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Nastasha Johnson

Purdue University, nejohnson@purdue.edu

Margaret Phillips

Purdue University, phill201@purdue.edu

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RAYYAN FOR SYSTEMATIC REVIEWS

By Nastasha Johnson and Margaret Phillips, Purdue University Libraries

Rayyan

Rayyan is a free, online application to assist researchers with systematic review methodology and meta-analysis projects. Rayyan is one of many software products of QCRI, Qatar Computing Research Institute, a creative and innovative entity of the Qatar Foundation for Education, Science and Community Development, similar in many ways to the U.S. Department of Education.

Rayyan allows users to upload citations and full-text articles as a part of a single review, or the ability to create several review projects, or even collaborate on publicly available projects.

Rayyan aims to offer researchers a one stop dashboard to work through the details of their processes

while also allowing their collaborators the ability to see each other's work. Here we will review Rayyan on 7 criteria: customization, relevance, investment, functionality, searching, collaboration, and support.

Customization

What you see is what you get with Rayyan. It is a rather simplistic interface with not a lot of distractions. Conversely, the platform does not allow for a lot of sophisticated tailoring of how one interacts with datasets. The one exception is the tagging that is allowed within a single review can be color-coded.

Relevance

Rayyan is a website that can be relevant to any discipline or project team seeking to do a systematic review or meta-analysis of existing scholarship. Systematic reviews were once largely limited to medical and health care researchers. However, more disciplines are adopting this methodology to investigate their own bodies of work, including engineering and the sciences.

Investment/real cost

Use of the Rayyan website requires no monetary investment. This is particularly promising in a field where similar products have fees per license, per collaborator, per month, or even per

project. Some limitations of other products might include: fees that were often aligned with the number of collaborators, and also the

length of time for the project. Systematic reviews, even when done

expertly, can take an indeterminate amount of time, so to have monetary limitations on a project could be challenging. Additionally, some researchers may be working on more than one project, so to consider an application that would charge per project could also be prohibitive.

In contrast, Rayyan does require an investment in energy. It does not have a getting started template or “how to” section that is easily searchable. A set-up wizard could not be located, so an

inexperienced reviewer could be overwhelmed by what the next steps should be. As soon as a new review is created

, Rayyan immediately asks for files and/or citations to be uploaded. There

are guides available for each of the formats, which assist with appropriate fields and structures for uploading. Rayyan requires some intentional project planning before the

systematic review is actually created. For most that means working outside of Rayyan in a citation manager or spreadsheet for collecting data and planning, respectively.

Functionality

Upon log-in, and creating a new review, the researchers are prompted to upload a citation

dataset. Rayyan allows 6 different formats for uploading citations. These include

popular citation manager formats and commonly used databases and software: RIS (for EndNote and many other citation managers), BibTex, CSV, PubMed, and Web of Science’s CIW

. After uploading the citations, Rayyan then allows users to label with terms meaningful to their own projects. Researchers could tag with the collaborators names, to denote who is

reviewing what references. They may opt to label with reasons to include or exclude from the dataset. Tags can be predetermined at setup, or can be set up by the individual reviewers. Again, this requires a level of project planning prior to starting. Tags and any other labeling, for example

reasons for including or excluding, can only be removed by the collaborator that posed the labeling. That is, whatever tags were created early in the process cannot be removed as the dataset changes. This feature can be a hindrance to the overall use of the product, as at some point systematic teams may want to dig deeper into the literature, and create or reevaluate

existing labels but cannot. Additionally, Rayyan currently does not allow for any notes on the reviews. As a pre-planning task, teams should keep separate external detailed files with notes on the parameters and metadata affiliated with a project, because there is no feature to keep that kind of data with the project in the Rayyan platform.

Searching

Rayyan allows users to search the following fields of existing citation records: record ID, title, abstract, and author. In addition, the system has a “topic search” feature where users can construct searches for articles in PubMed, from within the Rayyan interface. The citations are automatically imported into the Rayyan review, with a limit of 1000 records per search. Currently Rayyan does not allow users to delete or modify individual citations, so the usefulness of this “topic search” feature is limited.

Collaboration

The owner, or individual who creates a review, can invite seemingly an unlimited number of other users by email to participate in a review as collaborators, viewers, or translators. All invited users must create a Rayyan account. Collaborators can perform most of the same functions as the review owner, with the exception of deleting the review, inviting others to participate, and deleting topic searches and file imports they did not execute. Viewers can see all of the information in a review but cannot make any decisions or other modifications. A translator is a viewer that can also translate article abstracts into other languages.

The Rayyan administrators currently recommend two different approaches to dividing work between review collaborators. One option is to divide the review into groups of records and use the “label” feature to distinguish between groups, and assign each collaborator specific labels to review. With this option, the “blind” mode cannot be turned on as labels are “per user” and can only be viewed, modified, or deleted by the user who created them. The other option is to divide the records into groups and create an independent review for each group. When all reviewing is complete, users can consolidate their independent reviews into one using the “copy” feature.

Additionally, Rayyan has a “review chat” feature that gives users of any role the ability to chat with others when they are simultaneously accessing the same review in Rayyan. Chatting can be done synchronously, or asynchronously, and stays with the application.

Support

Users can submit questions and feedback to Rayyan support, which operates Sunday-Thursday from 8:00 AM to 5:00 PM (Arabian Standard Time, GMT +03:00). Rayyan typically responds to messages sent during these hours within one business day. Also, Rayyan users can connect to a fairly new public platform called “Rayyan Social” to read FAQ’s, how-to-guides, and participate in discussions with other users. Lastly, Rayyan encourages users to help its administrators decide which improvements to implement next by voting on recommendations made by other users.

Recommendation

Rayyan is a useful tool for organizing and keeping track of citations in a systematic review or meta-analysis of literature. However, Rayyan is not an all-in-one tool that will store and help users track all of the components and decisions of their systematic review. As a no-cost tool, and considering the regular updates, it may become a one-stop tool in the future.

Nastasha Johnson

Assistant Professor

Purdue University Libraries

nejohnson@purdue.edu

Margaret Phillips

Assistant Professor

Purdue University Libraries

phill201@purdue.edu