

Authorship

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According to the definition of the Finnish National Board on Research Integrity (TENK), an author of a scientific article refers to someone who has made such a substantial contribution to the creation of a scientific article or similar publication that they should be included in the list of authors and contributors.

In addition to individuals, a group or consortium can also be listed as a group author. The Council of Science Editors recommends that, in addition to the name of the group, the names of the group members involved should be included in the publication (Council of Science Editors, 2006). However, the adoption of this practice varies, as contributions made as part of a group appear in citation databases as personal outputs to varying degrees.

Author roles

Authorship of a scientific publication can consist of more than just writing. Depending on the field of science, the list of authors can include, for example, people who have contributed to the conceptualisation and planning of the research, the production, analysis or interpretation of the research data or the development of methods. (Finnish National Board on Research Integrity, 2019). Today, many scientific journals publish a specification of the role of each author with the article. Roles are often defined using the [Contributors Roles Taxonomy \(CRediT\)](#) classification.

However, the actual author roles are not yet available in the analysis tools based on citation databases. Instead, these tools allow the search results to be limited by the **order of the authors** (first or last author) or the **corresponding authors**. In this way, the publications where the author has been the leading or responsible author can be identified. However, when using this method, it is important to be aware of what field of science the publications belong to and what the [listing order of the authors in that field of science](#) indicates. In some fields of science, authors are listed in alphabetical order, regardless of the importance of their role.

The [corresponding author](#) refers to the person who has managed the interaction with the publisher and ensured that information flows between the publisher and the other authors. Sometimes the corresponding author has a leading role in the publication process, but not always. The corresponding author can also be selected for purely practical reasons. For example, the cost of open publishing has had a noticeable impact on the selection of a corresponding author. Sometimes it is the most economically viable option to have someone whose home organisation's publishing agreements allow open publishing at the lowest cost listed as the corresponding author. The corresponding author is distinguished from the guarantor, even though these terms are often used interchangeably. The guarantor refers to the author who takes main responsibility for the content of the whole publication (Finnish National Board on Research Integrity, 2019). Analysis tools do not offer the possibility to limit results by the guarantor.

Number of authors

The most common number of authors in a scientific article is 2–4 authors, according to a 2009–2018 survey based on Web of Science publication records. There were ten or fewer authors in almost 95% of the articles. However, a scientific article can have a significant number of authors – especially in fields where research is carried out in large research groups or where extensive cooperation is otherwise required, e.g. in funding research infrastructures or acquiring data. In recent years, there has been an increase in *hyper authorship*, i.e. articles with more than 100 authors. In particular, the proportion of articles with more than 1,000 authors has increased, although it still remains small overall. (Adams et al., 2019).

As the high number of authors may influence the number of [citations](#) the publication receives (especially when the authors come from different countries), there is a risk that **hyper authorship** articles may distort the results of analyses. This should be taken into account when analysing results, at the very least. The distorting effects can be mitigated by [fractionalising](#), which reduces the significance of publications in the overall context, and by using Top x% indicators, which are [less sensitive](#) to the influence of publications that have received very high numbers of citations. Indicators to normalise the number of background countries are also being developed for some analysis tools (InCites Collab-CNCI). If distorting effects are observed, one solution is to exclude articles by more than 100 authors from organisational and country-level analyses (Adams et al., 2019). However, this is not explicitly recommended, as these publications, too, belong to the subject under evaluation. The typical number of authors varies [by the field of science](#), and in some fields hyper authorship articles are very common and are part of a normal publishing practice. If it is decided to exclude publications on the basis of the number of authors, this can be done by using the filters in the analysis tools (InCites and SciVal).

Author identifiers

When drawing up publication metrics, it is essential that publications are recognised in the databases, on the one hand, as the outputs of its **authors** and, on the other hand, as the outputs of their **affiliations, or home organisations**.

Collecting individuals' publications by name only may lead to errors and deficiencies. The spelling forms of names vary: Depending on the journal, the full first name or just the first letter is used, special characters are used or not, authors may use their first name or a combination of its initials in a variety of ways or the name of the individual has changed during their scientific career. It can be almost impossible to distinguish between the publications of researchers with the same name on the basis of their names alone. Researcher identifiers make it easier to reliably identify an individual's publications. The most central identifier is **ORCID iD** (Open Researcher and Contributor Identifier), an international and persistent researcher identifier maintained by a non-profit community. ORCID iD is broadly used in the systems of research funders and publishers, among other applications. In Finland, ORCID iD will also be used in the administration of research profiles on the [Research.fi](#) website. The major citation databases allow you to search for a researcher's publications using ORCID iD.

Citation databases also have their own researcher identifiers. Some of these are automatically created based on the publication information ([Scopus Author Identifiers](#) and [Dimensions profiles](#)) and some are created by the researchers themselves ([Web of Science Researcher ID](#)). Information is imported into the profiles using, for example, ORCID iD, so by using their ORCID iD in the author information of their publication and keeping their ORCID profile up to date, researchers can also promote the accuracy of their publication information in their own profiles in the databases. The [Google Scholar](#) search engine has its own researcher profiles.

If the focus is on a researcher's publications affiliated in a specific research organisation, identifying the organisation will also make it easier to identify the individual's publications. Major citation databases support the unambiguous identification of research organisations. The profiles in the [Web of Science Organization-Enhanced](#) and [Scopus Institution Profiles](#) standardise the names of organisations and, for example, gather the publications of merged organisations under a single name. [Dimensions](#) uses the Research Organization Registry (ROR) identifiers to standardise the names of organisations.

Both the ORCID identifiers and the organisation profiles in databases require active maintenance from the owner. For both of these, it is common that some publications are missing or have been incorrectly attached. Therefore, the list of publications based on an identifier cannot be relied upon alone and should be produced in cooperation with the subject of the evaluation.

Sources

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