



Research Elements: new article types by Elsevier to facilitate reproducibility in science

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When researchers start to make plans for new experiments, this is the beginning of a whole cycle of work, including experimental designs, tweaking of existing methods, developing protocols, writing code, collecting and processing experimental data, etc. A large part of this very useful information rarely gets published, which makes experiments difficult to reproduce. The same holds for experimental data, which is not always provided in a reusable format and lacks descriptive information. Furthermore, many types of data, such as a replication data, negative datasets or data from “intermediate experiments” often don’t get published because they have no place in a research journal.

To address this concern, Elsevier launched a series of peer-reviewed journal titles grouped under the umbrella of Research Elements (<https://www.elsevier.com/books-and-journals/research-elements>) that allow researchers to publish their data, software, materials and methods and other elements of the research cycle in a brief article format. To facilitate reproducibility, Research Elements have thoroughly thought out submission templates that include all necessary information and metadata as well as peer-review criteria defined per article type. Research Elements can be applicable to multiple research areas; for example, a number of multidisciplinary journals (Data in Brief, SoftwareX, MethodsX) welcome submissions from a large number of subject areas. At other times, these elements are better served within a single field; therefore, a number of domain-specific journals (e.g.: Genomics Data, Chemical Data Collections, Neurocomputing) support the new article formats, too. Upon publication, all Research Elements are assigned with persistent identifiers for direct citation and easy discoverability. Persistent identifiers are also used for interlinking Research Elements and relevant research papers published in traditional journals. Some Research Elements allow post-publication article updates.

In the presentation, we will share our experiences and summarize lessons learned during the last two years. We will focus on three types of novel research publications: data articles, software articles and lab resources. We will also present two very recent developments targeting researchers working in Earth and Observational Sciences. And finally, we will illustrate how Research Elements fit in the Research Data Management landscape of a rich variety of services developed at Elsevier to assist researchers in sharing, finding, accessing, linking together and analyzing relevant research data.