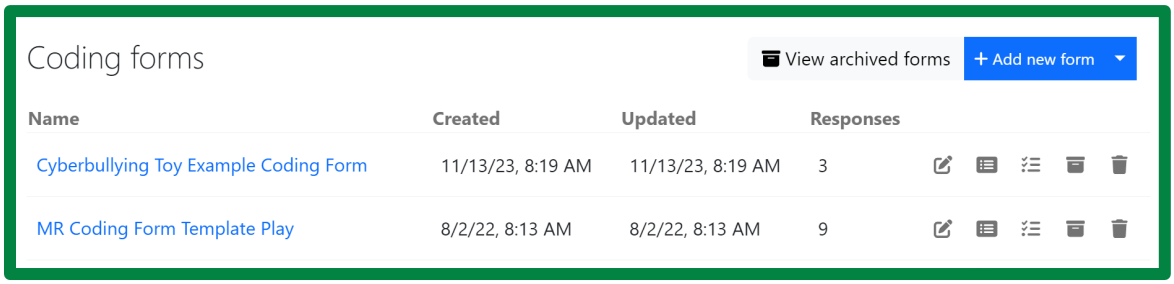


Image: Coding forms page, with icons on the right side of the screen indicating actions for coding forms.

Editing your coding form(s)

There are two ways that you can edit a coding form. If you have not yet started data extraction, we ***strongly*** recommend that you edit the coding form by modifying and re-uploading the appropriate Google document. Doing so allows you to easily keep track of changes and ensure that the coding form behaves in a predictable manner.

If you have already started data extraction, you can edit the coding form directly in MetaReviewer, using the SurveyJS Creator tool. Because users will need to track their coding form manually – and given the possibility that a small setting change can have unintended consequences – we recommend that users limit changes to the coding form using this technique.

Using the Google document for your coding form

To edit your coding form, locate the appropriate document in your Google Drive. Following the instructions on customizing a coding form template, you can edit existing forms, edit existing questions, add questions, or delete questions on your coding form. To see a demonstration of how to edit coding form templates using the Google document, go to the video library on the MetaReviewer Resources page.

You cannot remove pages or edit/remove questions with ID fields without altering the effect size page. If you change the ID fields, remove the dropdown menus for those fields from the effect size page to record responses. Warnings are placed before these ID fields in all coding form templates.

Once you have finished making edits to your coding form, navigate to the **Individual Project Page** corresponding to your project. Under the **Manage [Project name]** pane, click **Manage coding forms and view responses**.

Once on the Coding forms page, navigate to the row containing the coding for you would like to edit. From the actions on the right side of the screen, select **Archive Form** or **Delete Form**. We recommend that you select **Archive Form** so you can store the history of coding forms for your project. Deleting a coding form means that you will permanently lose access to this form. Archiving or deleting a coding form ensures that you will not encounter any errors when you upload a revised version.

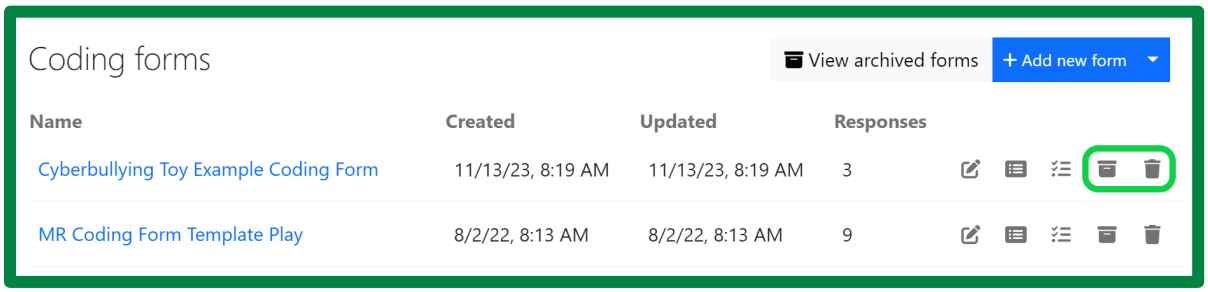


Image: Coding forms page, with the Archive and Delete buttons circled in green.

Import your revised coding form following the instructions under importing a coding form using the project management tools on the individual project page.

Using SurveyJS Creator

Begin by navigating to the **Individual Project page** corresponding to your project. Under the **Manage [Project name]** pane, click **Manage coding forms and view responses**.

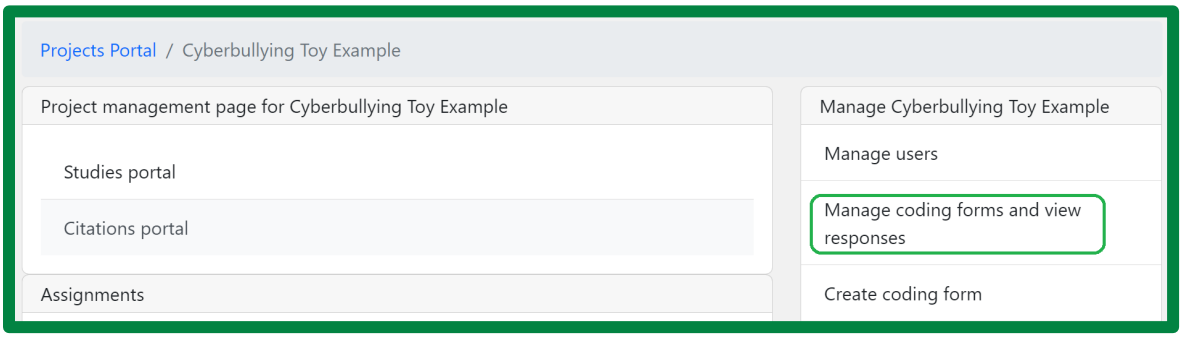


Image: Individual Project page, with the Manage coding forms and view responses button circled in green under the Manage [Project name] pane on the right-hand side of the page.

Once on the coding Forms page, navigate to the row containing the coding form you would like to edit. From the actions on the right side of the screen, select **Edit form**. This will take you to a page that looks like this:

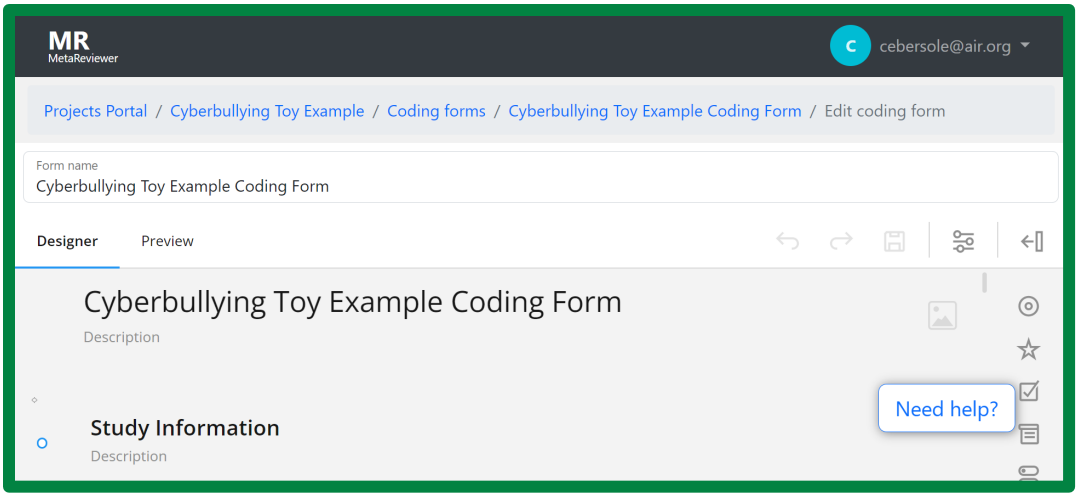


Image: Coding form editing page, with new question options on the right-hand side of the page.

This page lists all the questions in your coding form across all pages. To edit a question, click on it. This will provide you with several editing options.

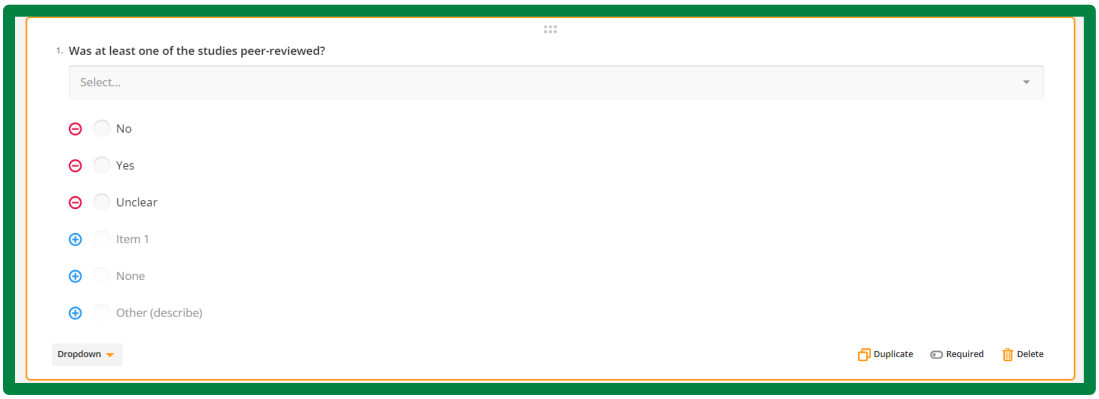


Image: Editing a single question in the coding form editing page.

This sample question is a dropdown item. If you would like to change the type of question, select the question type dropdown in the bottom left-hand corner and select a new question type.

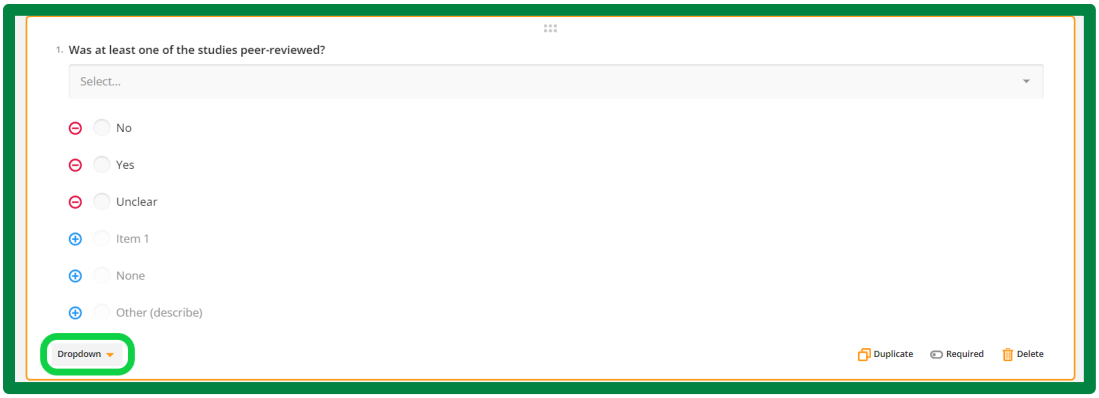


Image: Editing a single question in the coding form editing page with the change question type option circled in green.

You can also edit the text of each question from the GUI. To do so, just click the text of the item. This will allow you to revise the text that appears to coders.

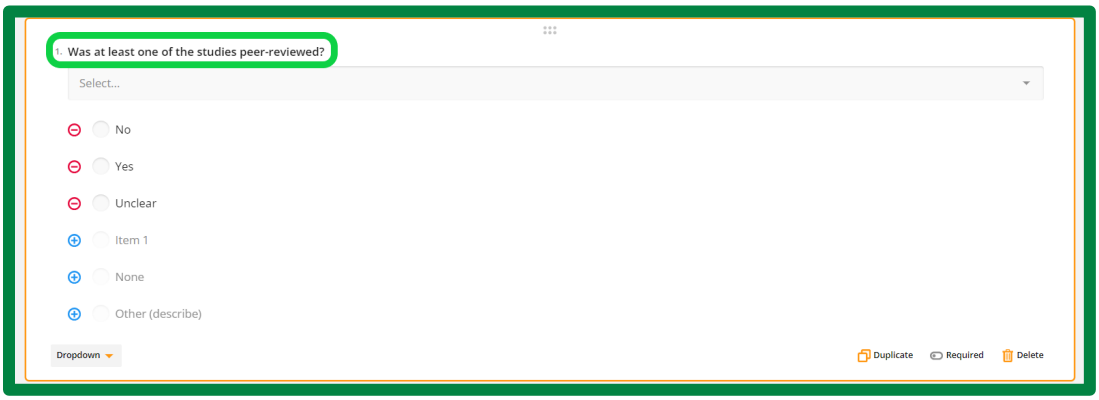


Image: Editing a single question in the coding form editing page with the question text circled in green.

If your question has preset response options (e.g., a Radiogroup, Checkbox, or Dropdown question), you can edit the response options from the GUI in several ways. To edit a response, click on the text of the response and type in your revisions. To delete a response option, click the red minus sign to the left of the option you want to delete. To add a new option, click the blue plus sign next to one of the items at the bottom of the screen. MetaReviewer will suggest new response options as defaults. Once you've added one of these new options, you can revise it however you'd like.

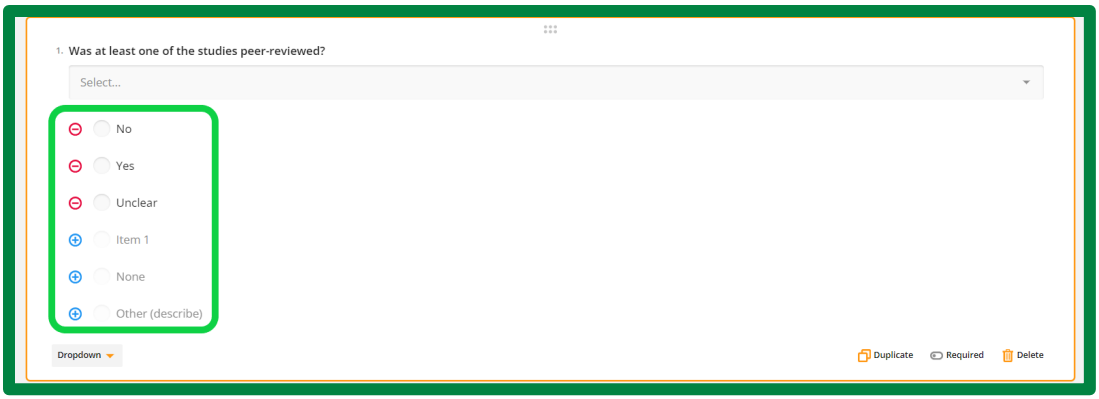


Image: Editing a single question in the coding form editing page with the options to edit response options circled in green.

Finally, in the bottom right-hand corner of this pane, you have the options to Duplicate an item, mark it as Required for coders, or Delete it from your coding form.

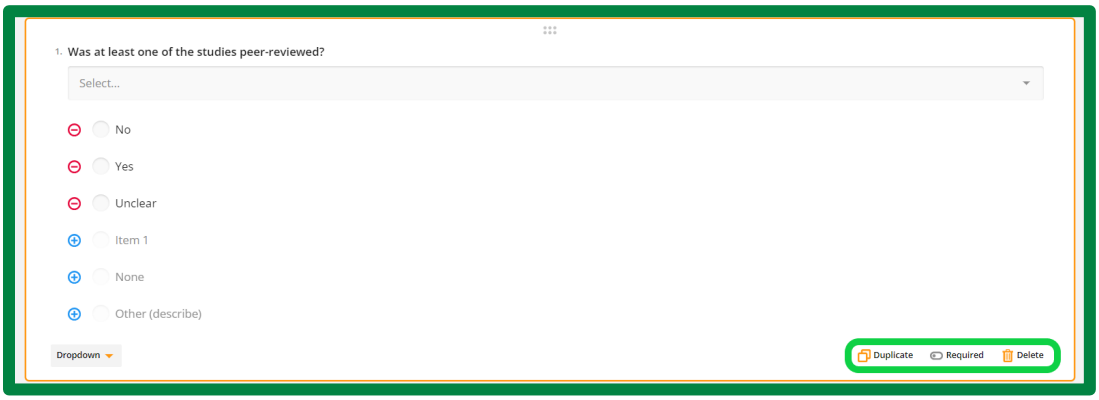


Image: Editing a single question in the coding form editing page with the options to Duplicate, Require, or Delete a question circled in green.

These editing options apply to **Dynamic Matrix** questions as well. Click on the field you would like to edit to revise the question text and/or response options.

If you would like to add a page to your coding form, expand the menu on the right side of your screen and scroll down to **Page**. Click Page to expand that section. To add a page, click the plus sign.

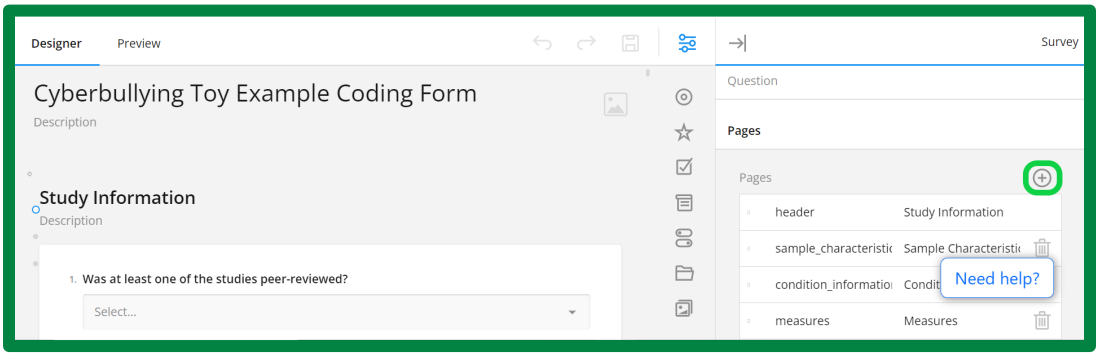


Image: Page menu in the coding form GUI, with the add page button circled in green.

To see a demonstration of how to edit a coding form template in MetaReviewer using the SurveyJS Creator tool, go to the video library on the MetaReviewer resource page.

If you download data after adding a question or page through the GUI, the question or responses may not be listed in the data. Checkbox questions also may not download correctly. Responses may be listed as 'item1,' 'item2,' etc.

Adding a coding form with Wizard from the project landing page

To add a coding form to the project after you have created it, begin by navigating to the **Create Coding Form** button, circled in green in the image below.

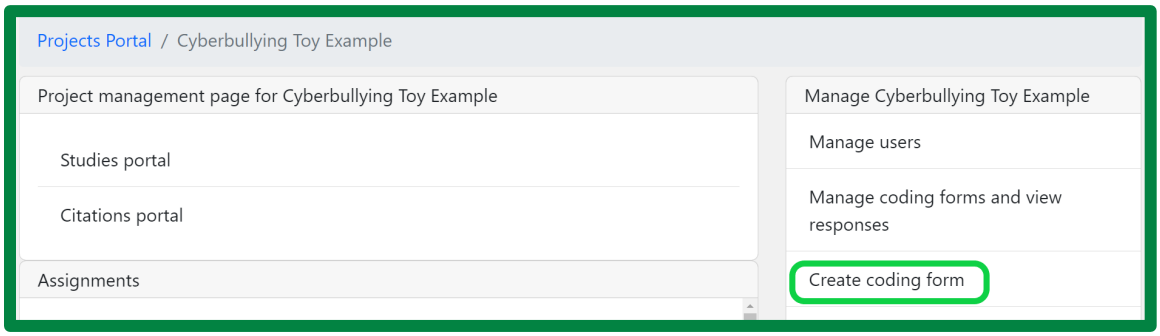


Image: Individual Project page, with the Create Coding Form button circled in green under the Manage [Project name] pane on the right-hand side of the page.

This will take you to the coding form wizard, which walks you through the steps of creating a coding form:

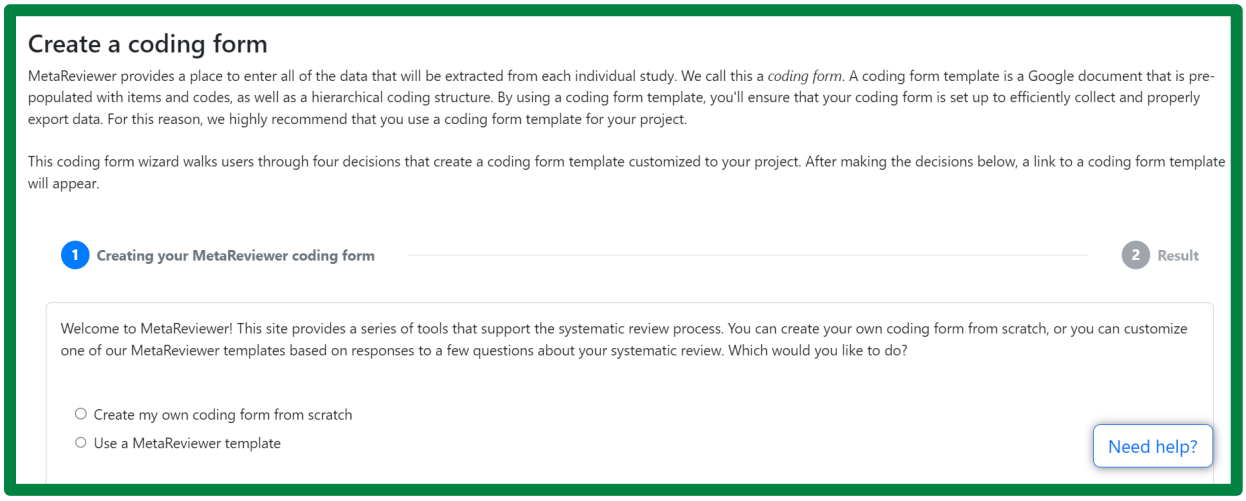


Image: Coding Form Wizard page, open to the Create a coding form section.

Once you complete these steps, you can access the new coding form by navigating to your project landing page. Under the **Manage [Project name]** pane, click **Manage coding forms and view responses**. This will allow you to access your new and existing coding forms.

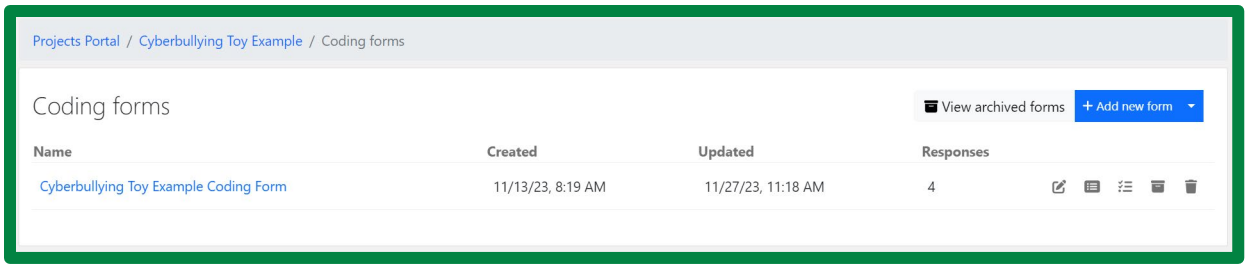


Image: Coding forms page, with coding form examples.

Adding a coding form to the individual study pages

Each individual study page should include any coding form that users will need to extract data from primary studies. To add a coding form to each of the individual study pages, begin by navigating to your **Individual Project Page**. On the right-hand menu, select **Manage individual study fields**, circled in green in the image below.

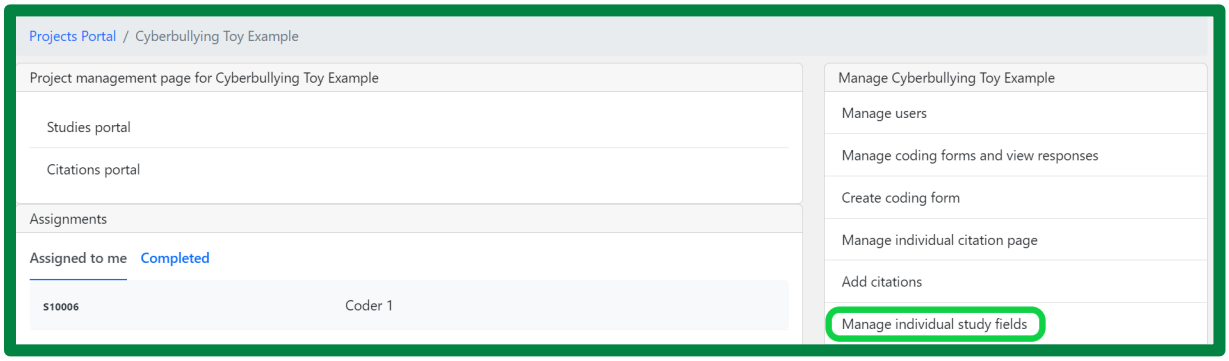


Image: Individual Project page, with the Manage individual study fields button circled in green under the Manage [Project name] pane on the right-hand side of the page.

This will take you to a page that allows you to edit the fields on the **Individual Study page**:

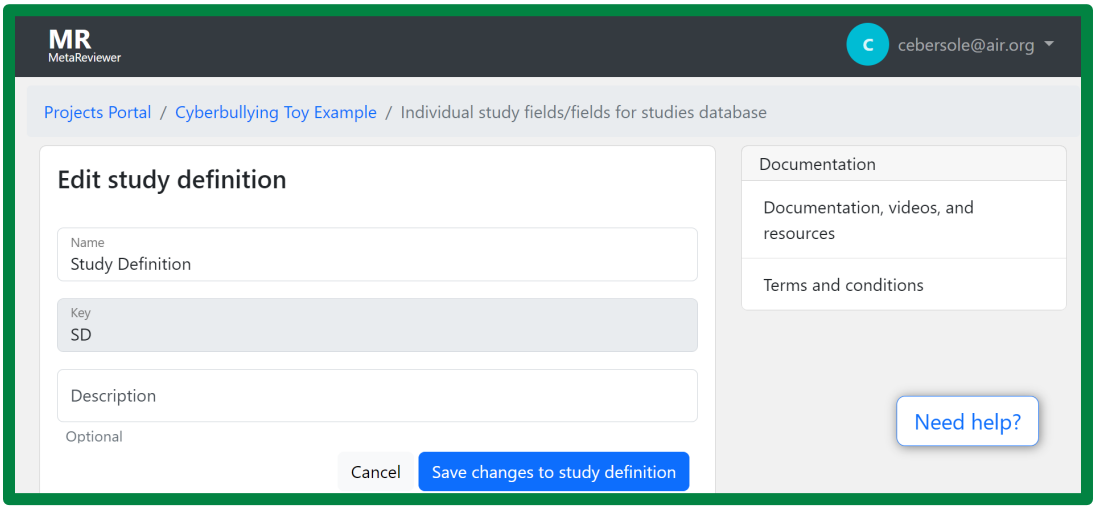


Image: Option to edit fields on the Individual Study page.

Scroll down to the section entitled **Coding forms**. Here, you will see a list of all the coding forms you have imported for this project. Select the checkbox for the form(s) that you want to add to the individual study pages.

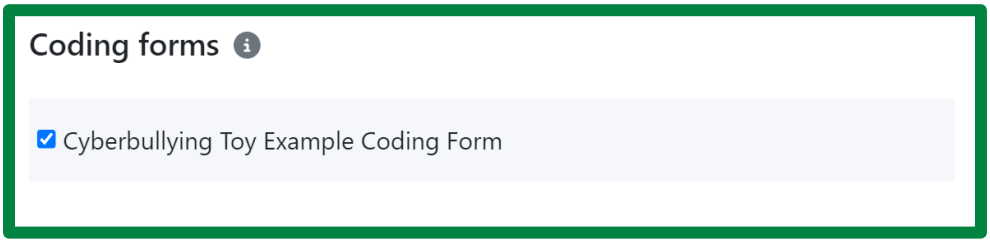


Image: Coding form' section, with Cyberbullying Toy Example Coding Form selected.

Scroll down and click **Save changes to study definition.** The coding form(s) will now be included on the Coding Forms pane on each Individual Study page for the studies in your project.

Archiving a coding form

To archive a coding form, navigate to the **Individual Project Page** corresponding to your project. Under the **Manage [Project name]** pane, click **Manage coding forms and view responses**.

Once on the Coding forms page, navigate to the row containing the coding for you would like to edit. Select **Archive Form** or **Delete Form** from the actions on the right side of the screen. We recommend that you select **Archive Form** so you can store the history of coding forms for your project. Archiving or deleting a coding form ensures that you will not encounter any errors when you upload a revised version.

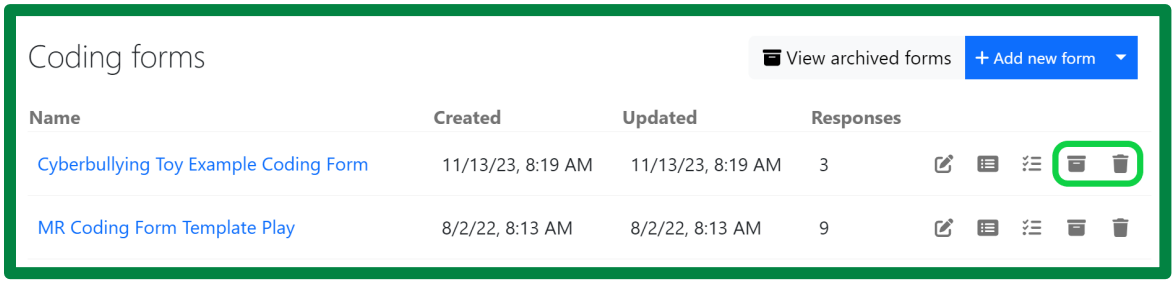


Image: Coding Forms page, with Delete Form and Archive Form circled in green on the right-hand side of the page.

Citation management

Each citation in your project has its own webpage, where users can store information about the citation including .pdf files of the document and any support information obtained from author queries. In the following section, you will learn how to access individual citations and edit or update individual citation pages with new information.

Importing additional citations with a batch upload

Should you need to upload an additional batch of citations, simply add them to the initial batch of citations in the citations spreadsheet stored on your computer. Once you have updated and saved your spreadsheet file, navigate to your project's **Citation Portal**.

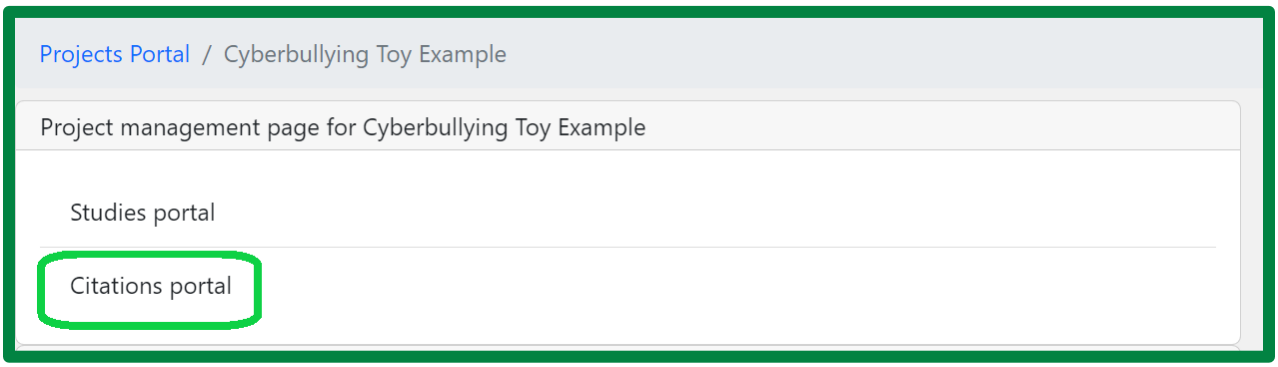


Image: The Project management page for the Cyberbullying Toy Example. The Citations portal link is circled in green.

This will take you to a spreadsheet of all the citations currently associated with your project. The Citations Portal will look *almost* identical to your citations spreadsheet; the key difference is that the Citations Portal only includes one row per citation. For example, as you can see in the image below, the Citations Portal for the cyberbullying example pulls studies S10004 and S10005 into a single row because they are both linked to citation C10004.

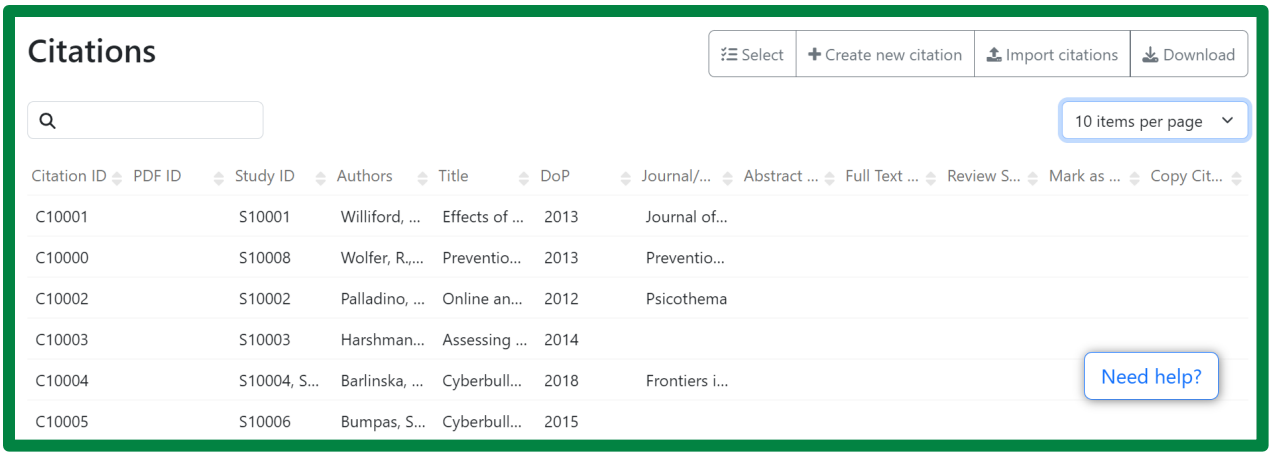


Image: The Citations Portal for the Cyberbullying Toy Example, where each row contains information about the citation.

From the **Citations Portal**, click on the **Import Citations** button at the top-right corner of the database page. You will be taken to a page resembling the import citations step in the MR Project Setup tool. Click on the **Import Citations** button at the top-right corner of this page.

Image: The Import citations page, with the Import citations button circled in green, in the top-right corner.

You should see a green pop-up message in the top-right corner of your window confirming that your citations were successfully uploaded. You will additionally see a message indicating the number of records that were processed. Check to make sure that the number of records processed match the number of *total* entries in your citations spreadsheet.

Click on the blue hyperlink that says "Click here" to return to the Citations Portal. Confirm that the portal includes your initial batch of citations as well as your newly imported citations. If your citation file was *not* successfully uploaded, you will receive a generic error message. For information on what to do in this case, go to troubleshooting a failed citation import.

Adding new citations manually

Alternatively, you might have a small number of citations that you wish to add manually. To do so, navigate to the **Citations Portal** associated with your project. Click on the **Create New Citation** button at the top-right corner of the database page.

Image: The Citations portal banner, with the "Create new citation" button circled in green.

You will be taken to a **Citation Form**, with fields similar to those in the citation spreadsheet template. At minimum, you must enter in the citation ID and the citation name.

Image: The New Citation Form, with fields for entering a citation ID, name, description, type, publication year, and authors.

Once you have completed the form, click on **Save New Citation** at the bottom of the form. You should receive a green pop-up message confirming that your citation was successfully saved.

Unlike the citation import spreadsheet, the citation form within MetaReviewer does not contain a field to enter a corresponding study ID. To learn more about manually linking a study to a citation, go to linking citations to studies.

Troubleshooting a failed citations import

When uploading batch citations to MetaReviewer, you might get a generic error message. This is likely to occur if there are rogue formatting errors in the file. If you get a generic error message, return to your .csv file and examine it for common formatting errors. These errors could include, but are not limited to:

- Multiple commas within a cell
- Hard/carriage returns within a cell
- Misalignment between cell content and column format
- Special characters (e.g., corrupted foreign language characters)

To identify formatting errors in your .csv file that might render it unreadable to MetaReviewer, you can upload it to CSV Lint, which will assess the readability of your file and will summarize any changes that would improve readability. Alternatively, you can open your .csv file in R to examine for formatting errors. For instance, hard/carriage returns in a .csv file will appear in R as "lorem ipsum \n dolor" rather than "lorem ipsum dolor."

Accessing an individual citation

Most often, you will access an individual citation from the Citations Portal. To do so, begin by navigating to your project page. Under the Project Management pane, select **Citations Portal**.

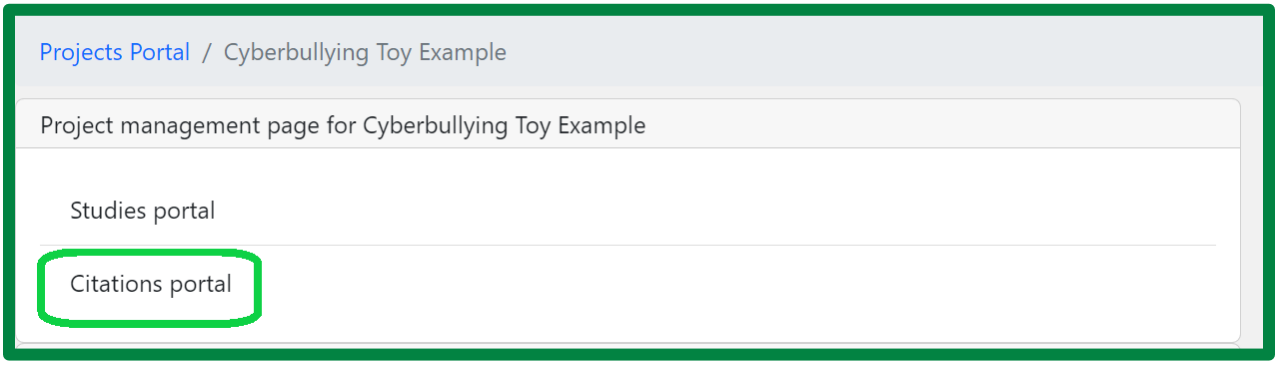


Image: The Project management page for the Cyberbullying Toy Example. The Citations portal link is circled in green.

Within the Citations Portal, you can either search for or use filtering options to locate a citation. Once you have found the citation you are looking for, simply click its corresponding row in the portal to navigate to its individual citation page. An individual citation page will look something like the image below:

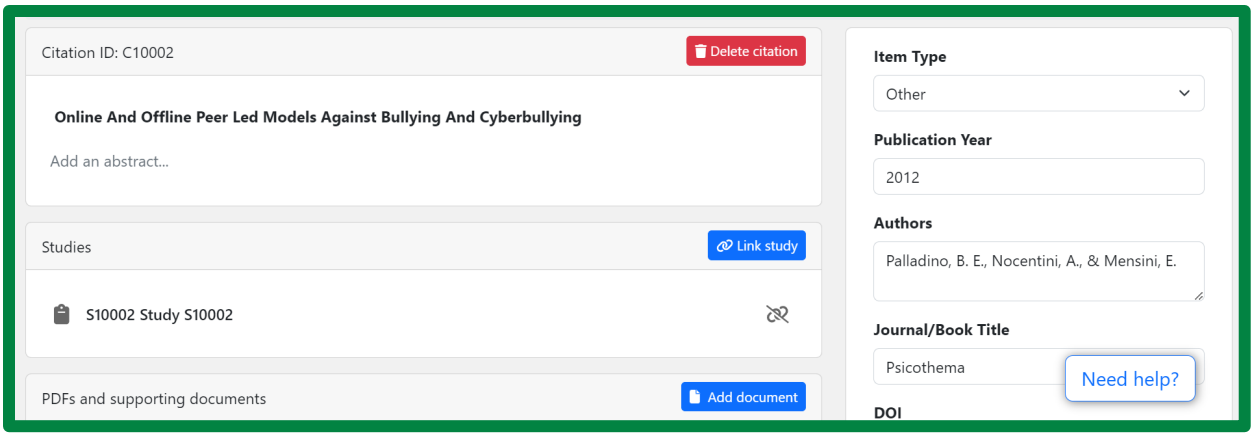


Image: A portion of the individual citation page, including the citation ID and name, the studies to which it is linked, and additional citation information.

Selecting/filtering in the Citations portal

To search for citations, begin by navigating to the **Citations Portal**. In the left-hand corner of the Citations Portal, use the search bar to look up citations using relevant keywords (e.g., Study ID, Citation ID, Authors, Title).

Image: The Citations portal banner, with the search bar in the top-left corner circled in green.

You can also sort the citations alphabetically or numerically by using the arrows on the left-hand side of the column titles.

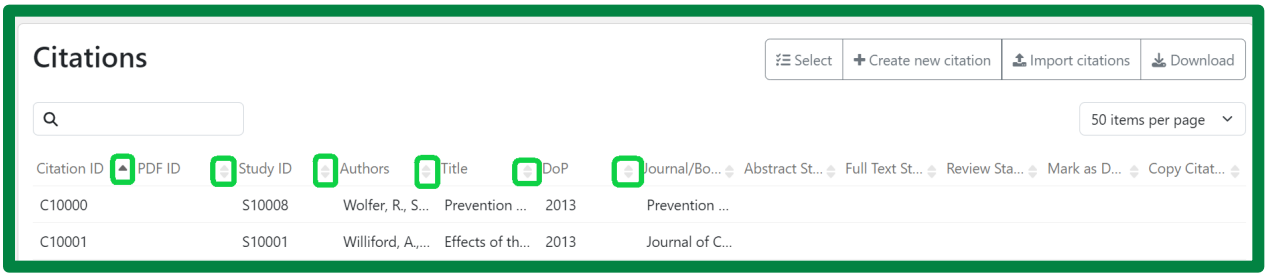


Image: The banner, column headers, and first few rows of the Citations portal. The Sort arrows for the first six columns are circled in green.

Linking a citation to studies through an individual citation page

Underneath the first pane on the individual citation page is the Studies pane, which includes links to any individual study pages associated with the citation. If you provided both a citation ID and a study ID when importing citation batches, the linked studies will be reflected here.

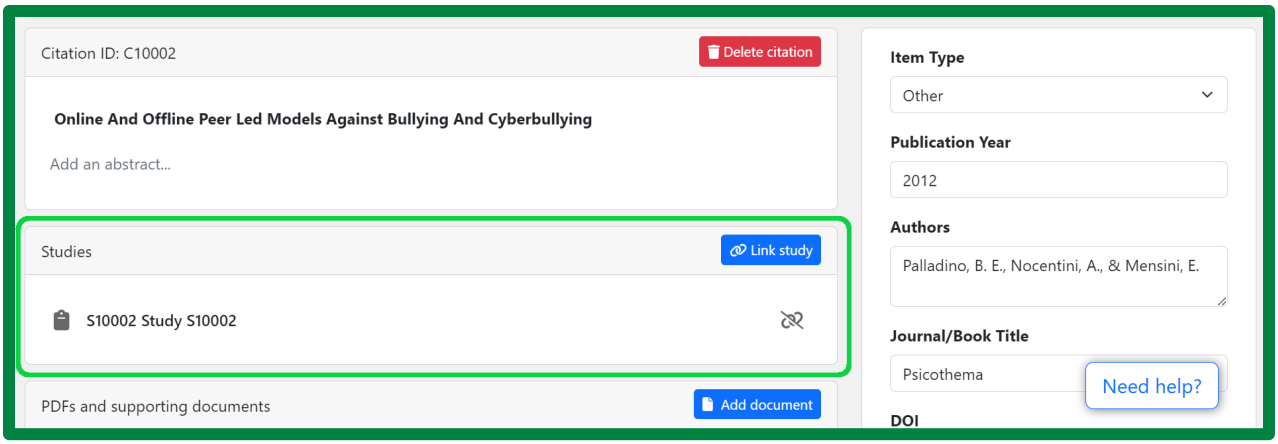


Image: An individual citation page with the Studies panel, where you can link corresponding studies, circled in green.

However, if you did not provide a study ID upon import *or* if when reading a citation, you note that it reports on multiple studies, you will need to manually link the citation to a study. To link a citation to an existing study, click on the **Link Study** button in the top-right corner of the Studies pane.

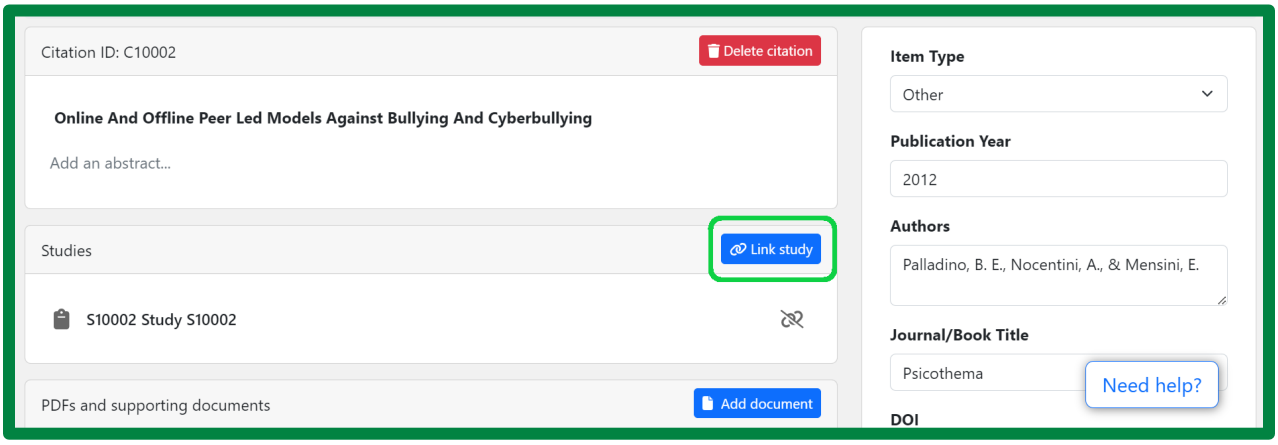


Image: An individual citation page, with the Link study button in the top-right corner of the Studies panel, circled in green.

You will then be prompted to search for the study that you want to link the citation to, which you can do by entering the study name or the study ID into the text box. You can confirm your choice by clicking the **Link Study** button. To discard your choice, click **Cancel**.

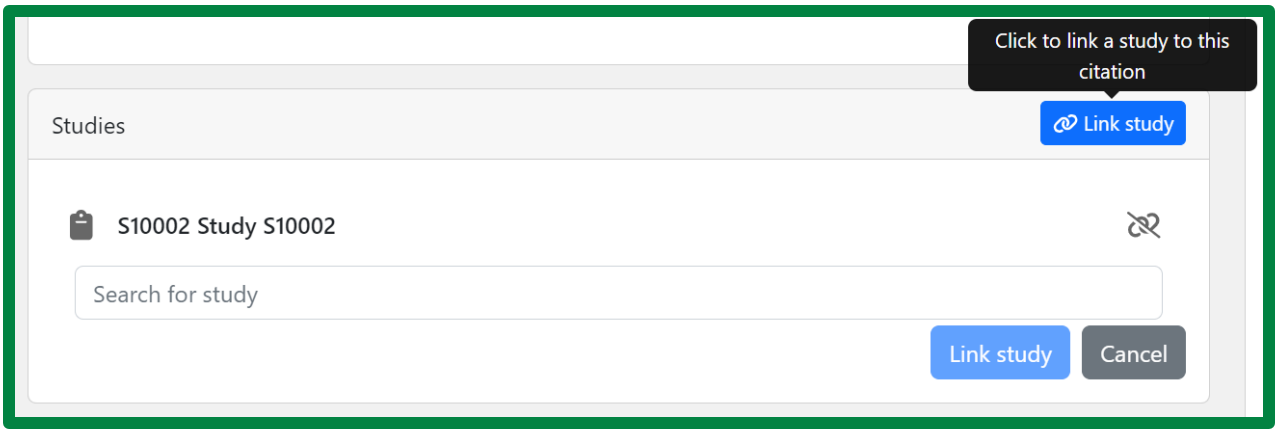


Image: The study search bar in the Studies panel of an individual citation page.

To link a citation to a *new* study, you must first create a new study. Then, you can either return to the individual citation page and link the citation to the study following the instructions above or you can link the study to the citation from the individual study page.

You can link multiple studies to an individual citation page. Each time you successfully link a study to the citation page, the page will refresh, and you will receive a message in the top-right corner of your window confirming that the study was successfully linked to the citation. If the study you selected is already linked to another citation, you will receive an error message in the top-right corner of your window.

To unlink a study from a citation, simply click on the **Unlink** icon at the end of the study's row.

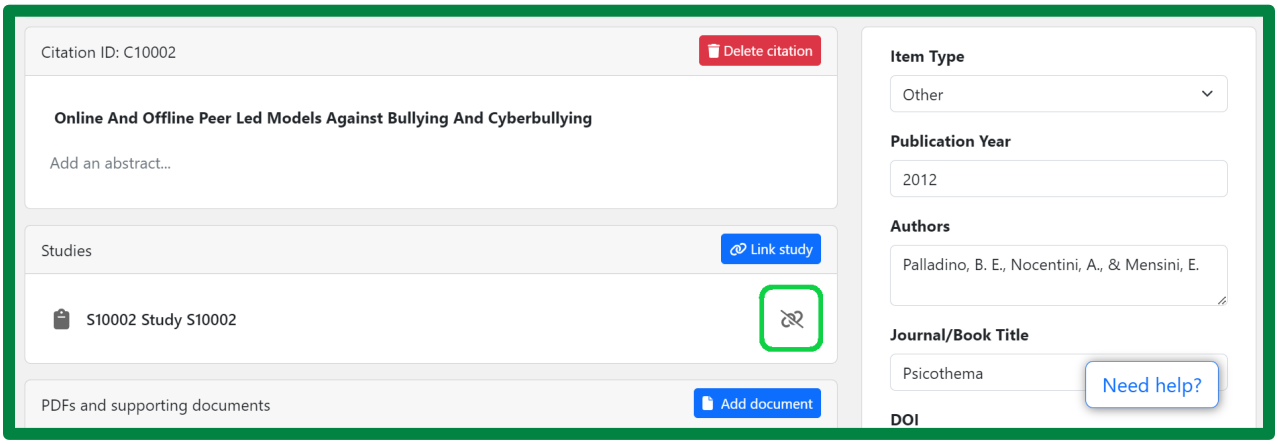


Image: An individual citation page, with the Unlink icon on the right hand side of the Studies panel, circled in green.

You will be prompted to confirm your choice to unlink the study. To confirm, select **Yes, Unlink**. Otherwise, select **Cancel**.

Adding information about a citation

Editing information about the citation

The first pane and the sidebar of the **Individual Citation Page** contain basic information about the citation, populated from the import or from the citation form.

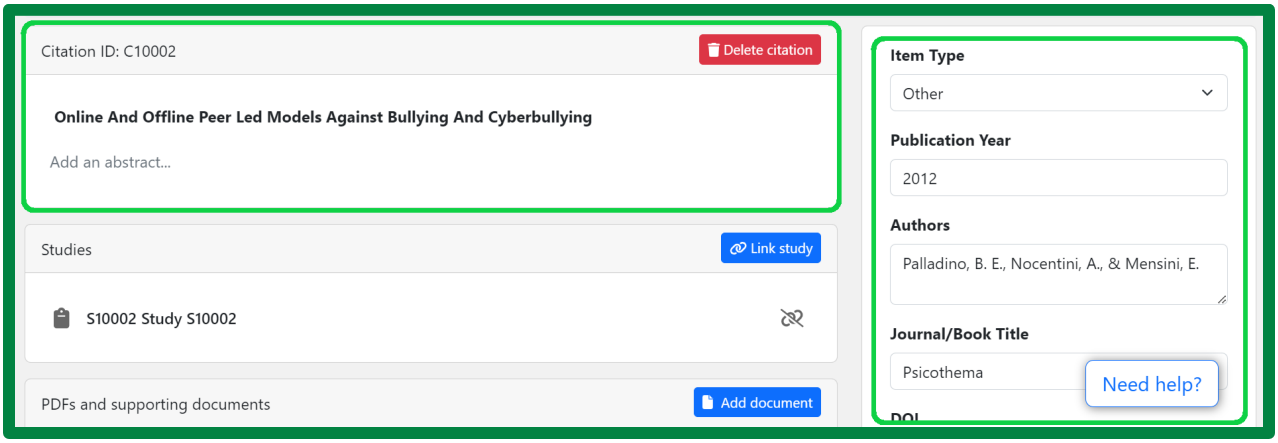


Image: An individual citation page with the Citation name and ID panel and basic information panel circled in green.

There are two key fields in the first pane: the citation name and the abstract. If you hover over the citation name field, you will see a prompt that reads "Edit citation name." You can use this to make changes to the citation name. If you hover over the abstract field, you will see a pencil icon. You can click on this to make changes to the abstract. After making a change to the name or abstract, click on the blue checkmark to save the changes or the gray X to discard the changes.

In the sidebar, you can edit information about the citation by clicking on and filling in any of the textboxes. Note that the fields in the sidebar match the fields in the citation spreadsheet template.

Adding and removing supporting documents

Underneath the Studies pane, is the **PDFs and Supporting Documents** pane where users can add any file corresponding to the citation, such as a PDF, spreadsheet with effect size estimations, or an email exchange with a primary author.

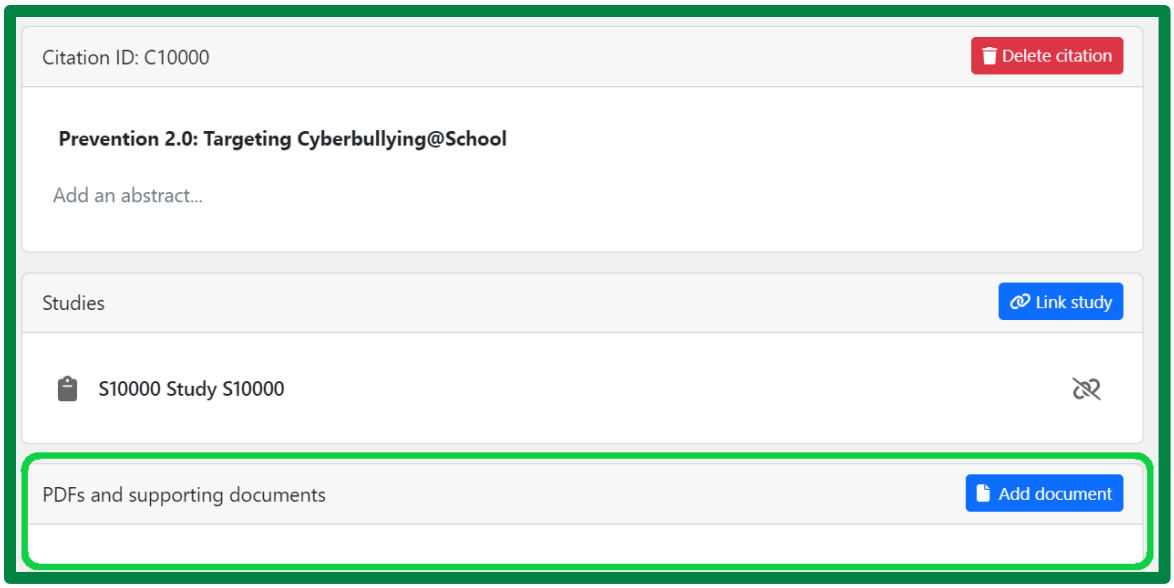


Image: An individual citation page with the PDFs and supporting documents panel circled in green.

To add a document to the Individual Citation Page, click the **Add Document** button in the top-right corner of the PDFs and Supporting Documents pane.

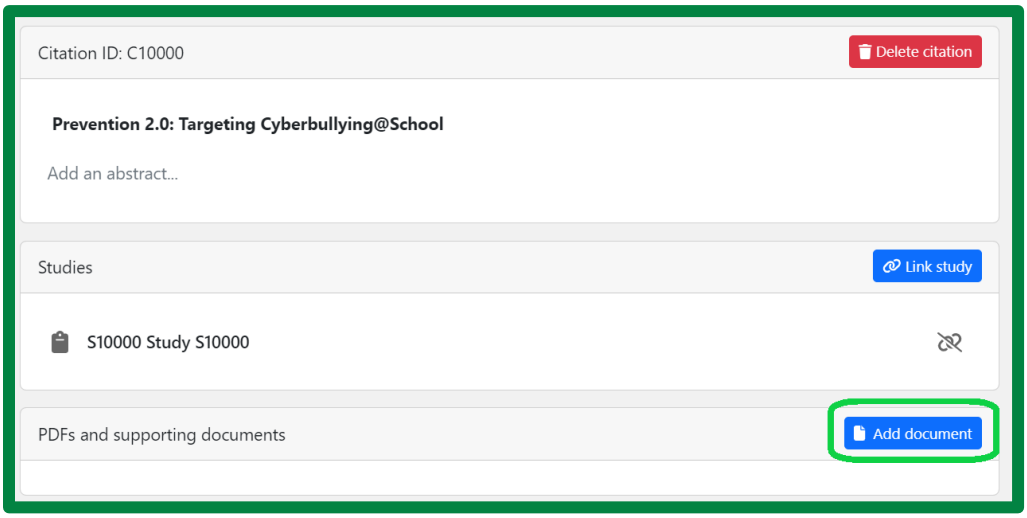


Image: An individual citation page, with the "Add document" button in the top-right corner of the PDFs and supporting documents panel circled in green.

As shown below, you will be prompted to upload a file, either by dragging and dropping into the upload box or by browsing your software's file management system.

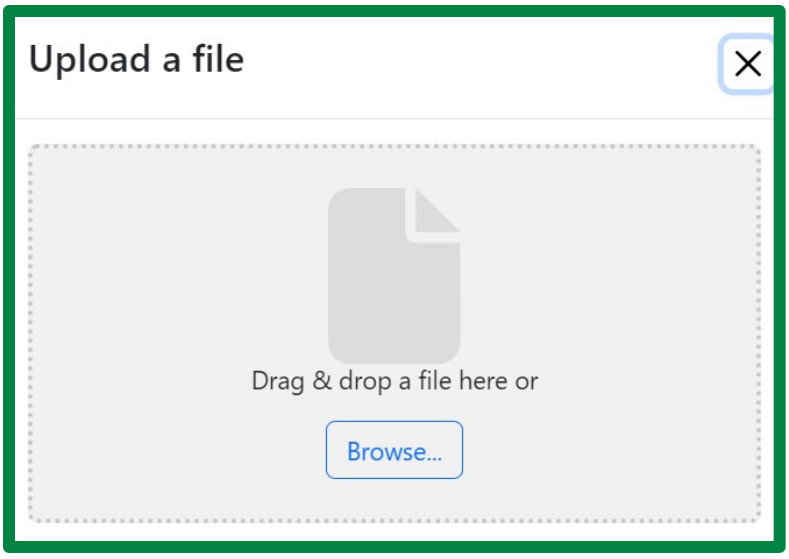


Image: The "Upload a file" modal for uploading .pdf files to the individual citation page.

To complete the upload, click **Upload File** when prompted.

Deleting citations

There are two ways citations can be deleted in MetaReviewer, individually and in batches.

Deleting citations individually

The process for deleting citations individually involves two steps:

1. Unlinking the citation from any study to which it is currently linked.
2. Manually deleting the citation through the individual citation page.

Begin by navigating to your project's **Citation Portal**. Click on a row to select the citation you would like to delete. This will take you to the **Individual Citation Page**. Once there, navigate to the pane listing the studies that are linked to the citation. If there is a study listed, click the unlink icon on the far right of the study row.

Image: The studies panel of an individual citation page, with the Unlink icon circled in green.

You will see a pop-up window confirming that you want to unlink the study from the citation. Click **Yes, Unlink**. If the study was successfully unlinked, you will see a green pop-up confirmation in the top-right corner of the window.

Next, click on the red **Delete Citation** button at the top of the individual citation page. You will receive the following pop-up window confirming that you want to delete the citation. Click **Delete**.

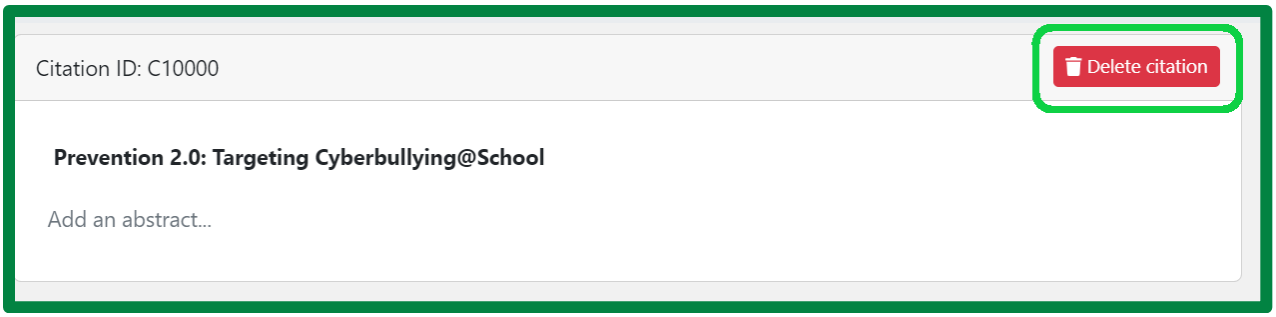


Image: The citation ID panel of the individual citation page, with the "Delete citation" button in the top-right corner circled in green.

Deleting citations in batches

The process for deleting citations in batches involves deleting citations through the Citations Portal. Begin by navigating to your project's **Citation Portal**. Click **Select** in the right-hand corner of the page.

Image: The Citations portal banner, with the Select button circled in green.

Next, use the checkboxes that appear on the left-hand side of the rows to select which citations you would like to delete. Once you have selected the citations, click **Delete** in the right-hand corner of the page.

Image: The Citations portal banner, with the Delete button circled in green.

You will receive the following pop-up window confirming that you want to delete the citation. Click **Delete**.

Individual study management

Each individual study in your project has its own webpage, where users can store information about the study including .pdf files of the document, supporting information obtained from author queries, and notes about the study. In the following section, you will learn how to access individual studies and edit or update individual study pages with new information.

Creating a new study

From your project page, navigate to the **Project management** page and click **Studies portal**. This will take you to the portal housing all the studies affiliated with your review. To add a study, navigate to the top-right corner of the page and click **Create new study**.

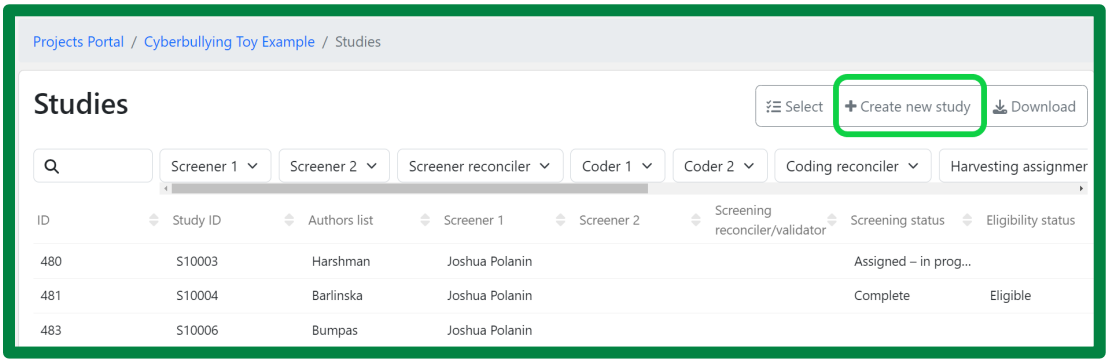


Image: Studies portal, with the Create new study button circled in green at the top-right of the page.

This will take you to a form for adding a study. At minimum, you must enter a study ID and name in order to create a study.

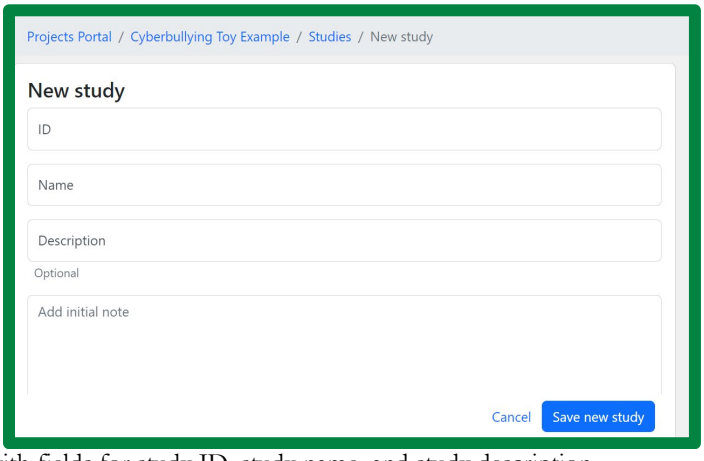


Image: New study form, with fields for study ID, study name, and study description.

After entering the relevant information, scroll to the bottom of the form and click **Save new study**. When you have saved the new study, MetaReviewer will automatically redirect you to its individual study page, which will look something like this:

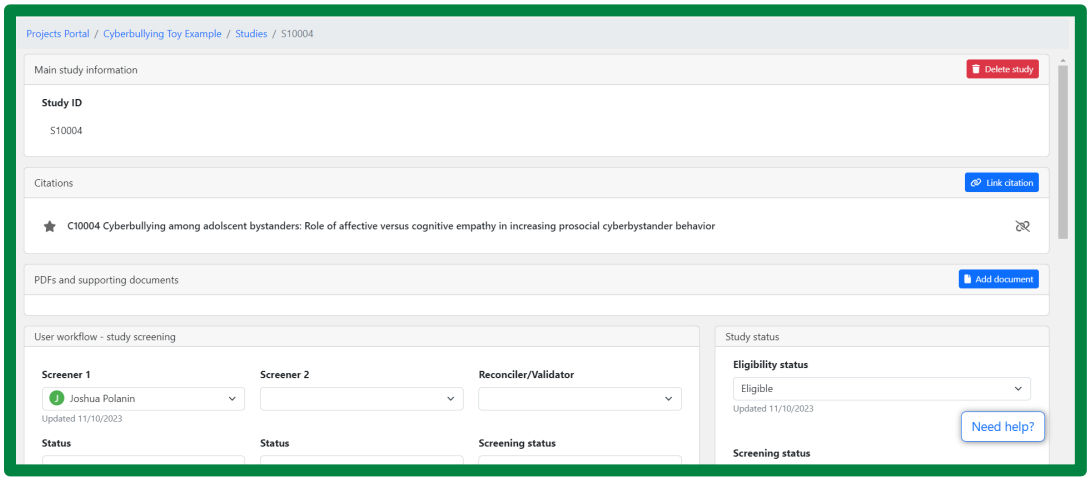


Image: Individual study page

Orientation to the individual study page

The individual study page is organized into multiple panels containing information about the study and its status throughout the project. We provide a brief orientation below.

- **Main study information.** This panel contains the study ID. While it is editable, we do not recommend updating it unless you are confident the change is required.

- **Citations.** Here, you will find a list of any citations that have been linked to the study. By default, this will include any citations that were linked to a study upon upload. To remove citations or link additional citations, follow the instructions in Linking a study to citations through the individual study page.

- **PDFs and supporting documents.** Here, you can store any documents relevant to the study, including articles and reports, or any document procured through an author query. For more information on adding and removing documents from the individual study page, see Adding and removing supporting documents.

- **User workflow - study screening.** This panel should be used to manage the study's process through full-text eligibility screening. The panel includes six dropdowns that correspond to users and their status throughout the screening process. For more information on this panel, see Assigning users to screen studies.

- **User workflow - study coding.** This panel should be used to manage the study coding process. The panel includes six dropdowns that correspond to users and their status throughout the coding process. For more information on this panel, see Assigning users to code studies.

- **User workflow - additional assignments.** This panel is used to manage reference harvesting and author query assignments. It can be used following steps similar to those described in Assigning users to screen studies.

- **Study screening and/or coding forms.** Here, you will find any screening or coding forms that data readers should use to screen or extract information from the study. In general, each study will have one screening form and one coding form on its study page. Accessing screening or coding forms details how to access and use these forms to full-text screen and code studies.

- **Study notes and history.** Here, you will find any notes that project members have made about the study and an option to flag the study for discussion in team meetings.

- **Study status.** This panel, located down the right side of the individual study page, provides an overview of the study through the review process. You can use this panel to update the study's eligibility status, screening status, harvesting status, coding status, author query (AQ) status, and final inclusion status.

- **Tags.** Users may add up to 4 study "tags", using a variety of field types. Once added, the tags will populate within this panel. For more information on study tags, see Customizing study tags.

Accessing an individual study

There are a few ways you can access an individual study page. Here, we describe the most common access pathways.

Through the studies portal

From your project page, navigate to the **Project management** page and select **Studies portal**.

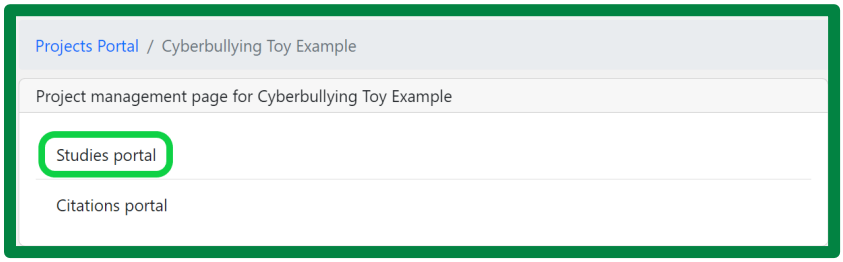


Image: Studies portal link circled in green under the Project Management page.

Within the portal, you can either search for or use filtering options to locate an individual study. To search for a study, navigate to the search bar in the top-right corner of the portal. You can search for a study using any information in the portal, including study ID, study author, eligibility status, and assigned screener, coder, or reconciler.

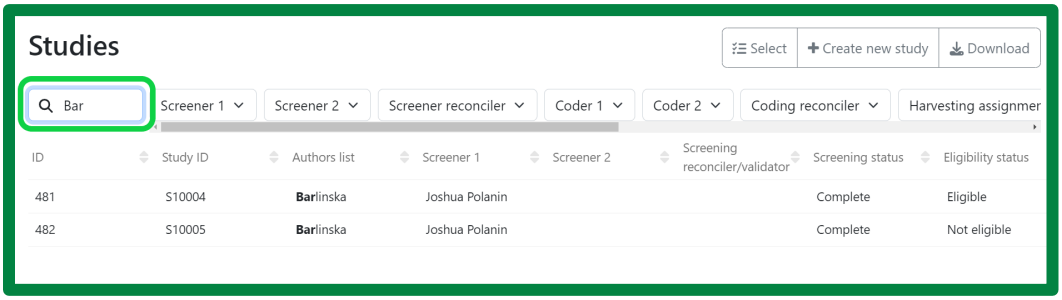


Image: Studies portal page with the search bar circled in green in the top-left corner.

Filtering options span the width the Studies portal and are based on the Studies portal columns related to data extraction assignments. To filter for a study, click on a filter option and select the values by which you wish to filter.

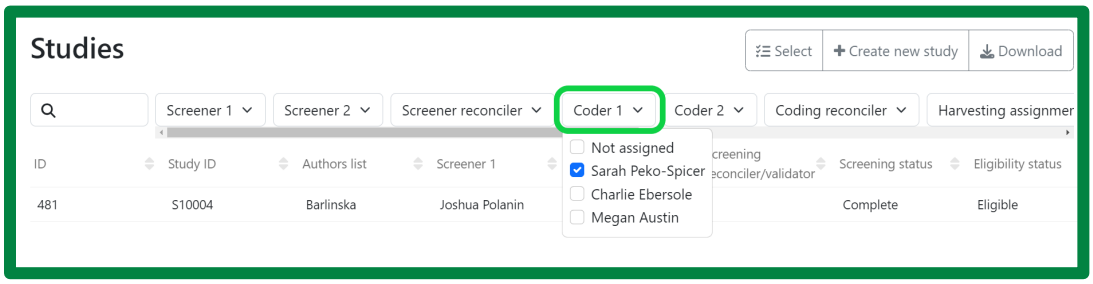


Image: The Studies portal, with the Coder 1 filter button selected. The dropdown menu includes names for three coders on which you can filter.

Once you have found the individual study you are looking for, simply click on its corresponding row in the portal to navigate to its individual page.

Through an individual citation page

If you are on an individual citation page for a citation that is linked to your study, you can access the study from that page. Navigate to the **Studies** pane and hover over the name/ID of the study you wish to access.

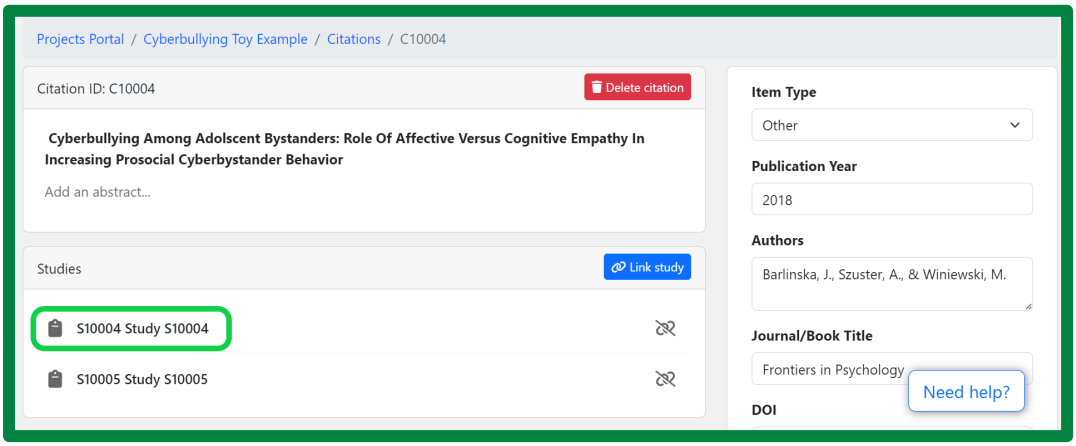


Image: Individual citation page, with the field containing a study ID circled in green in the lower-left corner.

You should see a message prompting you to click on the study name/ID to access the study. Click on the link to navigate to that study's individual webpage.

Linking a study to citations through the individual study page and identifying a primary study among numerous citations

If you did not enter both citation and study IDs in your initial citation batch import *or* if you created a new study after your initial citation batch import, you will have to link your study to citations manually. To do so, navigate to your study's **Individual Study Page**.

Once there, go to the **Citations** pane where you can store links to any primary or supplementary citations relevant to the study. To add a citation, click on the **Link Citation** button in the top-right corner of the pane.

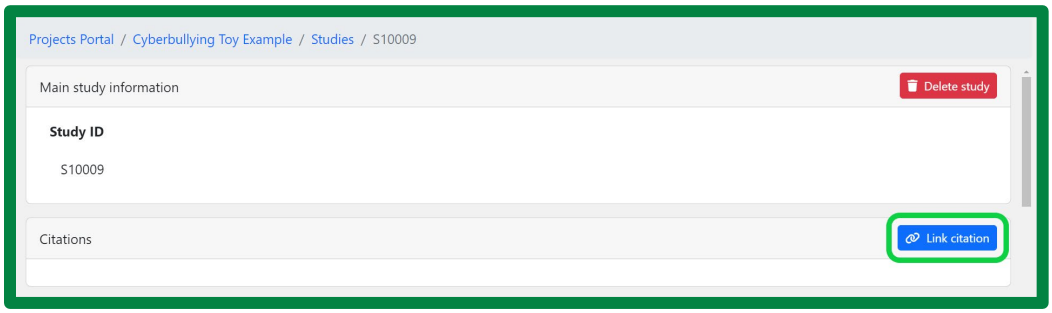


Image: Link citation button circled in green in the top-right corner of the Citations section on the Individual study page.

Each citation within a study needs a **primary** citation identified. The primary citation is where most of the information about the study will be extracted. The primary citation also functions as the main source of citation information exported with the effect size data when the user finishes coding a study. All other citations will not be exported with the effect size data. However, users can export all their citation data following the steps described in Citations portal data. To identify a citation entry as the **primary** citation for an individual study, click on the gray star at to the left of the citation name.

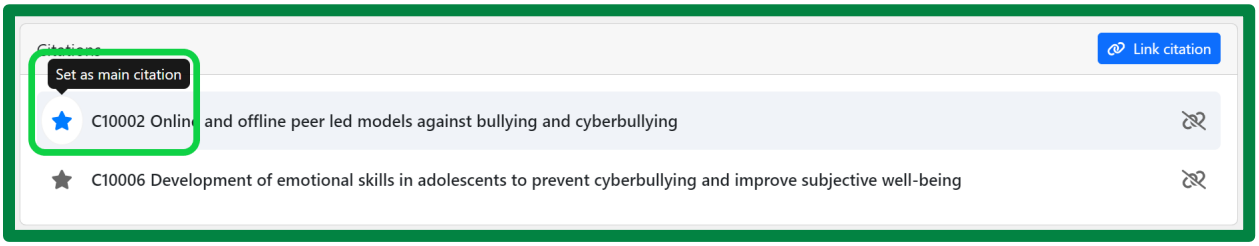


Image: Star icon circled on the left-hand side of a citation listed in the Citations section of an individual study page.

The individual study page will refresh to show a blue star for that row. Clicking the star again, or clicking on another star, will remove the original primary citation designation.

To remove a citation from an individual study page, simply click the **Unlink** icon at the end of the citation's row.

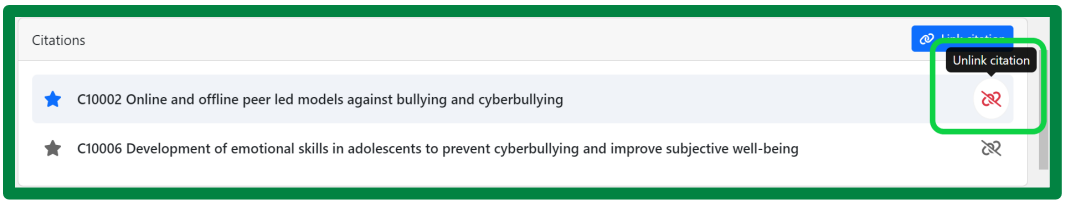


Image: Unlink icon circled on the right-hand side of the Citations section on the Individual study page.

Adding information about and documents related to a study

Editing information about the study

The first pane on the individual study page contains the study ID. If you hover over the study ID, you will see a prompt that reads "Edit study ID." Once you have made your desired edits, click the blue checkmark to save your edits. You will see a green pop-up in the top-right corner of your window confirming that your edits have been successfully saved.

Image: Main study information pane, with an editable field for study ID.

Adding and removing supporting documents

You may want to add supporting documents, like those obtained through author queries, to your individual study page. To add a document to a study page, navigate to the **PDFs and supporting documents** pane. Click the **Add document** button in the top-right corner of this pane.

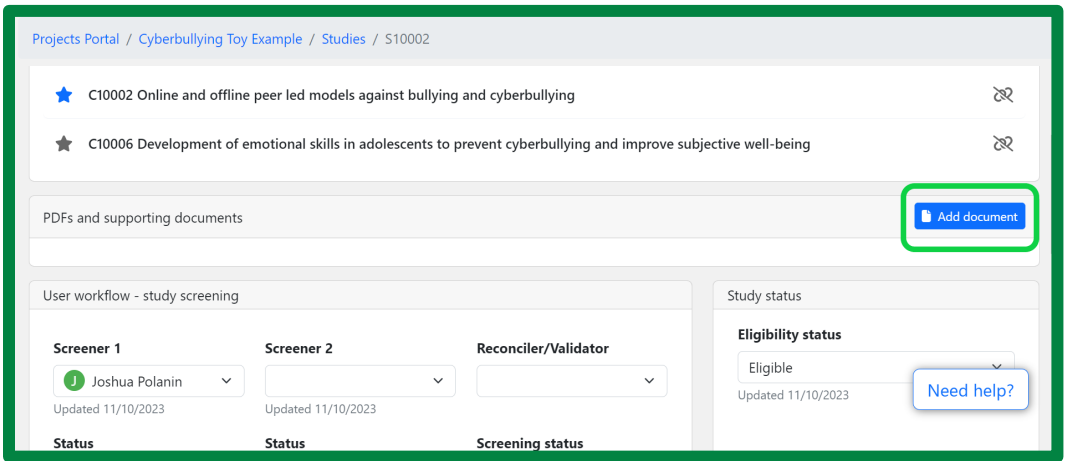


Image: Add document button circled in green in the middle-right of the page.

As shown below, you will be prompted to upload a file, either by dragging and dropping into the upload box or by browsing your software's file management system.

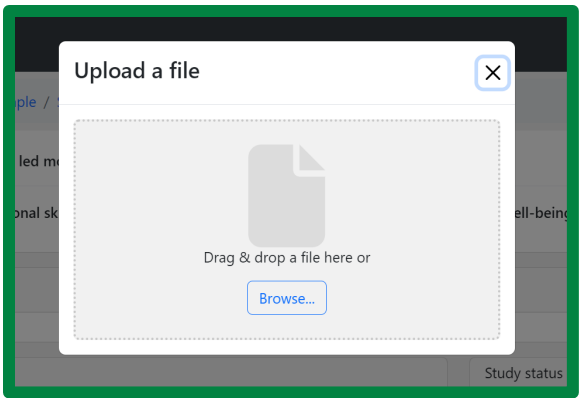


Image: Upload a file page, with the option to drag and drop a file or browse files.

To remove a supporting document from the individual study page, simply hover over the document entry and navigate to the trash can icon at the end of the row. Click on the trash can icon to delete the supporting document.

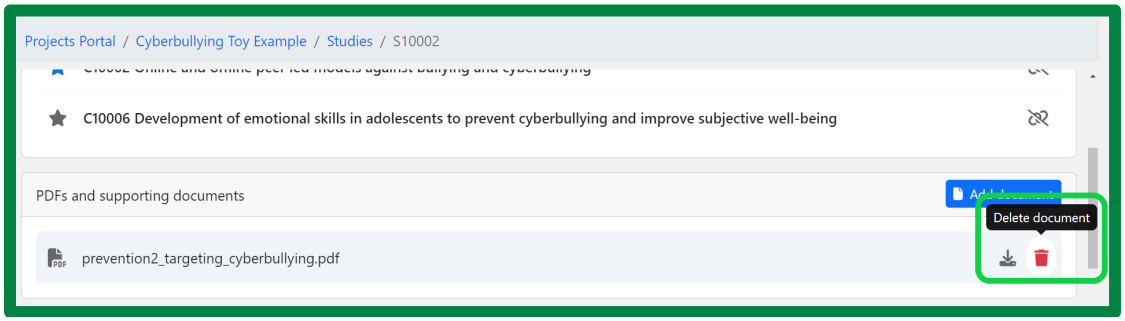


Image: Trash can icon circled in green on the right-hand side of the PDFs and supporting documents section.

Deleting studies

Studies can be deleted individually or in batches. To delete a study individually, navigate to its **Individual study page**. Once there, click on the red **Delete study** button at the top-right corner of the Main study information pane. You will see a pop-up window confirming that you want to delete the study. Click **Delete**.

Image: Delete study button circled in green in the top-right of the Main study information section of the Individual study page.

To delete studies in batches, navigate to your project's Studies portal. Click the **Select** button at the top of the page.

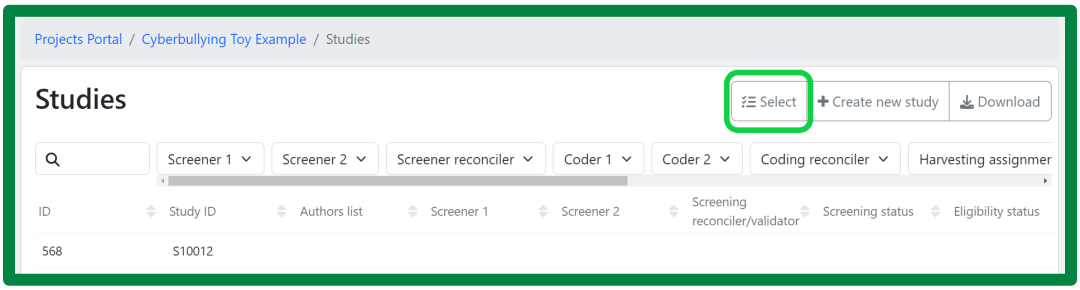


Image: The Studies portal banner, with the Select button circled in green.

You should now see checkboxes in the first column of the Studies portal. Select the studies you want to delete by checking the box in its row. Once you have selected all the studies you want to delete, click the red **Delete** button in the top-right corner of the page.

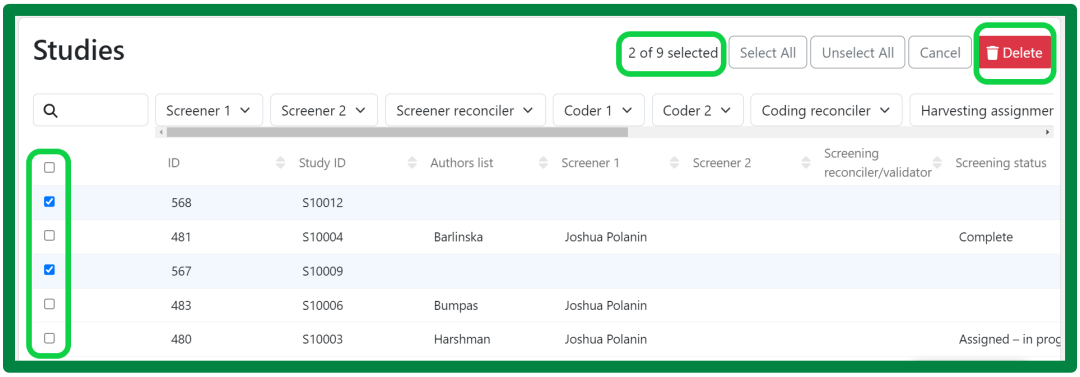


Image: The Studies portal, with the new column on the far left with checkboxes for selecting studies. In the banner, there is a count of the number of studies selected, and the Delete button is circled in green.

Customizing study tags

Beneath the **Study status** pane on the Individual study page, you will find a customizable **Tags** pane. This pane can be used to capture study information that does not fall into a Study status category or user workflow category. Examples of tags you may include are whether a PDF for the study is available or bucketing items (e.g., research design used in the study).

To add tags for your study, navigate to your project page. On the right side of the page, click on **Manage individual study fields** under the **Manage project** pane.

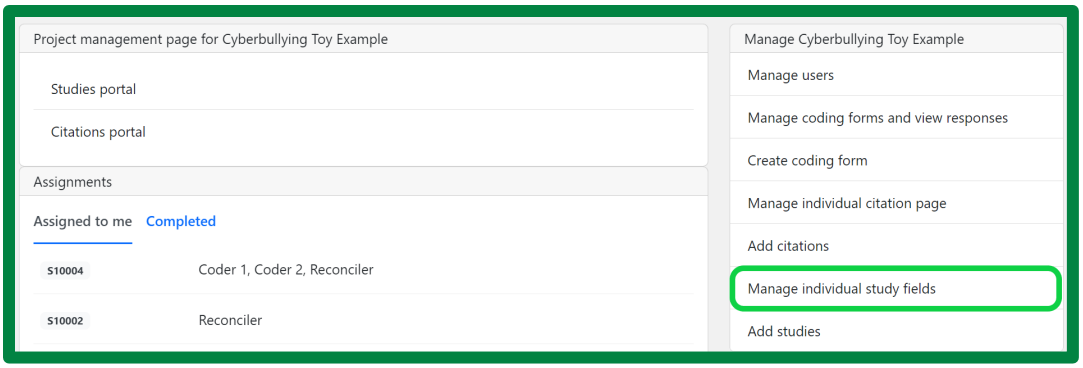


Image: Project page, with the Manage individual study fields link circled in green under the Manage project section on the right-hand side of the page.

This will take you to a form where you can edit the study tags. Once there, scroll down to **Custom fields** and click on the blue **New field** button.

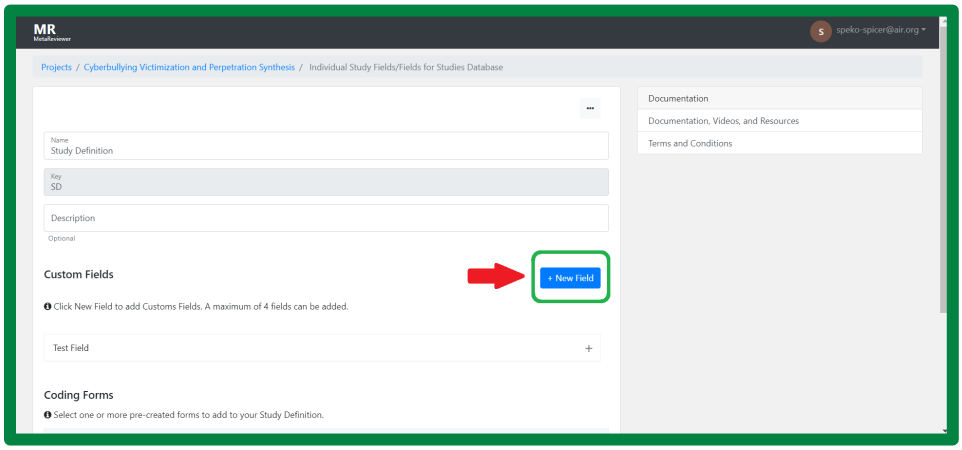


Image: New field button circled in green in the top-right of the Custom fields section of the study definition form.

This will open a pop-up window where you can create your new field. At minimum, add the field name and use the dropdown menu to select the field format. There are eight options for field format: short text, long text, checkbox, radio button, selection field, numeric field, date field, and rank list. For most status options, the selection field format will be most useful. When you have selected **Selection field** as the desired format, you can use the grey **Add Option** button to add response options to the field. For instance, in the screenshot below we have added a PDF availability field with the responses options *PDF found*, *PDF not found*, and *Needs help*.

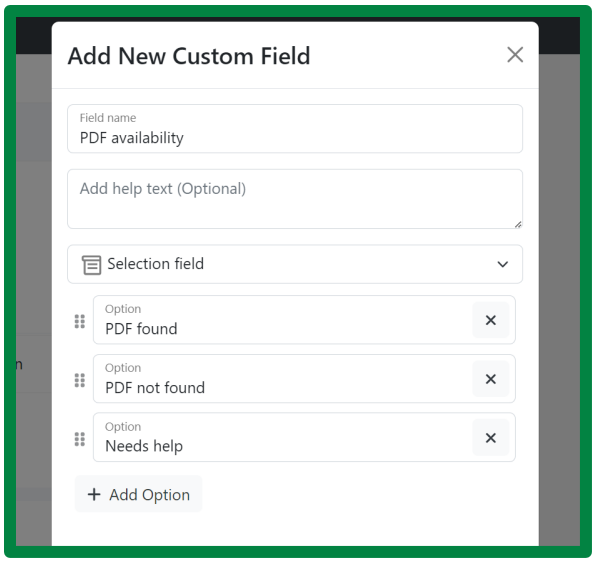


Image: Add new custom field pop-up window, with fields to name a tag, identify the field format, and create response options.

Once you created your new field, click **Add new field** and scroll to click **Save changes to study definition**. To check that your new field was properly added, navigate to an Individual study page through the Studies portal. Scroll down to the **Tags** pane, where you should now see a field with your customized tag.

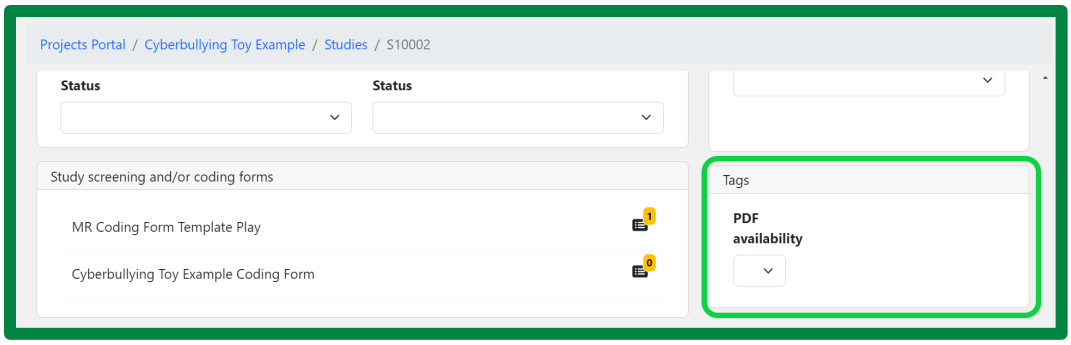


Image: Tags pane of the Individual study page, circled in green.

Once you've defined a study tag, you can filter on it in the Studies portal following the same steps as described in Accessing a study through the Studies portal.

Screening and coding studies

Each study has its own webpage, where team members can go to screen and code studies, leave comments about the screening or coding process, and update the study's status. In the following section, you will learn how to assign users to studies, how to access studies you've been assigned to,

how to navigate the individual study page, and how to use a coding form to extract study information.

Assigning users to screen studies

Using the individual study page, project leads can assign users to studies to screen, reconcile/validate, or conduct reference harvesting. To assign users to a study, begin by navigating to your project page. Under the Project management panel, click on **Studies portal**.

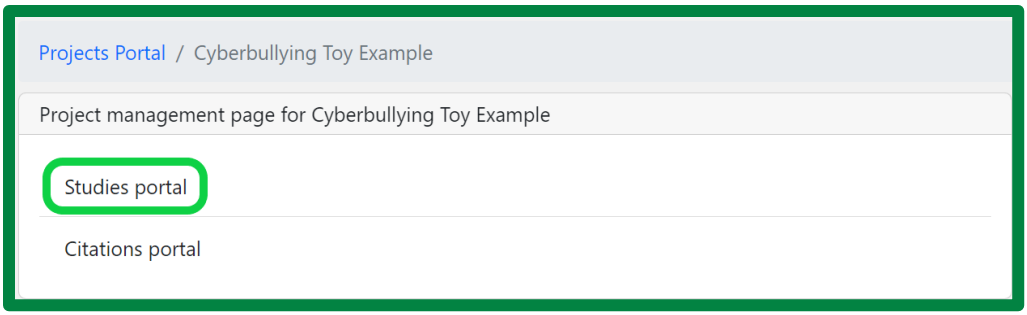


Image: Project management panel of the project landing page. The Studies portal button circled in green on the left-hand side of the page.

Select a study from the **Studies portal** by clicking on its row. Once on the **Individual Study Page,** scroll down to the **User workflow - study screening** panel. In this panel, you will see a number of dropdown menus, including menus to select users to assign to the study. You can assign a user to a study by clicking on either the Screener 1, Screener 2, or Reconciler/Validator. You will see a list of project members who are eligible to be assigned to the study. Select the user who you would like to assign to the role. You will see a green pop-up message in the top-right corner of your widow confirming that the assignment was successfully saved.

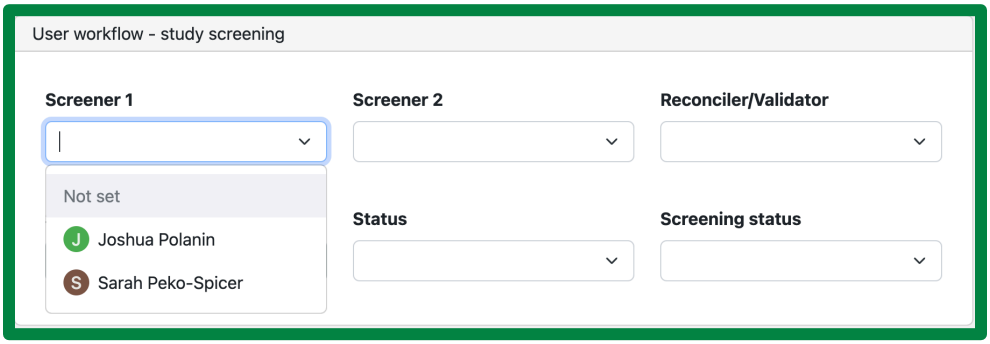


Image: **User workflow - study screening** section with fields for Screener 1, Screener 2, and Reconciler/Validator. The Screener 1 dropdown is selected.

Below each team member, you can also make a Status assignment. Status assignments include: Not assigned, Assigned – not started, Assigned – in progress, Assigned – needs help, and Submitted. Once a team member has been assigned to screen a study, they are responsible for manually updating their status.

Assigning users to code studies

To assign users to code studies, navigate to the **Individual Study Page** and scroll to the **User workflow – study coding** panel. Follow the same steps described in the previous section to assign users to code studies. Once a team member has been assigned to code a study, they are responsible for manually updating their status.

Identifying and accessing your study assignments

To begin screening or coding a study or reconciling/validating responses, users must first identify the studies to which they have been assigned as a screener, coder, or reconciler/validator. To do so, begin by navigating to your **Project landing page**. In the **Assignments** panel, you will see a list of the studies to which you have been assigned and in what role (i.e., screener, coder, or reconciler/validator).

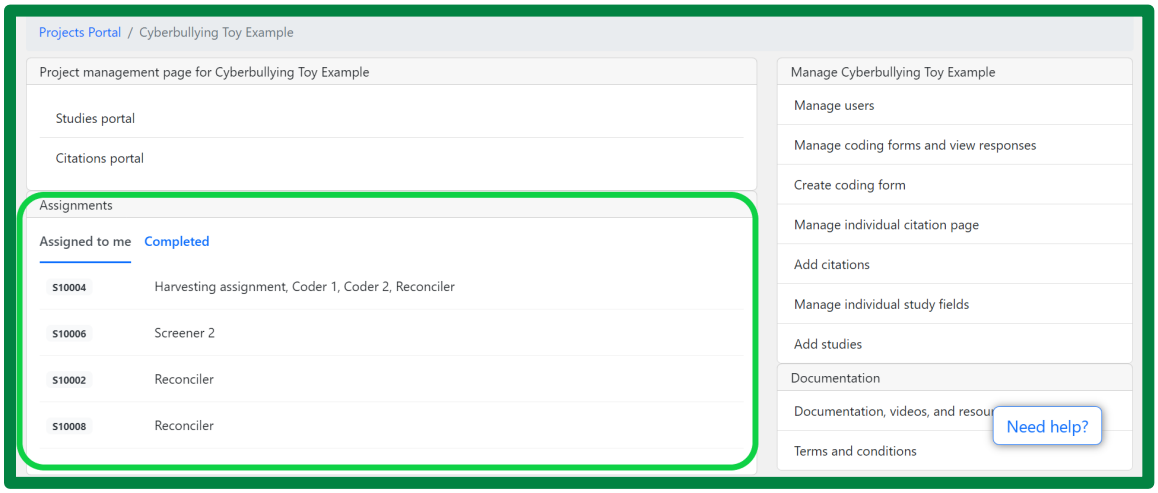


Image: The Cyberbullying Toy Example project landing page. The Assignments panel is circled in green and lists four studies to which the use has been assigned. The user is the reconciler on three studies, a screener on one study, and a coder on one study.

A user will only see their study assignment if their user status in the **User workflow – study screening** or **User workflow – study coding** panel on the Individual study page is one of the following: Assigned – not started, Assigned – in progress, Assigned – needs help.

To view an assigned study, simply click on the study in your task list to go to its **Individual Study Page**.

Accessing screening or coding forms

While used for different purposes, screening and coding forms have the same look-and-feel and "move through" MetaReviewer in similar ways. To eliminate redundancy, we refer only to coding forms in the remainder of this user guide.

Users can access coding forms relevant to their assigned studies through the **Individual Study Page**. Once you have navigated to the Individual Study Page, scroll down to the **Study screening and/or coding Forms** panel. Here, users will find the relevant forms for coding their study. To

open a form and begin extracting data from the study, simply hover and click on the row with the desired form.

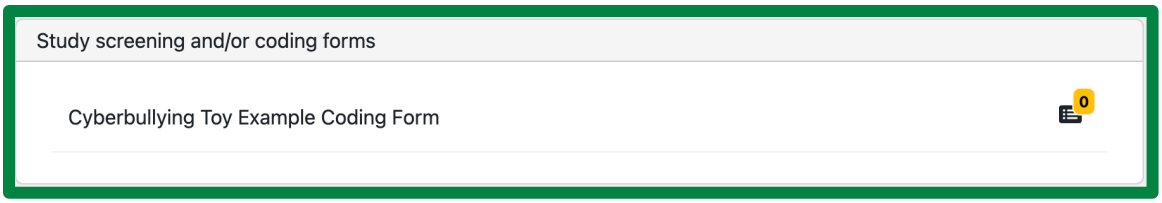


Image: Coding Forms page, with an example coding form button in the middle of the page.

This will take you to the first page of the coding form for your project. Coding forms are unique to a project and are developed using one of MetaReviewer's 36 templates. Regardless, when you open a coding form, you will see something like the image below:

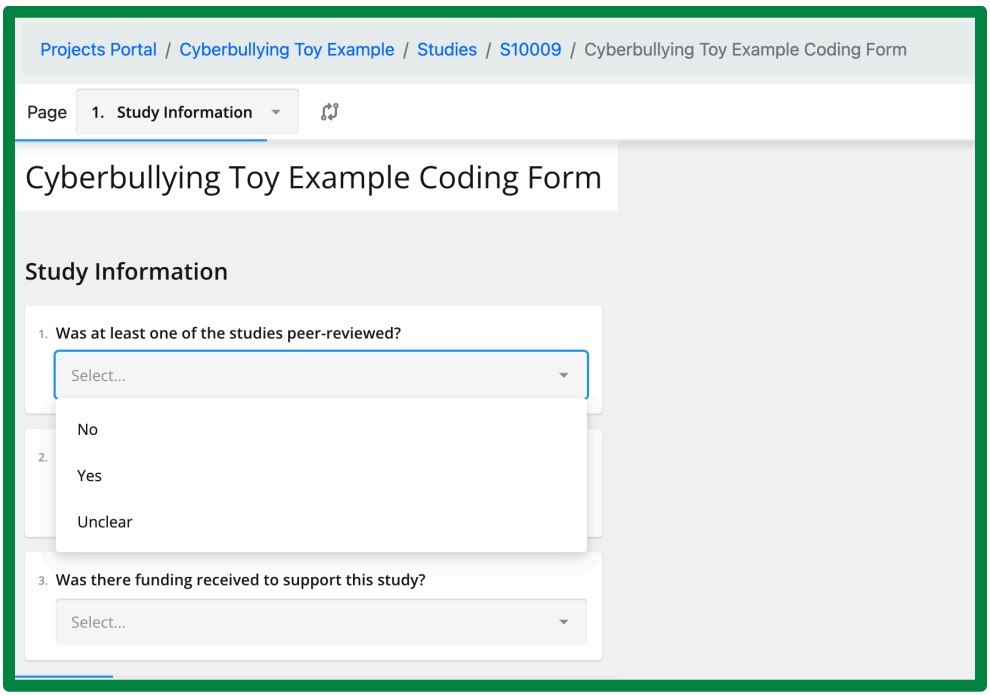


Image: Coding form example, with sample questions and dropdown fields on the bottom of the page.

Coding forms consist of multiple pages, each of which asks questions about different aspects of the study (e.g., sample characteristics, research design and quality). Each page of a coding form will have a header, describing the page topic. Each page will include questions relevant to that topic; a space for coders to include notes that they think would be helpful to a reconciler, second coder, or project manager; and a space to confirm if the data has been validated.

Once a user inputs information into any of the coding form fields, MetaReviewer automatically saves the input. This form is then saved and can be returned to at a future time by accessing the Responses Portal. The screenshot below illustrates an example where users have created 5 different coding form responses. Clicking the icon where the 5 is takes users to the Response Portal.

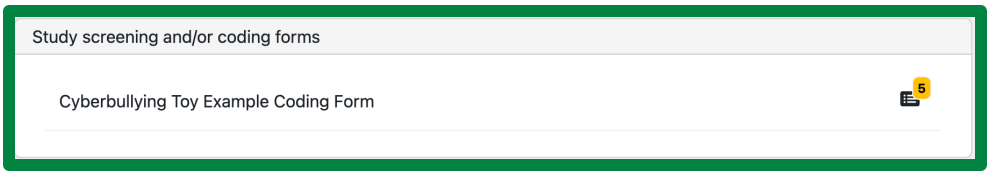


Image: Screenshot of the Study screening and/or coding forms pane, illustrating the cyberbullying toy example coding form with 5 responses.

The Response Portal allows users easy access to each study's response. Users click on the row to access the specific response.

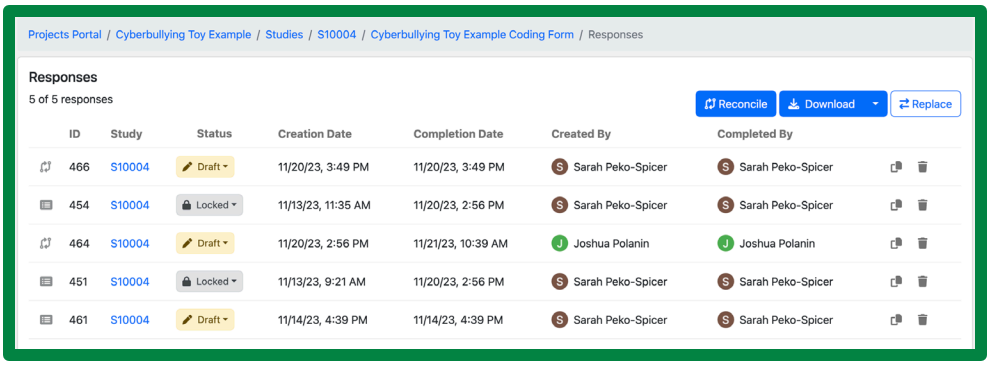


Image: Screenshot of the Response Portal with 5 coding form responses.

The next sections will walk users through the process of validating and reconciling completed coding form responses.

Validating responses

One strategy that meta-analysts use to ensure that the data extracted from each study is accurate is validation. In this approach, studies that have been screened or coded by only one person are assigned an independent team member to review and validate the screener/coder's responses. In this section, you will learn how to validate coding form responses in MetaReviewer.

Accessing responses for validation

To validate or screening or coding form responses, begin by navigating to your project page. In the **Tasks to Complete** pane, you will see a list of studies to which you have been assigned as a reconciler/validator.

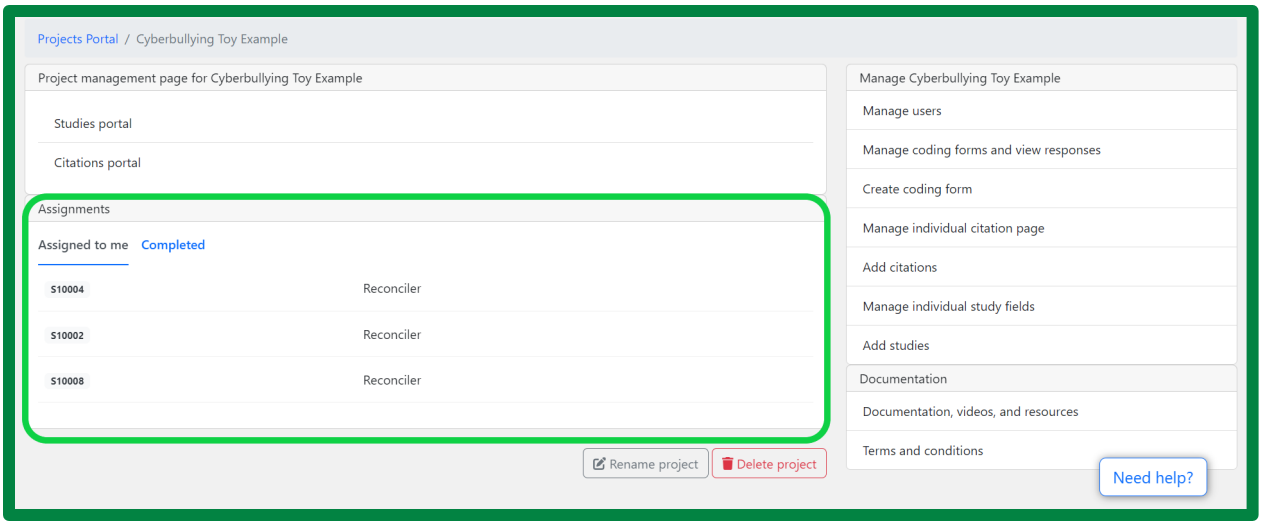


Image: A MetaReviewer project page, with the project member's study assignments circled in green.

Click on the study row to go to its **Individual Study Page**. Once on the Individual Study Page, scroll down to the **Coding Forms** pane. Here, you will see a list of screening and coding forms associated with this project.

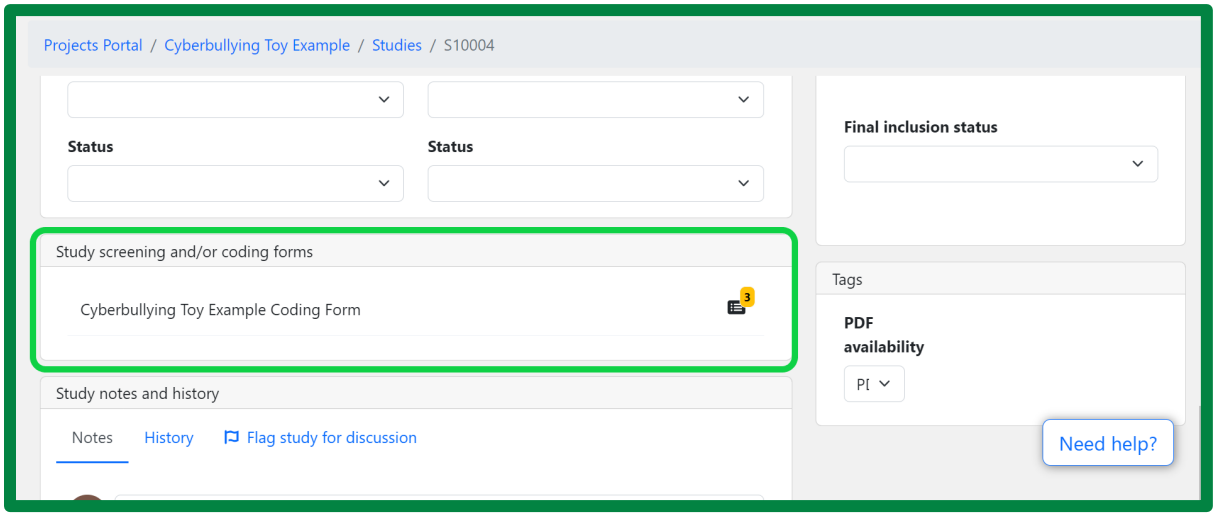


Image: Coding Forms pane circled in green in the middle of the Individual Study Page.

To view the completed responses to the coding form, click on the icon on the right-hand side of the coding form's row.

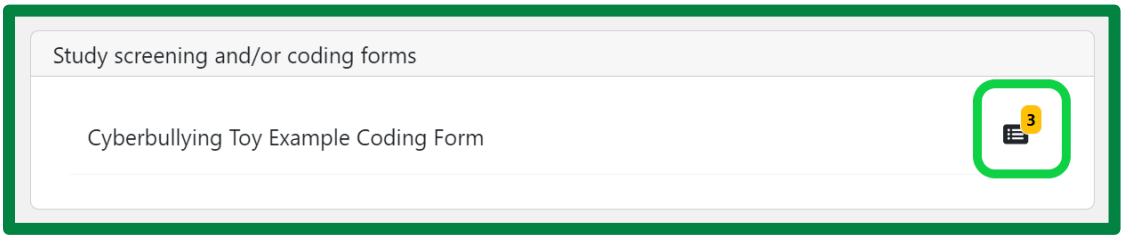


Image: List icon circled in green on right-hand side of the Coding Forms pane.

When accessing a completed coding form from the individual study page, do not click on the row itself. Clicking on the row for the form will open a fresh, empty coding form for coders to use rather than opening a coding form with responses that need validating.

This will take you to a **Responses page** that contains all the completed or in-progress responses for that particular study, as shown in the picture below.

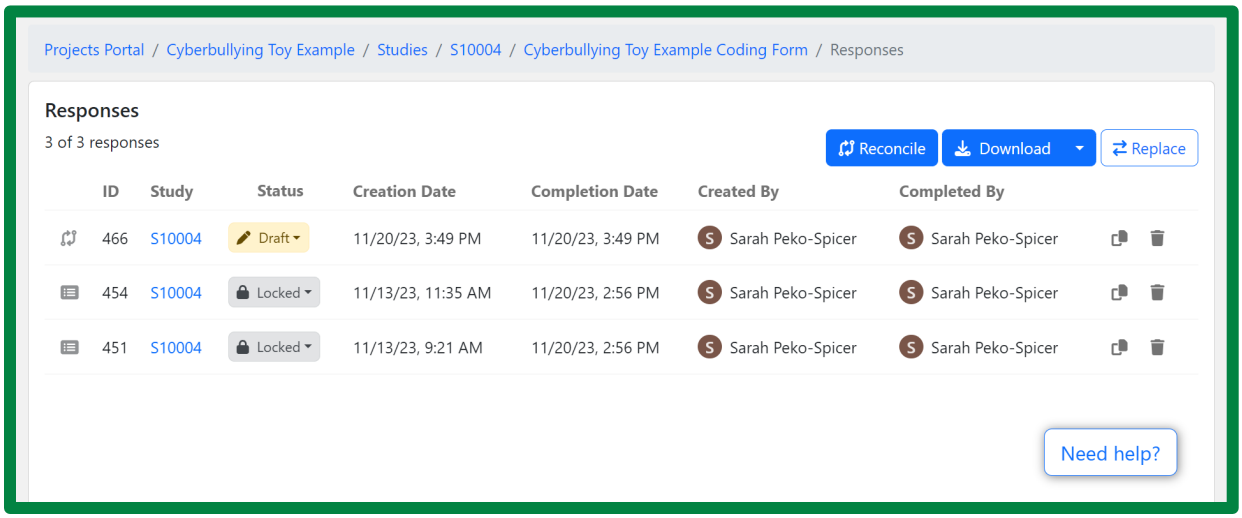


Image: Responses page with example responses.

Viewing and validating responses

To view and validate a full-text screening or coding form response, click on the row from the **Responses page** corresponding to the response you wish to validate.

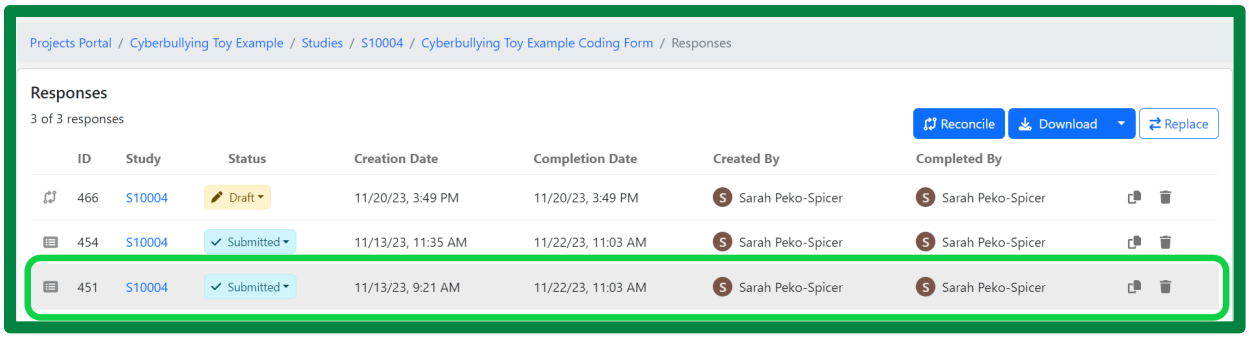


Image: Response page with a response row circled in green.

This will open the coding form with the completed responses, as shown below.

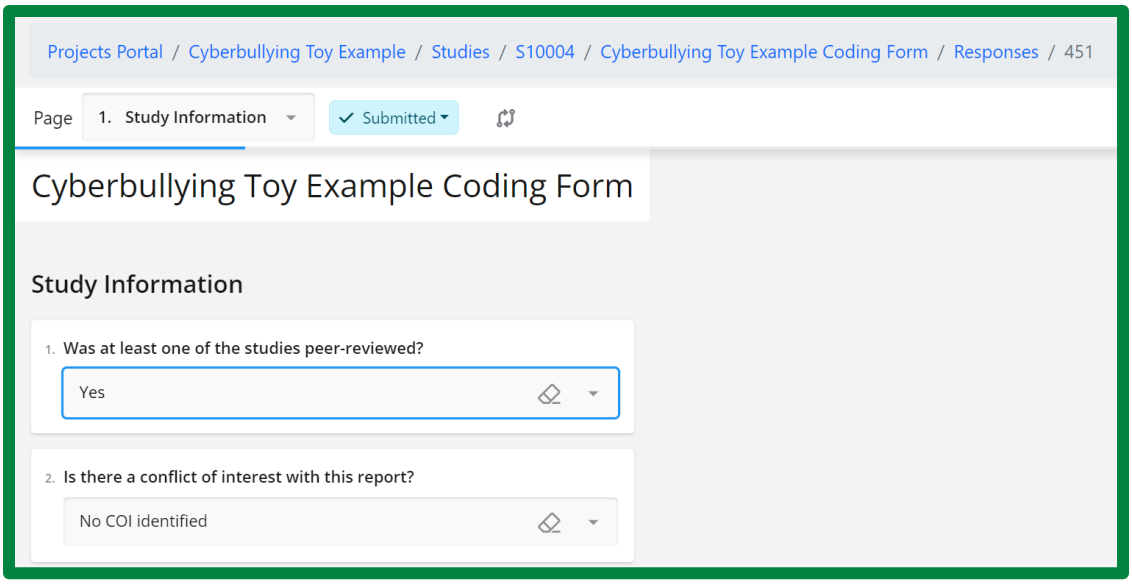


Image: An example of a coding form with sample questions and completed dropdown fields.

To validate coding form responses, review the responses on each page of the coding form. At the end of each coding form page, you will see a place to confirm that you have validated the responses and add any notes you have about the study, as shown in the picture below.

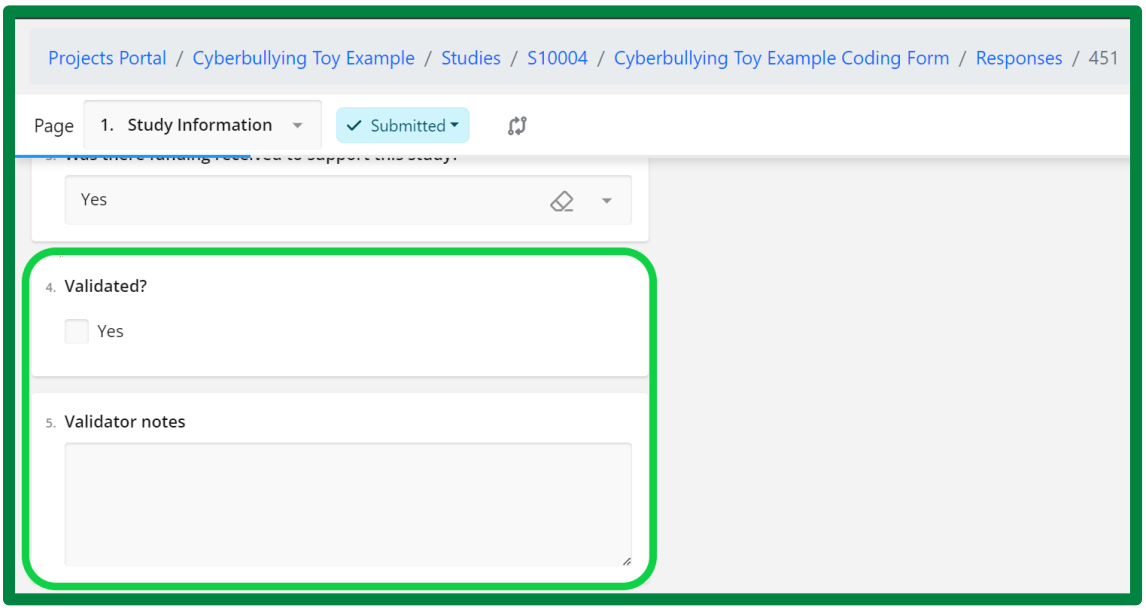


Image: A completed coding form with a 'Validated?' checkbox question and Validator notes textbox question circled in green.

Once you have reviewed and validated each page of the coding form click **Complete** followed by **Close**.

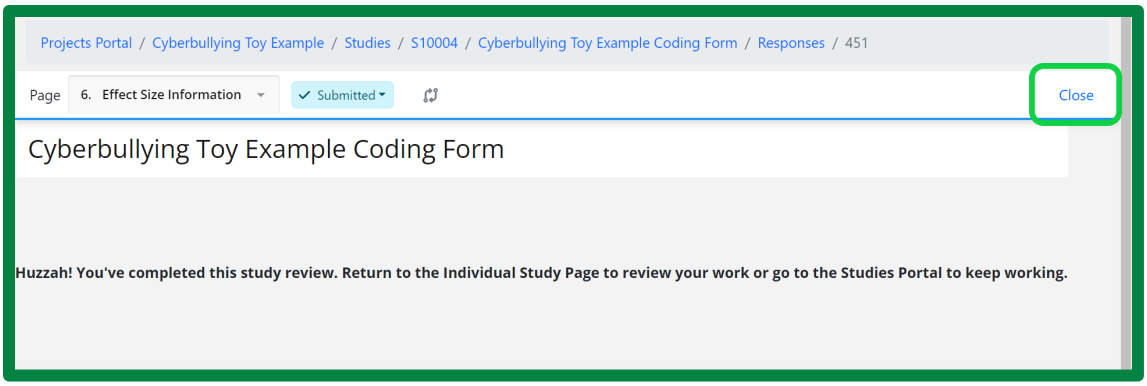


Image: A completed coding form page, with a "Close" hyperlink circled in green.

You will then be taken back to the Responses page for that study. Return to the **Individual Study Page** by clicking the Study ID hyperlink, either at the top of the window or in the row:

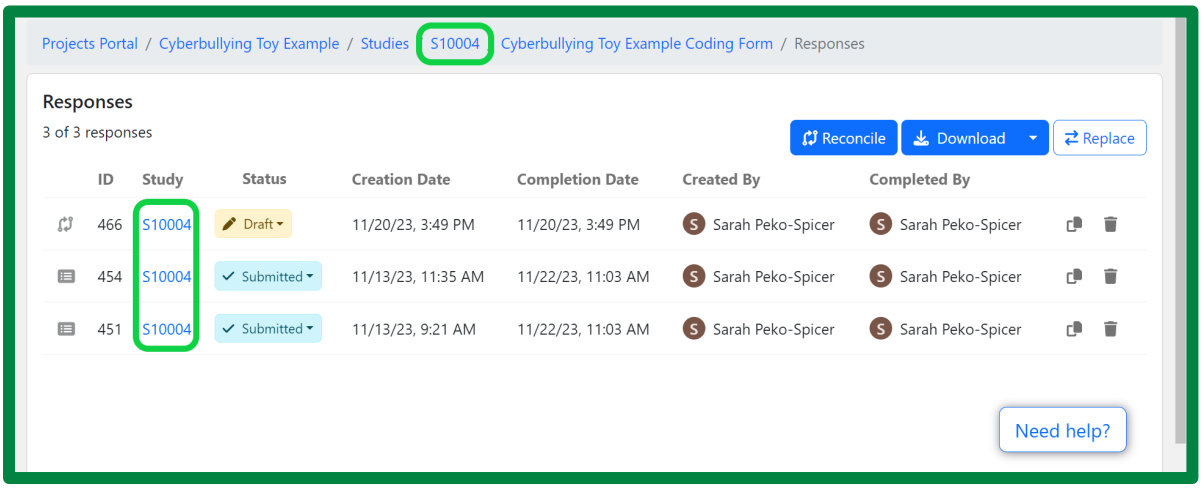


Image: Example Study ID circled in green at the top of the page, and example Study ID circled on the left-hand side of the page.

Navigate to the **Study Status** pane on the right-hand side of the Individual Study Page. Scroll down to the appropriate status field (i.e., **Screening Status** or **Coding Status**) and update the status to **Complete**.

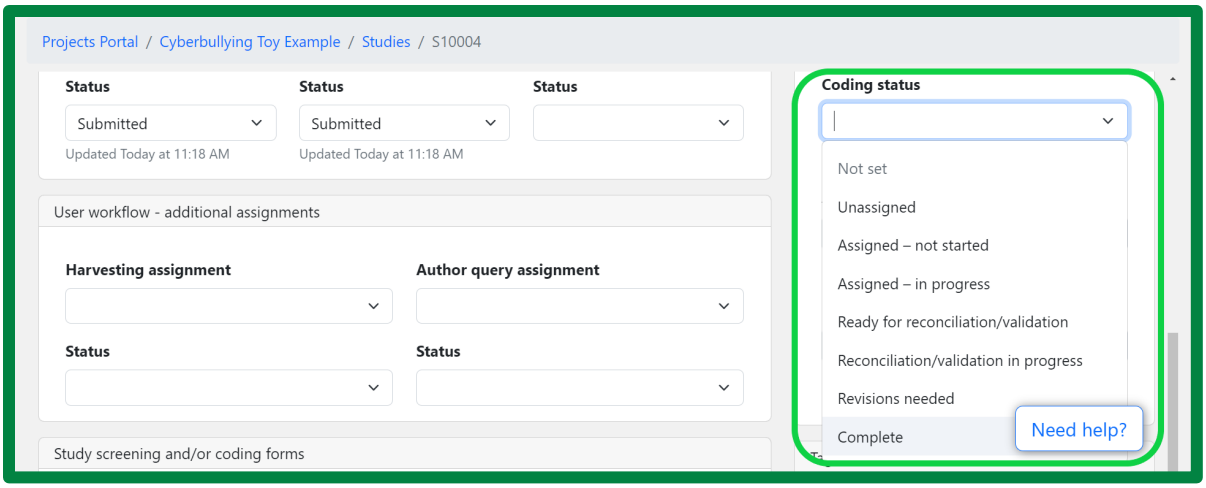


Image: Individual study page, with the study coding status dropdown menu items circled in green.

Reconciling responses

Another strategy meta-analysts use to ensure that the data extracted from each study is accurate is reconciliation. In this approach, studies that have been double-screened or double-coded are assigned an independent team member to review both sets of screening or coding responses and reconcile differences between the two. In this section, you will learn how to reconcile responses in MetaReviewer.

Selecting coding form fields to include in the percent agreement calculation

To support reconciliation, MetaReviewer automatically calculates the percent agreement between two, independently coded coding form responses. The denominator of the precent agreement is dictated by the number of fields included in the coding form. It is possible that not all of those fields should count toward percent agreement. For instance, as we describe in the previous section, all coding form templates have two fields on each page to support data validation. You will likely want to remove these from being counted towards percent agreement (see example below).

To select which fields should (or should not) contribute to the percent agreement calculation, navigate to the Manage project pane on your individual project page. Click Manage coding forms and view responses.

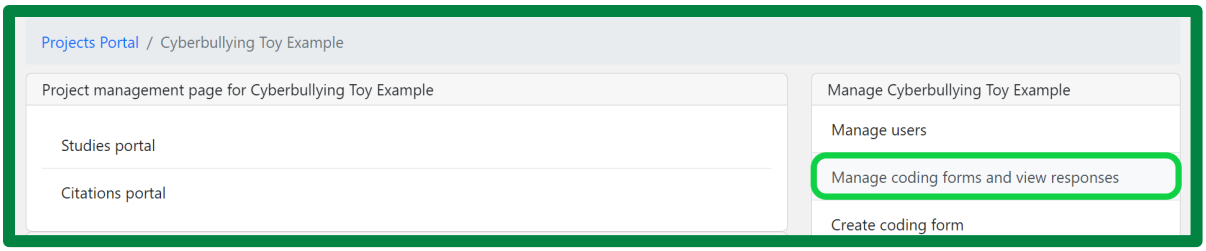


Image: A project page, with the Manage coding forms and view responses link circled in green.

This will take you to a page that lists the coding forms you have uploaded to your project environment. Navigate to the Select fields icon in the row of your coding form for which you would like to make percent agreement selections.

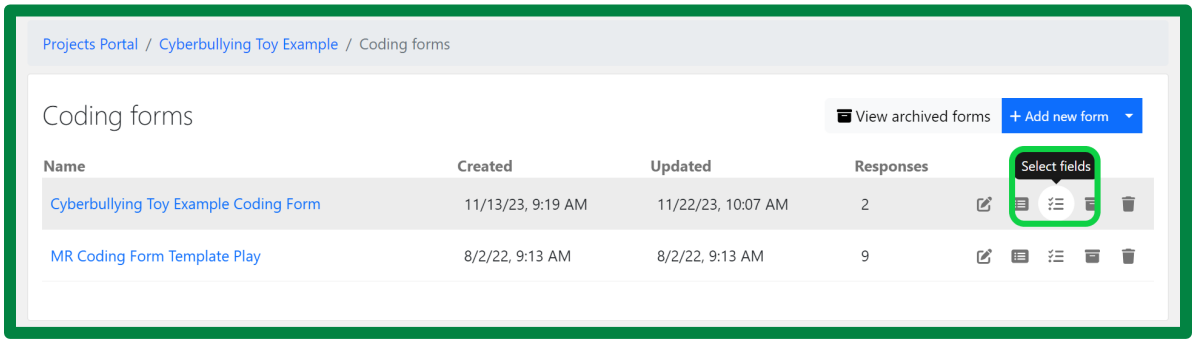


Image: A coding forms page, with two coding forms. A selection icon near the end of the first row is circled in green.

This will open a version of your coding form that includes checkboxes next to each question on each page. You can identify which items should not contribute to the percent agreement calculation by unchecking the box next to them, as shown in the picture below.

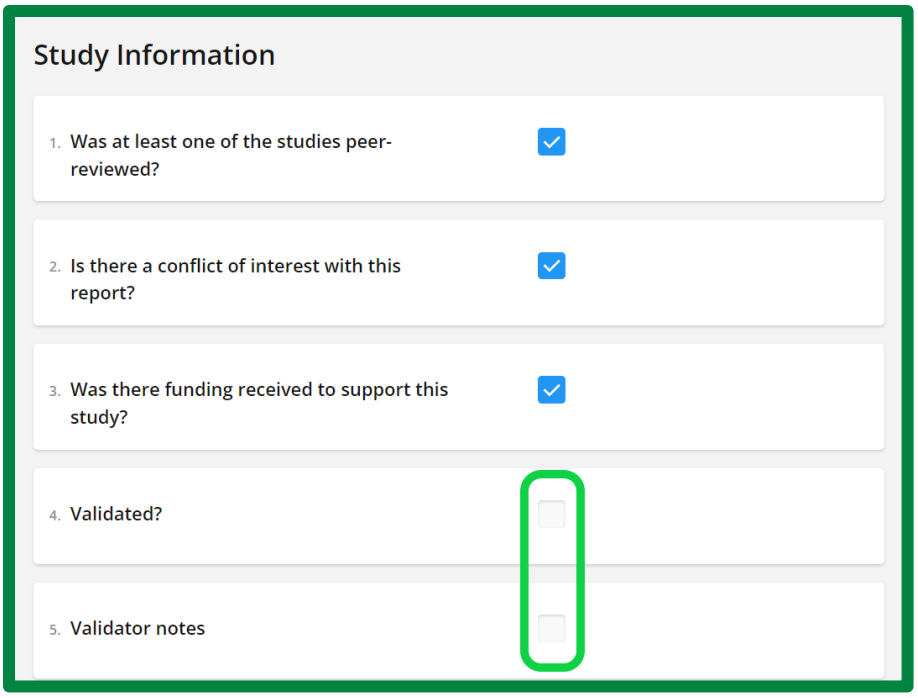


Image: The Study information page of a coding form with checkboxes next to each question. The checkboxes for the first three questions are blue, indicating that they will be included in the percent agreement calculation. The checkboxes for the final two questions are empty, indicating that they will not be included in the percent agreement calculation.

When you have made all of your field selections for the percent agreement calculation, hit the Complete button on the last page (i.e., Effect sizes) of the coding form.

Creating a reconciliation form

To reconcile responses for a study, navigate to the study's **Responses** page following the steps in Accessing responses for validation. Click the blue **Reconcile** button at the top-right of the page.

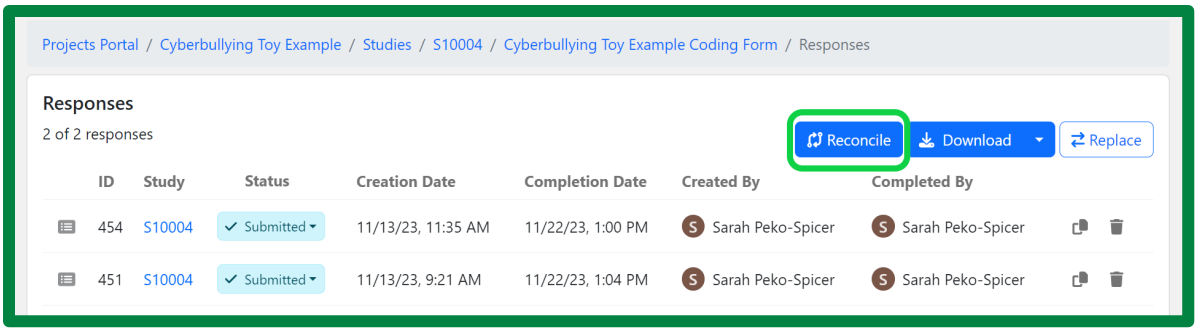


Image: A study's responses page, with two rows represented two responses to a coding form. A blue button that reads "Reconcile" is circled in green in the top-right corner.

This will open a modal asking you to select the responses that you wish to reconcile. You can use the dropdown menu to select response IDs corresponding to the response forms submitted by each coder, as shown in the image below. When you have made your selections, hit **Next**.

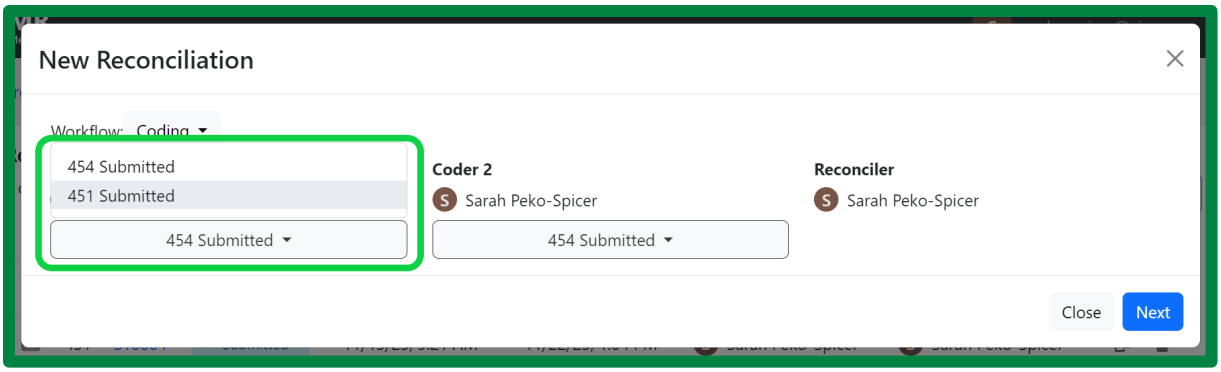


Image: A reconciliation modal, with three columns: one with the Coder 1 assignment and any responses they submitted, one with the Coder 2 assignment and any responses they submitted, and one with the Reconciler assignment. The Coder 1 dropdown menu has been opened to select Response ID 451 as the response to reconcile with Response ID 454.

Matching samples, conditions, measures, and effects

The next step of creating a reconciliation form is matching samples, conditions, measures, and effects across the coding form responses. This can be challenging, especially when coders might give the same study component (e.g., measure) different IDs or code the same information in different orders. Once you've selected which responses to reconcile, you will see a modal that helps you match responses before beginning reconciliation so you can be sure you're matching the "right" responses:

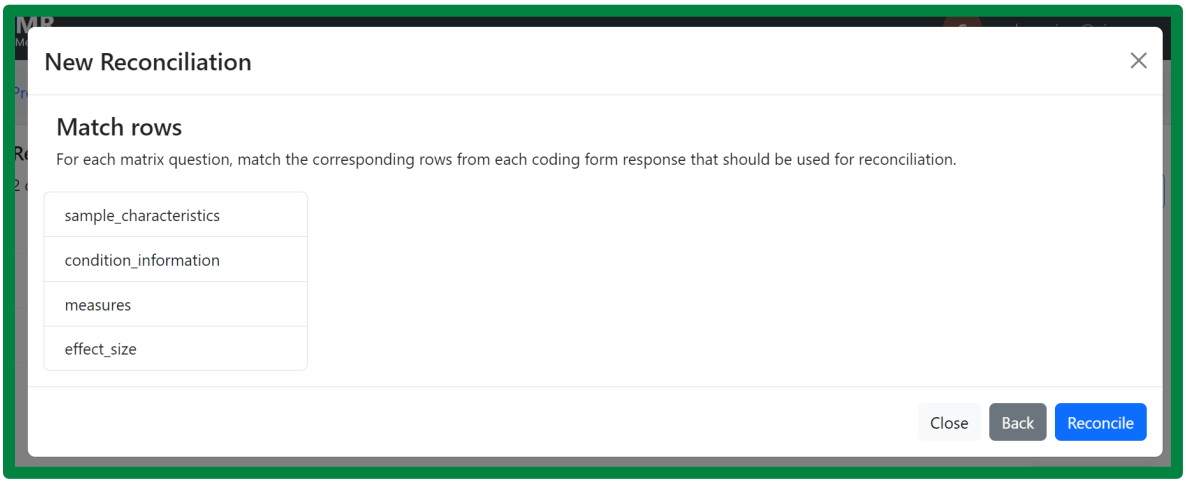


Image: A reconciliation modal, with four clickable fields: one for each matrix-style page in the coding form.

To match responses, click on one of the pages listed. This will give you a snapshot of the relevant IDs that each coder entered and the page-specific percent agreement between the responses provided. For instance, in the picture below we see that Coder 1 has entered information for two measures which they have given the IDs "m1-cq" and "m2-mfaf". Coder 2 has also entered information for two measures with similar IDs; however, Coder 2 entered this information in a different order. In the first row, Coder 1's responses for measure "m1-cq" are being compared to Coder 2's responses for measure "m1-mfaf". We can also see that the page-specific percent agreement for those responses is 29%.

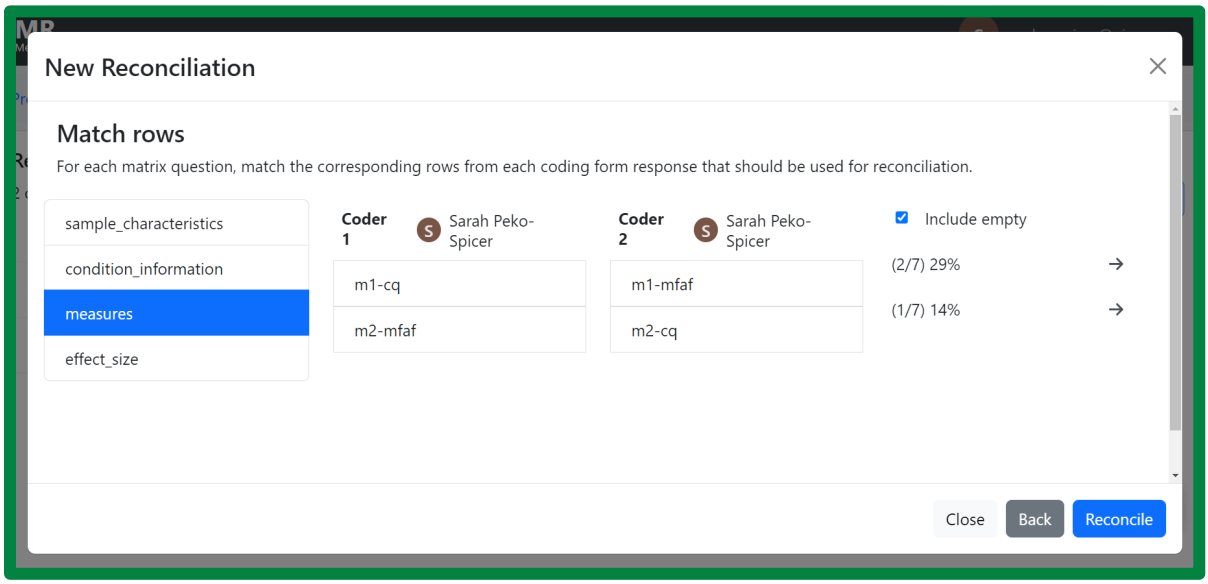


Image: A reconciliation modal, with the measures page selected. The modal now shows the measure IDs for the measures coded by each coder and the page-specific percent agreement between the responses about measures that are currently matched.

We can get additional details on the quality of the match by clicking on the arrow to the right of the page-specific percent agreement. That will take you to a page that shows the actual responses each coder provided on the corresponding page of the coding form. Responses that conflict with one another will be highlighted in red, as shown in the picture below.

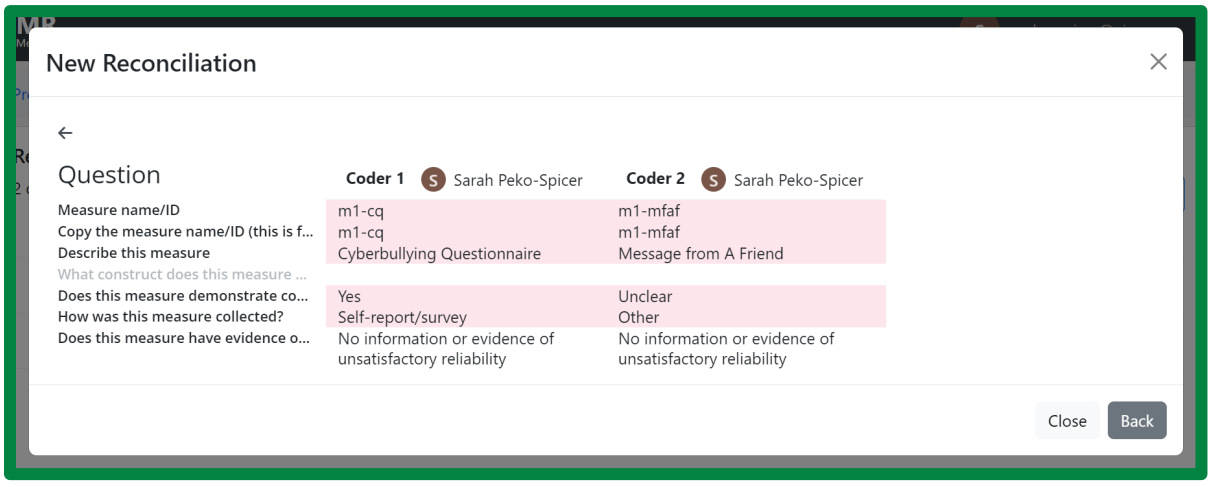


Image: A reconciliation modal, with detailed information on responses that are currently matched. For each coder, the modal displays the response they gave in each row of a matrix-style question. Conflicts between coders are highlighted in red.

You can use this information to make decisions about how to align responses. For instance, based on the snapshot and additional details in the preceding pictures, we know that we should match

Coder 1's "m1-cq" to Coder 2's "m2-cq" and similarly align Coder 1's "m2-mfaf" to Coder 2's "m1-mfaf". We can do this by clicking on the IDs under the coders' names and dragging them up or down to align them as needed. The percent agreement between that pair of page-specific responses will be updated accordingly, as shown in the image below.

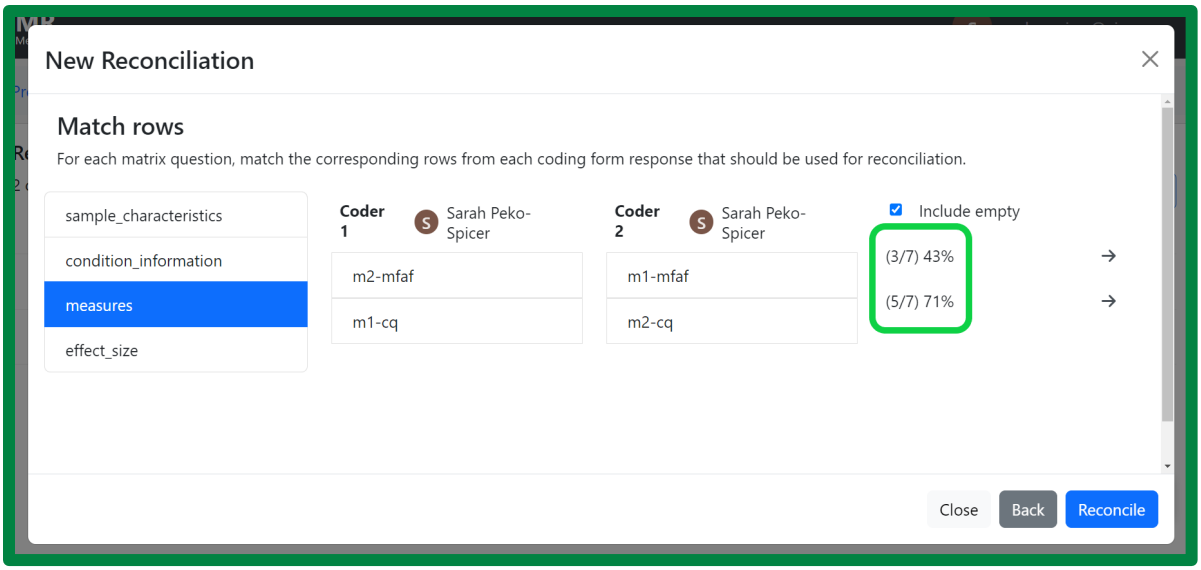


Image: A reconciliation modal, with the measures page selected. The percent agreement for the updated measure ID matches is circled in green.

Again, you can click on the arrow to the right of the percent agreement to confirm that the responses are better aligned.

Above the percent agreement for the response pairs, you will see an **Include Empty** checkbox. By default, MetaReviewer includes all empty rows in the page-specific percent agreement included in the modal. You might elect to *exclude* empty rows in the page-specific percent agreement, to streamline what you see when you click the arrow for more details in the snapshot. In that case, simply uncheck the Include Empty checkbox.

The page-specific percent agreement on the reconciliation modal is merely meant to support reconciler's in aligning names and IDs input by data readers. Including or excluding empty rows in this view has no bearing on the percent agreement calculation included in the reconciliation form.

When you have matched all the responses and are ready to begin reconciliation, click the **Reconcile** button in the bottom-right corner of the reconciliation modal. This will open a reconciliation form, as shown in the picture below.

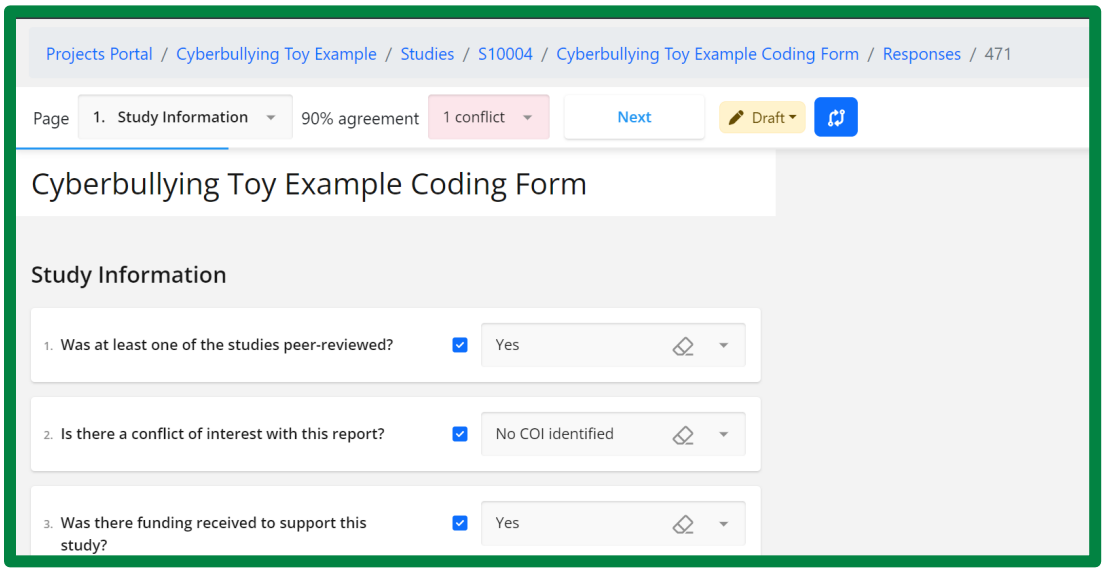


Image: A reconciliation form, opened to the study information page. There are three questions displayed, with response fields filled in with responses that both coders agreed on. There is a red box at the top of the page indicating that there is one conflict on this page to resolve.

Orientation to the reconciliation form

Reconciliation forms have the same look and feel as coding forms, with a few key differences which we highlight here. Like a coding form, reconciliation forms have a dropdown menu in the form banner which you can use to navigate to different pages of the form. However, the dropdown menu on a reconciliation form also shows you how many conflicts exist on each page:

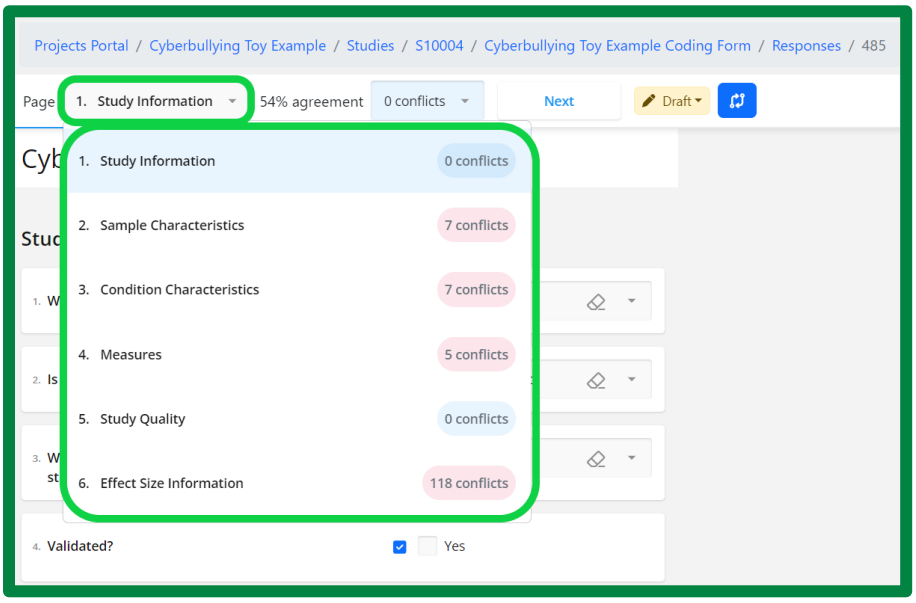


Image: A reconciliation form, with the page navigation dropdown menu selected. Each page name is displayed in a row with the number of conflicts on that page.

The form banner also includes the **percent agreement** between the coders' responses for that study, across all coding form pages. The denominator of the percent agreement is determined by the coding form fields selected by the project PI for inclusion. The numerator is determined by coders' entries. Currently, MetaReviewer marks responses that are not identical as conflicts, including responses that differ in casing (e.g., Message from a friend versus Message From a Friend). You can remove those, and other types of conflicts, from contributing to the percent agreement calculation following the steps in Addressing false conflicts.

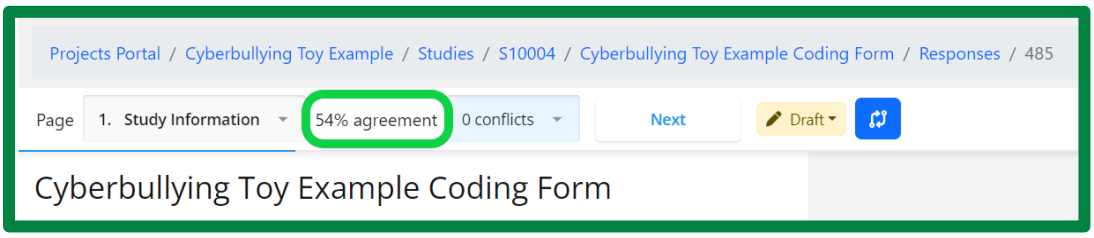


Image: A reconciliation form, with the percent agreement (54%) circled in green.

To the right of the percent agreement is a **Conflicts dropdown menu** where you can see the number of conflicts on that page of the reconciliation form and the specific items where the conflicts arise. For instance, in the image below, we see that there are seven conflicts on the Sample Characteristics page. You can use the Conflicts dropdown menu to navigate to items in conflict by click on the item, as shown in the picture below.

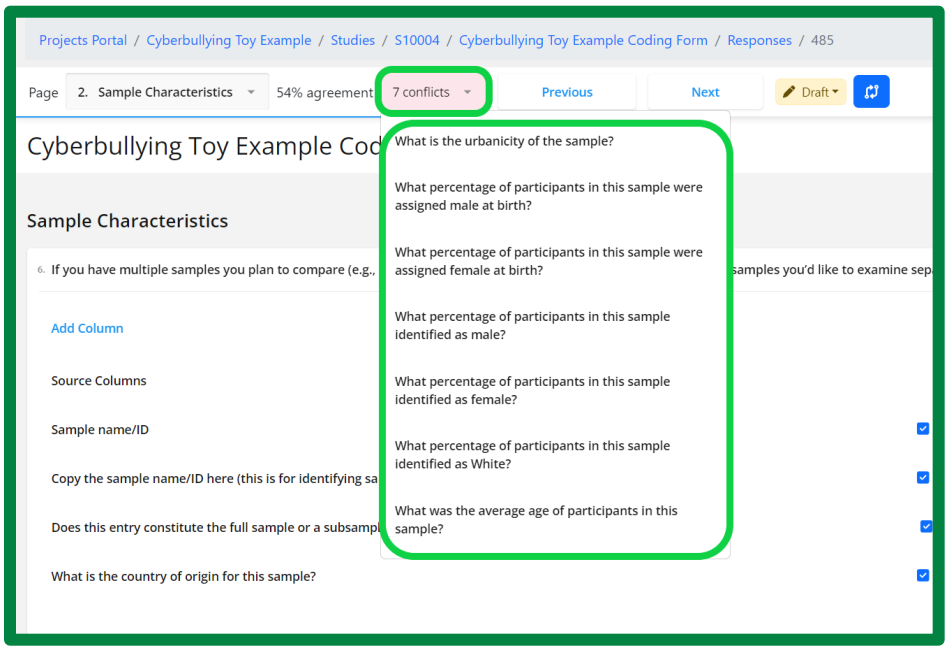


Image: A reconciliation form, with the Conflicts dropdown menu selected. The menu highlights seven conflicts that exist on the Sample Characteristics page for the Cyberbullying toy example.

Finally, the banner includes **Previous** and **Next** buttons that you can use to navigate between pages of the reconciliation form.

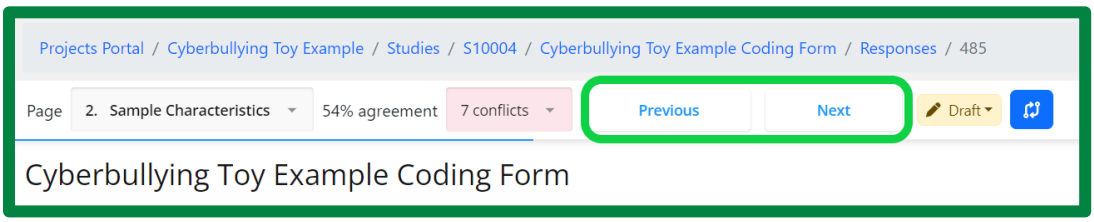


Image: A reconciliation form, with the Previous and Next buttons circled in green.

Addressing false conflicts

Currently, MetaReviewer marks responses that are not identical as conflicts, including responses that differ in casing (e.g., Message from a friend versus Message From a Friend). You can remove those, and other types of conflicts, from contributing to the percent agreement calculation by clicking the red caution icon next to the conflict.

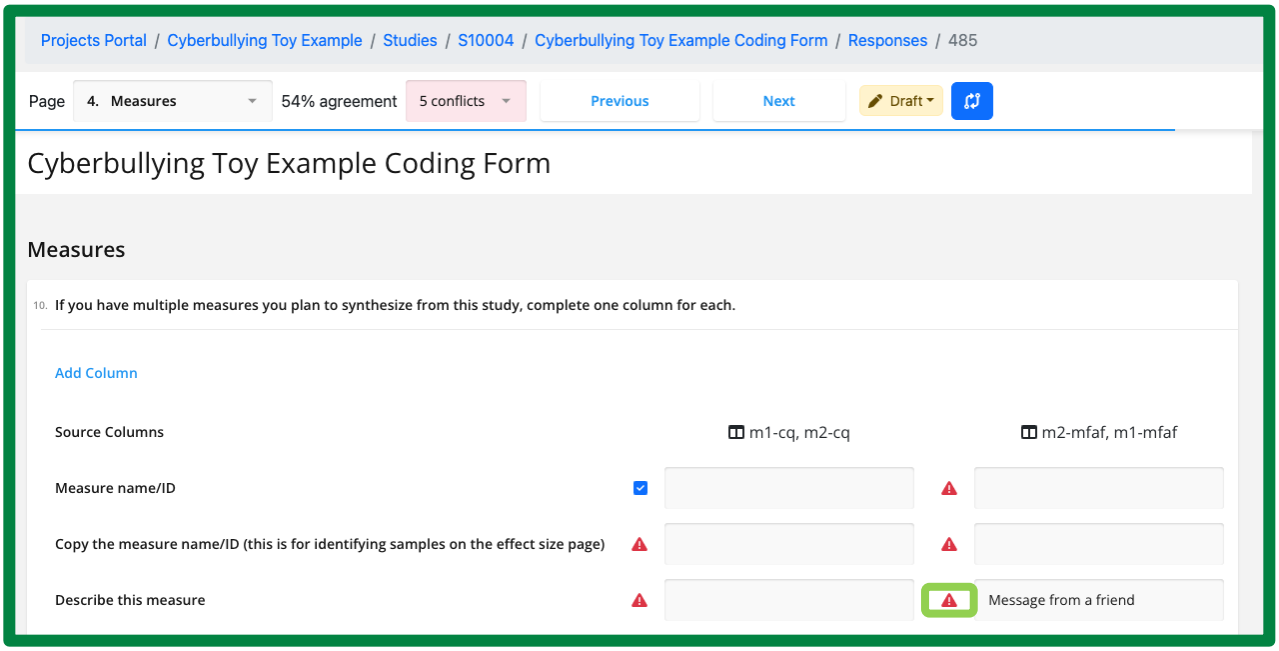


Image: A reconciliation form with the red caution icon circled in green.

This will open a popover window that displays each coder's response and allows you to select the final response that should be used in the reconciler's coding form. Below each coder's response, the red caution **"Mark as Conflict"** and green checkmark "Include in Agreement" icons are listed. Unselect the red caution "Mark as Conflict" icon to exclude this false conflict from contributing to the percent agreement calculation. After unselecting, the icon will change from red to grey.

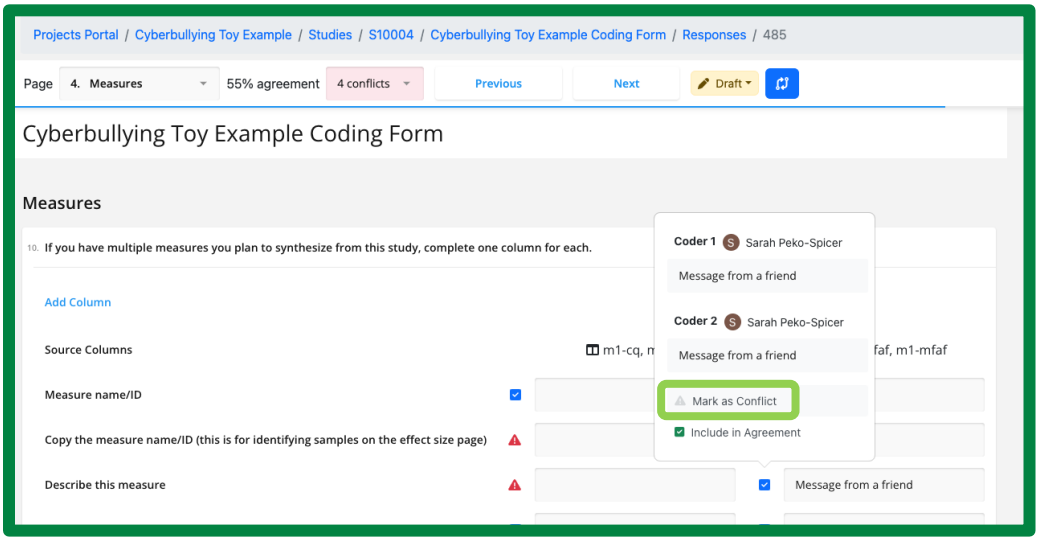


Image: A reconciliation form with a portal displaying each coder's response. The red caution button, which has been unselected and is now greyed out, is circled in green.

Viewing and reconciling responses

To reconcile conflicts, click the red caution icon indicating a conflict between coders. This will open a popover window that displays each coder's response and allows you to select the final response that should be used in the reconciler's coding form.

In this portal, you will see Coder 1 and Coder 2's responses followed by the red caution "Mark as Conflict" icon and the green checkmark "Include in Agreement" icon. Four possible combinations of these icons exist:

	Marked as conflict	**Not marked as conflict**
Included in agreement	1	2
Not included in agreement	3	4

Only cases that fall into the first category, which are both marked as conflicts and included in the percent agreement calculation, need to be resolved by the reconciler.

To resolve conflicts, hover over the response of the coder whose entry you want to be recorded. In the below example, Coder 1 correctly specified that the urbanicity of the sample was unclear from the research report, whereas Coder 2 neglected to respond to this item. Click Coder 1's response to mark it as final. This will automatically populate Coder 1's response in the reconciliation form.

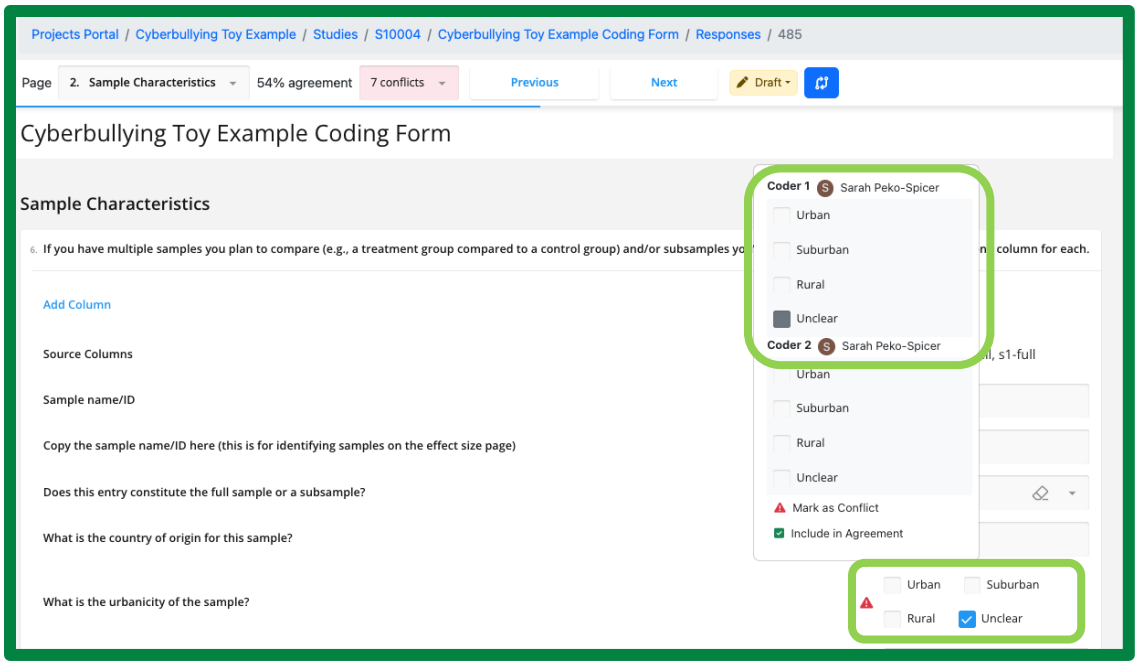


Image: A reconciliation form with a popover window displaying each coder's response. Coder 1's response is circled in green both within the portal and on the reconciliation page.

Alternatively, if reconcilers do not agree with either coder's response, they may enter their own selections directly into the reconciler form (outside of the coder response popover window).

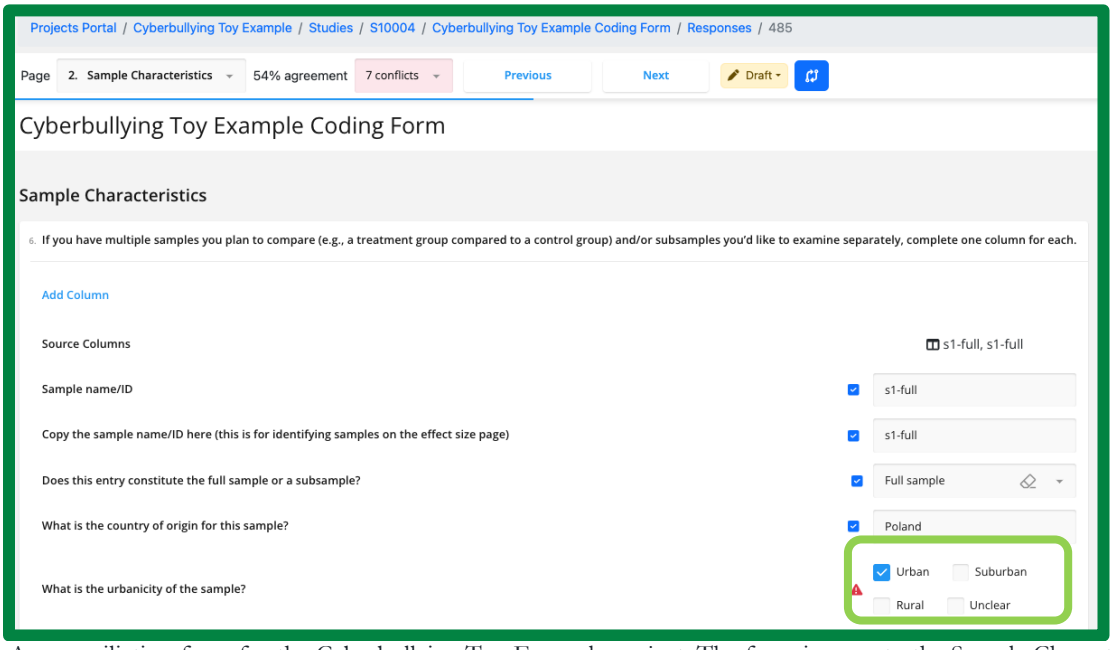


Image: A reconciliation form for the Cyberbullying Toy Example project. The form is open to the Sample Characteristic page. The reconciler has logged a response to the question, "What is the urbanicity of the sample?" by selecting the "Urban" checkbox. This response differs from the responses that both coders submitted.

Matching samples, conditions, measures, and effect sizes after beginning reconciliation

Once you begin reconciliation, you might notice that you matched the wrong samples, conditions, measures, or effect sizes using the matching modal. You can re-match names/IDs in the reconciliation form, by navigating to the relevant reconciliation form page and clicking on one of the **Source Columns** fields, as shown in the picture below.

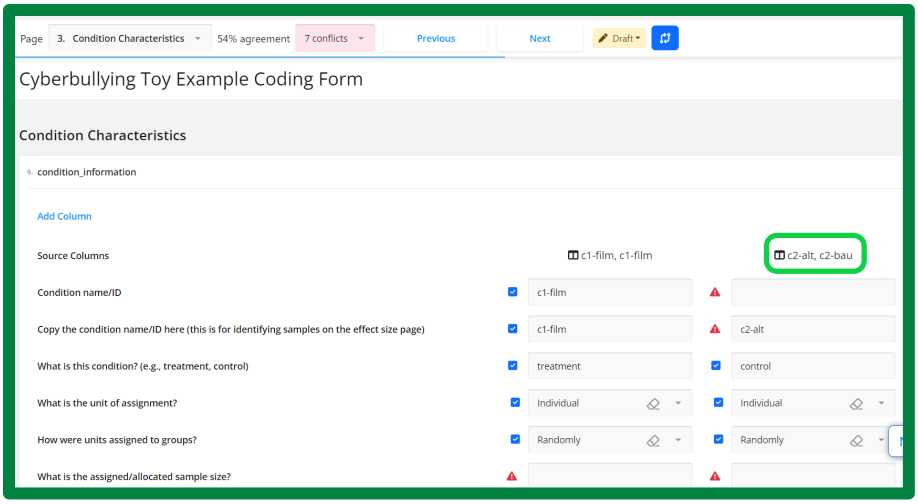


Image: A reconciliation form for the Cyberbullying Toy Example project. The form is open to the Condition Characteristics page. The Source Columns field for the second condition pair, c2-alt and c2-bau, is circled in green.

This will open a version of the matching modal that also contains a column with any reconciled responses the reconciler has logged. You can use the dropdown menus for each coder to examine different pairs of names/IDs and determine if you need to re-match. To re-match, simply select a name/ID from one of the dropdown menus and click **Reconcile** to return to the reconciliation form.

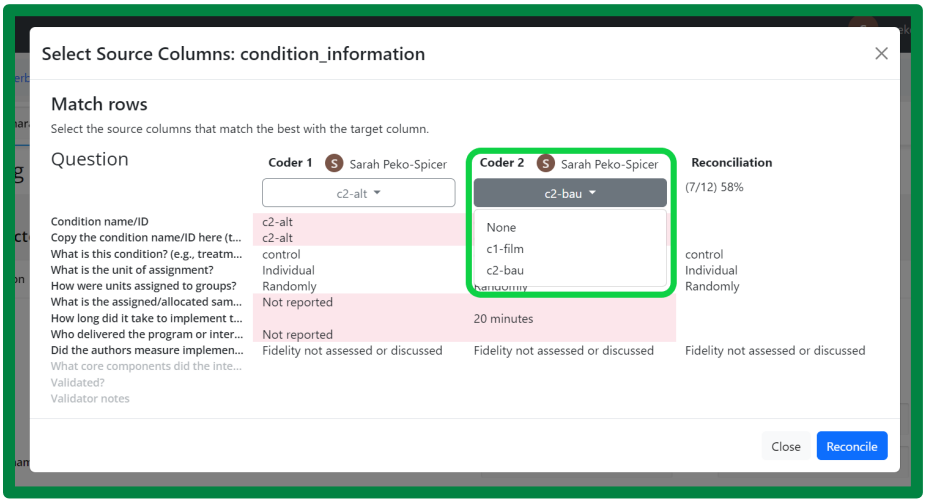


Image: A matching modal for the Cyberbullying Toy Example project. The modal is open to the Condition Characteristics page. The dropdown menu for Coder 2 is open and circled in green.

Estimating effect sizes in MetaReviewer

An effect size is a measure that represents the magnitude of a relationship between two variables or a difference between two groups. Effect sizes provide a standardized metric that allows meta-analysts to interpret findings across an array of measures, outcomes, and studies. For more information on effect sizes, please consult the *Handbook of Research Synthesis and Meta-Analysis* (Cooper, Hedges, & Valentine, 2019).

Identifying the appropriate information to estimate an effect – let alone *calculating* it – can be daunting for even experienced meta-analysts. MetaReviewer assists in making the process easier in two concrete ways:

1. Identifying the summary statistics required to estimate each effect.
2. Calculating the effect size and its variance once the information is entered.

Currently, MetaReviewer identifies the statistical information required to calculate an effect size and its variance for 33 types of effect sizes, listed below.

- SMD: Pretest only, Unadjusted means
- SMD: Posttest only, Unadjusted means
- SMD: Posttest only, Adjusted Means
- SMD: Pretest & posttests, Calculated SMD
- SMD: Posttest only, Calculated SMD
- SMD: Pretest & Posttest, Calculated SMD
- Odds Ratio (OR): Pretest only, Proportions
- OR: Posttest only, Proportions
- OR: Pretest & Posttest, Proportions
- OR: Pretest only, Frequencies
- OR: Posttest only, Frequencies
- OR: Pretest & Posttest, Frequencies
- OR: Pretest only, Calculated LOR
- OR: Posttest only, Calculated LOR
- OR: Pretest & Posttest, Calculated LOR
- OR: Pretest only, Logistic Regression Coefficient
- OR: Posttest only, Logistic Regression Coefficient
- OR: Posttest, Adjusted Logistic Regression Coefficient
- Correlation (Corr): Bivariate Correlation
- Corr: Means and SD
- Corr: Frequencies, 2x2 Table
- Corr: Proportions, 2x2 Table
- Corr: Chi-square
- Corr: T Statistic (2 groups)
- Corr: T Statistic's p value (2 groups)
- Corr: Odds Ratio
- Corr: Partial Correlation
- Corr: Semipartial Correlation
- Standardized Mean-Difference with Clustering (SMDC): Posttest, Adjusted Linear Regression Coefficient, Corrected for Clustering

- SMDC: Posttest, Adjusted Linear Regression Coefficient, Uncorrected for Clustering
- SMDC: Posttest, Adjusted Means
- SMDC: Pretest & Posttest, Unadjusted Means
- SMDC: Posttest only, Proportions

MetaReviewer **calculates** effect size estimates and variances for the effect size types listed in Exhibit 3. The calculations used to estimate each of these effects is included in Exhibit 4.

While interested users can view each effect size calculation with the coding form templates, we strongly urge that users refrained from modifying the calculations unless they are experienced methodologists or statisticians.

Exhibit 3. Effect size types calculated in MetaReviewer

Formula Number	Metric, Time Point	Primary Statistic	Additional Statistics	Export Name (ES)
ES.01	SMD: Pretest only	Unadjusted Means	-	es_calc_smd_pre-only_un-mn
ES.02	SMD: Posttest only	Unadjusted Means	-	es_calc_smd_pos-only_un-mn
ES.03	SMD: Posttest only	Adjusted Means	-	es_calc_smd_po-only_ad-mn
ES.04	SMD: Pretest & Posttest (Same Pretest and Posttest)	Unadjusted Means	Pre-Post Correlation	es_calc_smd_dnd-same_un-mn
ES.05	SMD: Pretest & Posttest (Different Pretest and Posttest)	Unadjusted Means	Pre-Post Correlation	es_calc_smd_dnd-diff_un-mn
ES.06	SMD: Pretest only	T Statistic	-	es_calc_smd_pre-only_t
ES.07	SMD: Posttest only	T Statistic	-	es_calc_smd_pos-only_t
ES.08	SMD: Pretest & Posttest	T Statistic	Pre-Post Correlation	es_calc_smd_dnd_t-var
ES.09	SMD: Pretest only	F Statistic (1 df)	-	es_calc_smd_pre-only_f
ES.10	SMD: Posttest only	F Statistic (1 df)	-	es_calc_smd_po-only_f
ES.11	SMD: Posttest	ANCOVA F Statistic (1 df)	Pre-Post Correlation	es_calc_smd_f_ancova
ES.12	SMD: Posttest only	Linear Regression Coefficient	Standard Error	es_calc_smd_po-only_ln-reg
ES.13	SMD: Posttest	Adjusted Linear Regression Coefficient	Standard Error, R^2	es_calc_smd_ad_ln-reg

Exhibit 4. Effect size and effect size variance formulas

Statistic & Formula Number	Formula
n_1 and n_2	Sample sizes of groups 1 and 2
m_1 and m_2	Means of groups 1 and 2
sd_1 and sd_2	Standard deviations of groups 1 and 2
Pretest-Posttest Correlation ρ	Correlation between the pretest and the posttest. When missing, we impute 1.0 for ES formulas (ES.05) and 0.5 for variance formulas (ES.04, ES.05).
Regression coefficient b	The unstandardized regression coefficient representing the mean difference between groups 1 and 2 with 1 degree of freedom (*df*).
Pooled Standard Deviation	$SD_p = \sqrt{\frac{(n_1 - 1)SD_1^2 + (n_2 - 1)SD_2^2}{(n_1 + n_2 - 2)}}$
Small-sample bias adjuster ω	$\omega = 1 - \frac{3}{(4 * [n_1 + n_2]) - 1}$
ES.01, ES.02, ES.03 – ES	$g = \frac{\omega(m_1 - m_2)}{SD_p}$
ES.01, ES.02, ES.03 – Variance	$\frac{n_1 + n_2}{n_1 * n_2} + \frac{g^2}{2(n_1 + n_2)}$
ES.04 – ES	$g = \frac{\omega[(m_{post,1} - m_{pre,1}) - (m_{post,2} - m_{pre,2})]}{SD_p}$
ES.04 – Variance	$\left(\frac{n_1 + n_2}{n_2 n_2}\right) 2(1 - \rho) + \frac{g^2}{2(n_i + n_c)}$
ES.05 – ES	$g = g_{post} - \rho(g_{pre})$
ES.05 – Variance	$\left(\frac{n_1 + n_2}{n_1 n_2}\right) 2(1 - \rho) + \frac{g_{post}^2 + g_{pre}^2 - 2(g_{post} g_{pre} \rho^2)}{2(n_1 + n_2)}$
ES.06, ES.07 – ES	$g = \omega t \sqrt{\frac{n_i + n_c}{n_i n_c}}$
ES.06, ES.07 – Variance	$\frac{n_1 + n_2}{n_1 * n_2} + \frac{g^2}{2(n_1 + n_2)}$
ES.08 – ES	$g = \omega t_{post} \sqrt{\frac{n_1 + n_2}{n_1 n_2}} - \rho\left(\omega t_{pre} \sqrt{\frac{n_1 + n_2}{n_1 n_2}}\right)$
ES.08 – Variance	$\left(\frac{n_1 + n_2}{n_1 n_2}\right) 2(1 - \rho) + \frac{g_{post}^2 + g_{pre}^2 - 2(g_{post} g_{pre} \rho^2)}{2(n_1 + n_2)}$
ES.09, ES.10 – ES	$g = \omega \sqrt{\frac{F * (n_1 + n_2)}{n_1 n_2}}$
ES.09, ES.10 – Variance	$\frac{n_1 + n_2}{n_1 * n_2} + \frac{g^2}{2(n_1 + n_2)}$
ES.11 – ES	$g = \omega \sqrt{\frac{F * (n_1 + n_2)(1 - r^2)}{n_1 n_2}}$
ES.11 – Variance	$\left(\frac{n_1 + n_2}{n_1 n_2}\right) (1 - R^2) + \frac{g^2}{2(n_1 + n_2)}$

ES.12 – ES	$g = \frac{\omega * b}{SD_p}$
ES.12 – Variance	$\frac{n_1 + n_2}{n_1 * n_2} + \frac{g^2}{2(n_1 + n_2)}$
ES.13 – ES	$g = \frac{\omega * b}{SD_p}$
ES.13 – Variance	If the standard error is reported, then… $\left(\frac{(SE_b)}{SD_p}\right)^2 + \frac{g^2}{2(n_1 + n_2)}$ If the standard error is not report, but the R^2 is, then… $\frac{n_1 + n_2}{n_1 * n_2}(1 - R^2) + \frac{g^2}{2(n_1 + n_2)}$ If the standard error and R^2 are not reported, then… $\frac{n_1 + n_2}{n_1 * n_2} + \frac{g^2}{2(n_1 + n_2)}$

Exploring data in MetaReviewer

As project teams work through the coding process, they will likely have questions about the data collected (e.g., how many studies are based in the U.S. so far?) that might inform future coding decisions or might just address a curiosity! Some of these questions can be answered within MetaReviewer, without having to export data that has been collected.

To explore data collected in your project, begin by navigating to your project page. Under the **Manage [Project Name]** pane, click **Edit Coding Forms**.

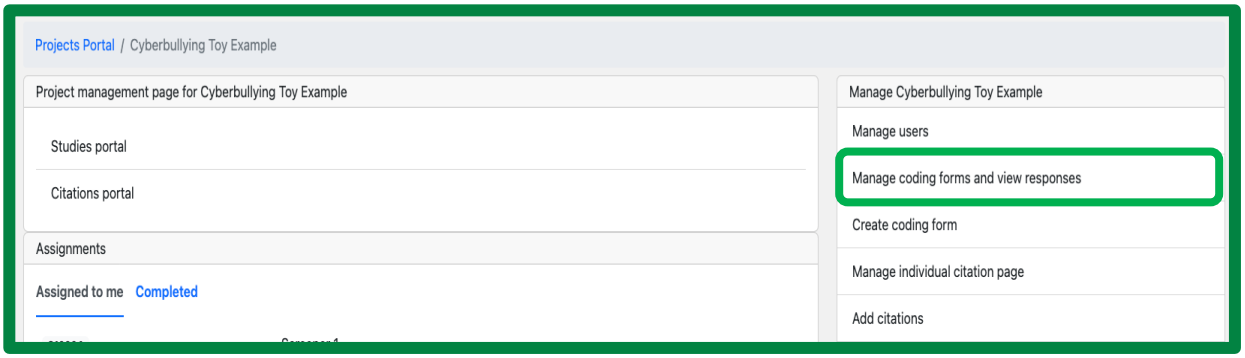


Image: The Cyberbullying Toy Example project page with the "Manage coding forms and view responses" button on the right-hand side of the page circled in green.

This will take you to a list of all the coding forms associated with your project. To view responses (i.e., data) from a form, click on the **View Responses** icon at the end of the row for the desired screening or coding form.

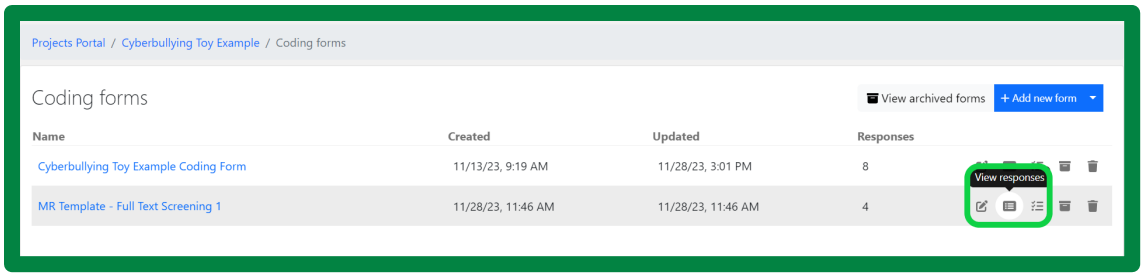


Image: The Coding forms page for the Cyberbullying Toy Example project. The two screening and coding forms are listed. The View Responses icon at the end of the screening form's row is circled in green.

This will take you to a page, like the one pictured below, that is organized in two parts: a list of all studies that have responses to at least some questions on the coding form and a tool to filter the studies on responses to specific questions.

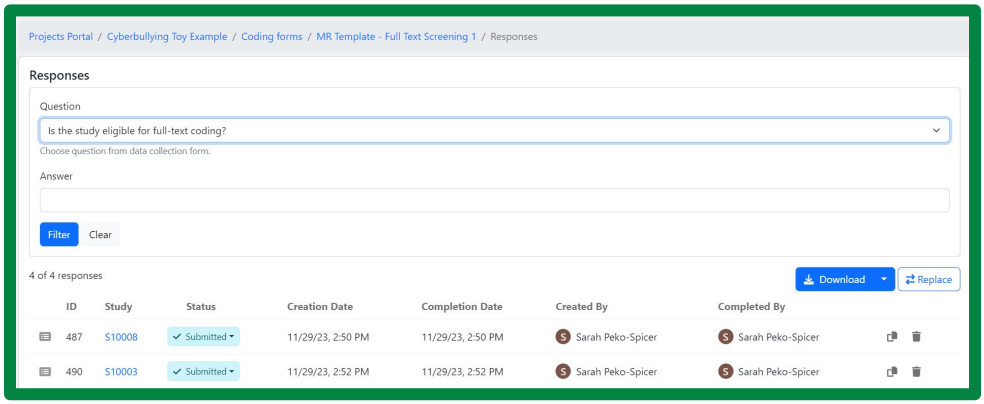


Image: Responses page with blank fields for Question and Answer, and a Filter button in blue on the left-hand side of the page.

To filter for studies with particular responses, begin by selecting the question you'd like to filter on from the dropdown menu. Then, type in an answer to pull studies with that characteristic. For instance, in the image below, 2 studies in the Cyberbullying Toy Example have been identified as ineligible for full-text coding.

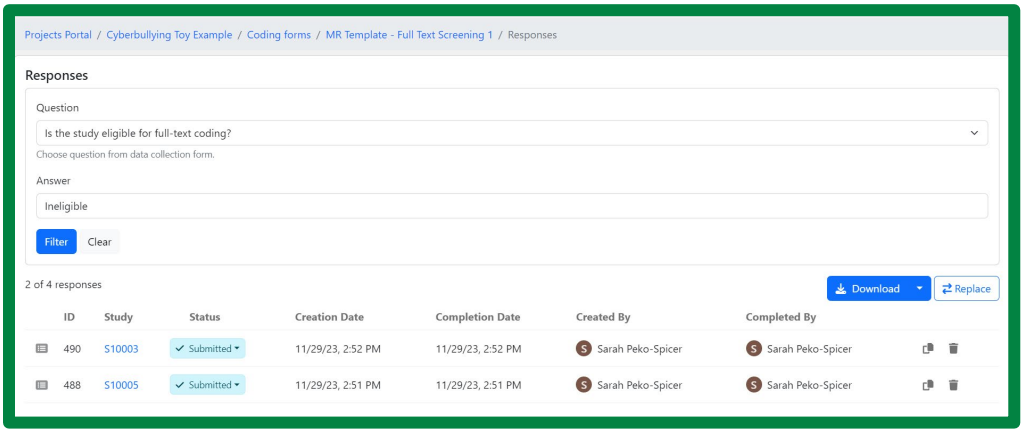


Image: Responses page with example responses in Question and Answer fields.

Exporting your data

At different stages of the coding process—and especially when coding is complete—you may want to export the data collected to your computer. MetaReviewer v1.2 includes several exportable files, including:

1. Full data capture from completed screening and coding forms
2. Studies portal data
3. Citations portal data

Full data capture from completed coding forms

Begin by navigating to your project page. Under the **Manage [Project Name]** pane, click **Manage coding forms and view responses**.

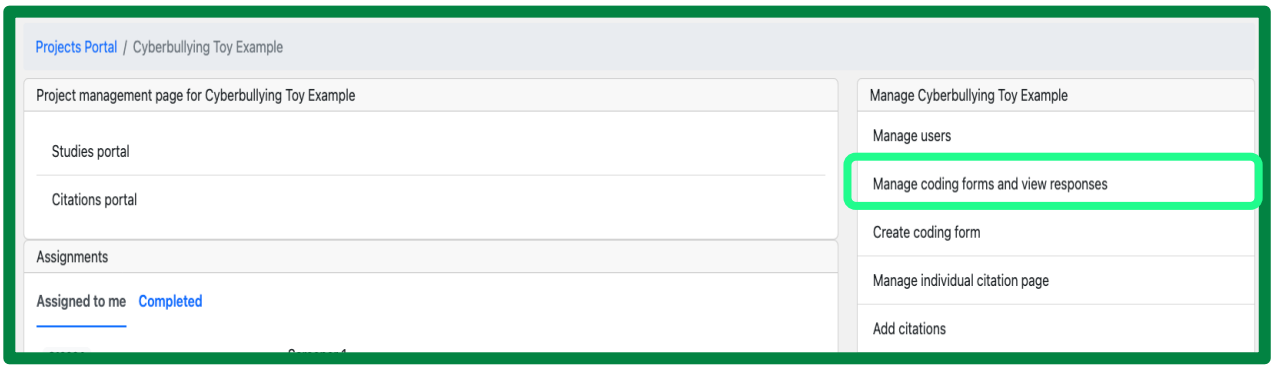


Image: Project page with the Edit Coding Forms button on the right-hand side of the page circled in green.

This will take you to a list of all the coding forms associated with your project. To view responses (i.e., data) from a form, click on the **View Responses** icon at the end of the row for the desired coding form.

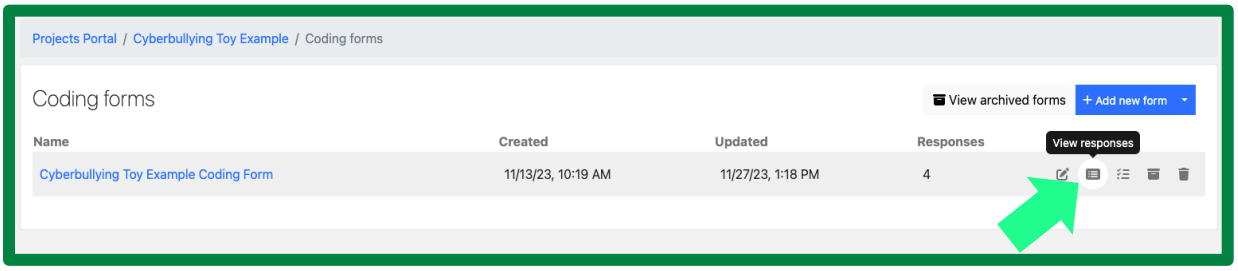


Image: Coding Forms page with the View Responses button pointed to by a green arrow.

Responses including special characters (e.g., #) cannot be exported. While they may appear in your review of responses in MetaReviewer, they will appear as 'Testno.' in your downloaded data.

On the coding form responses page, click the **Download** button.

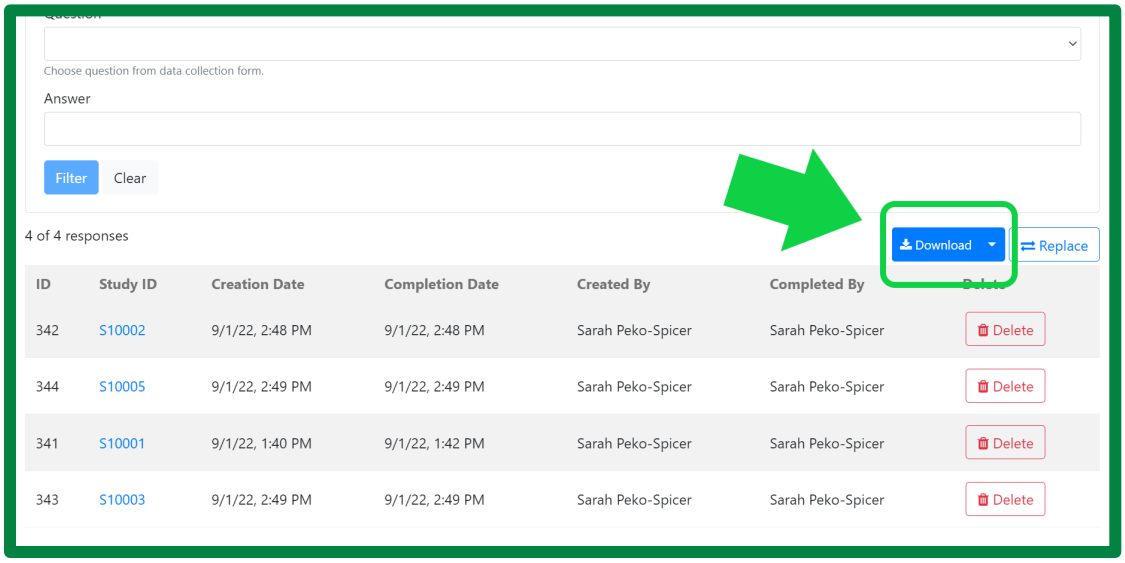


Image: Download button circled in green on the right-hand side of the Responses page.

MetaReviewer will automatically export your data to your computer as a .csv file. Open your data using your preferred spreadsheet software (e.g., Excel). In addition to the data that was included in your citation file, your exported data file will include all data represented in the coding form responses and data about the workflow, status, coders, and reconcilers.

The export functionality will export *all* records associated with a particular study. This means that, if 2 coders and 1 reconciler create 3 coding records (like they would for double-screening or coding), then MetaReviewer exports all records. In future MetaReviewer versions, we will work to streamline the dataset by exporting only the reconciliation record (and/or allowing users to select the record they wish to export). For this version, however, users will need to remove the non-reconciled records from their dataset prior to analysis. The first column of the exported dataset includes an identifier for the type of record – either "response" or "reconciliation". Assuming all studies have been reconciled, users could filter their datasets to only those with a "reconciliation" tag.

Studies portal data

Begin by navigating to your project page and click on **Studies portal**. To download the Studies portal data, click on the **Download** button at the top-right corner of the page, as shown in the image below.

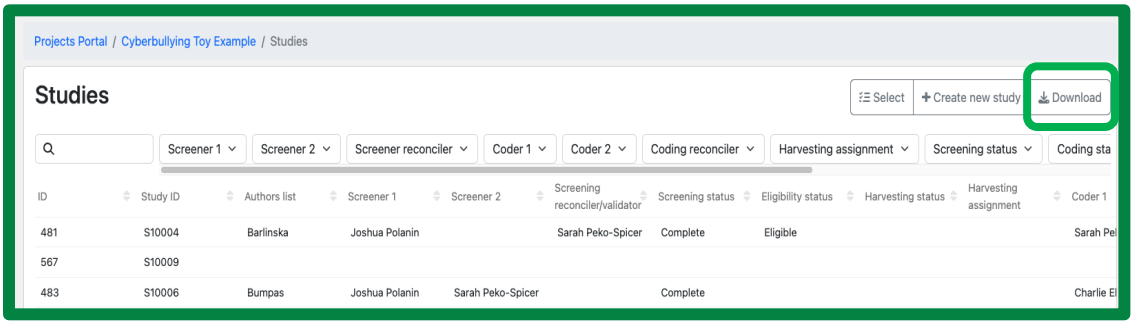
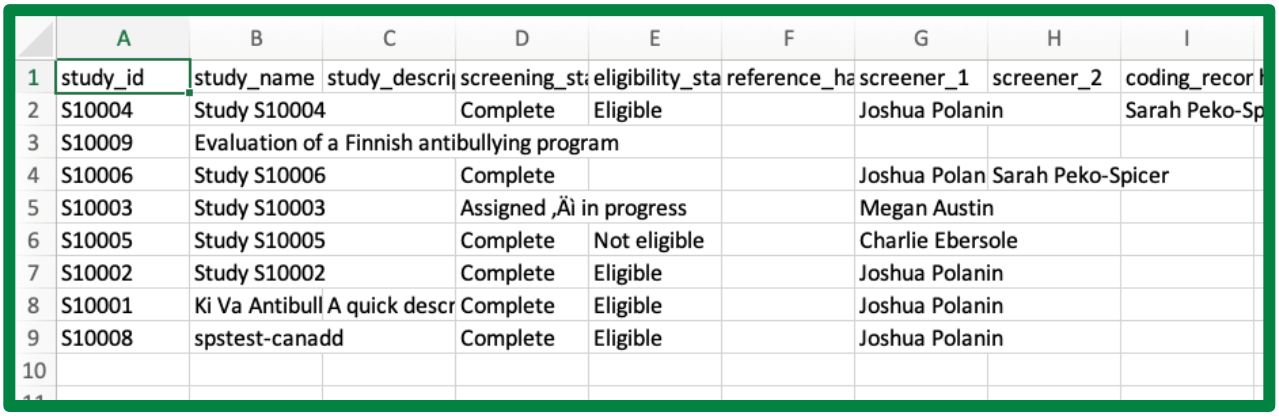


Image: A snapshot of the Studies portal for the Cyberbullying Toy Example project. The Download button, on the top-right corner of the page, is circled in green.

All information stored within the Studies portal will be exported to a .csv file. The column headers align with those found on the Studies portal page. Users can analyze this file to track full-text screening progress or other parts of the synthesis process (e.g., reference harvesting, author querying).



	A	B	C	D	E	F	G	H	I
1	study_id	study_name	study_descri	screening_st	eligibility_sta	reference_ha	screener_1	screener_2	coding_recor
2	S10004	Study S10004		Complete	Eligible		Joshua Polanin		Sarah Peko-Sp
3	S10009	Evaluation of a Finnish antibullying program							
4	S10006	Study S10006		Complete			Joshua Polan	Sarah Peko-Spicer	
5	S10003	Study S10003		Assigned ,Äì in progress			Megan Austin		
6	S10005	Study S10005		Complete	Not eligible		Charlie Ebersole		
7	S10002	Study S10002		Complete	Eligible		Joshua Polanin		
8	S10001	Ki Va Antibull	A quick descr	Complete	Eligible		Joshua Polanin		
9	S10008	spstest-canadd		Complete	Eligible		Joshua Polanin		
10									

Image: An Excel spreadsheet containing data downloaded from the Studies portal for the Cyberbullying Toy Example project.

Citations portal data

Begin by navigating to your project page and click on **Citations portal**. To download the Citations portal data, click on the **Download** button at the top-right corner of the page, as shown in the image below.

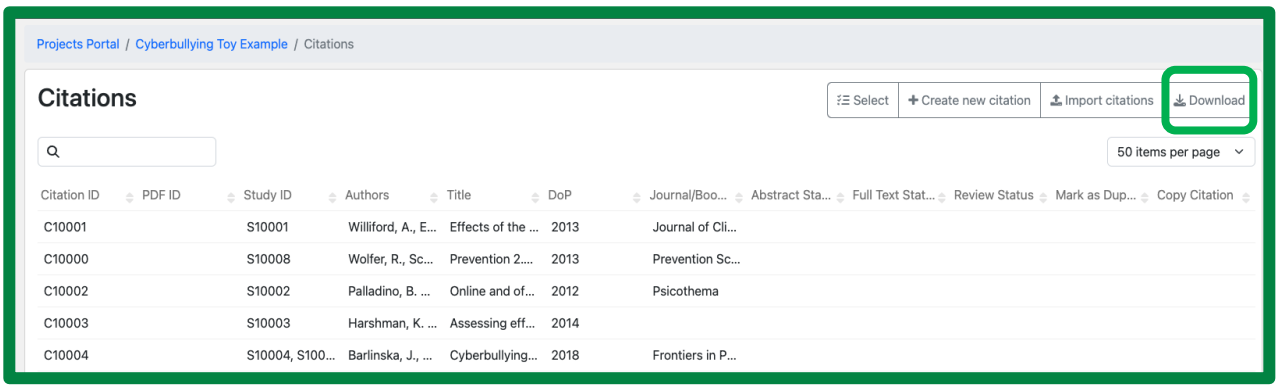
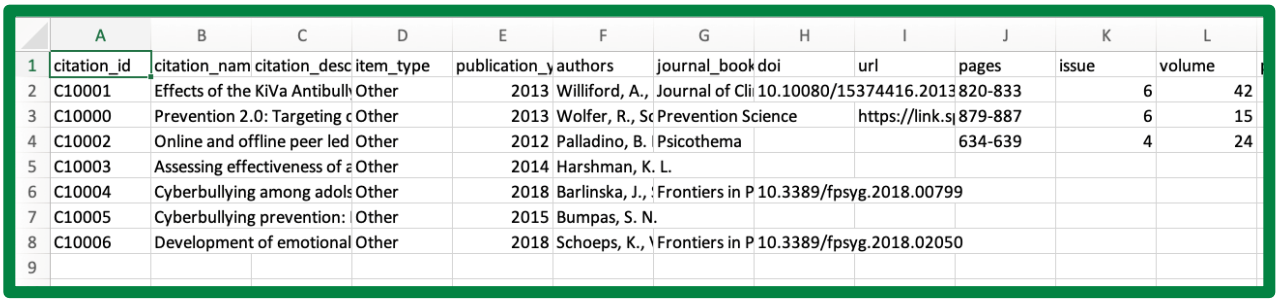


Image: A snapshot of the Citations portal for the Cyberbullying Toy Example project. The Download button, on the top-right corner of the page, is circled in green.

All information stored within the Citations portal will be exported to a .csv file. The column headers align with those found on the Citations portal page.



	A	B	C	D	E	F	G	H	I	J	K	L
1	citation_id	citation_nam	citation_desc	item_type	publication_y	authors	journal_book	doi	url	pages	issue	volume
2	C10001	Effects of the KiVa Antibull		Other	2013	Williford, A.,	Journal of Cli	10.10080/15374416.2013		820-833	6	42
3	C10000	Prevention 2.0: Targeting c		Other	2013	Wolfer, R., Sc	Prevention Science		https://link.s	879-887	6	15
4	C10002	Online and offline peer led		Other	2012	Palladino, B.	Psicothema			634-639	4	24
5	C10003	Assessing effectiveness of a		Other	2014	Harshman, K. L.						
6	C10004	Cyberbullying among adols		Other	2018	Barlinska, J.,	Frontiers in P	10.3389/fpsyg.2018.00799				
7	C10005	Cyberbullying prevention:		Other	2015	Bumpas, S. N.						
8	C10006	Development of emotional		Other	2018	Schoeps, K.,	Frontiers in P	10.3389/fpsyg.2018.02050				
9												

Image: An Excel spreadsheet containing data downloaded from the Studies portal for the Cyberbullying Toy Example project.

References

Cooper, H., Hedges, L. V., & Valentine, J. C. (Eds.). (2019). *The handbook of research synthesis and meta-analysis*. Russell Sage Foundation.

Pigott, T. D., & Polanin, J. R. (2020). Methodological guidance paper: High-quality meta-analysis in a systematic review. *Review of Educational Research, 90*(1), 24–46.

Polanin, J. R., Espelage, D. K., Grotpeter, J. K., Ingram, K., Michaelson, L., Spinney, E., Valido, A., El Sheikh, A., Torgal, C., & Robinson, L. (2022). A systematic review and meta-analysis of interventions to decrease cyberbullying perpetration and victimization. *Prevention Science, 23*, 439–454.

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AIR® Headquarters
1400 Crystal Drive, 10th Floor
Arlington, VA 22202-3289
+1.202.403.5000 | **AIR.ORG**