

Publication

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The Helsinki Term Bank for the Arts and Sciences defines publication as: "Printed matter, digital text, sound recording or audiovisual recording made available to the public, i.e. to an unrestricted or limited audience." The research management vocabulary defines publication more narrowly as a written research output published in a publication channel that conveys information about the research and its findings.

Traditionally, the focus of analysis in publication metrics is on printed and digital publications produced by formal communication, such as articles and books. Taking a broader perspective, however, a publication can also be the result of informal communication, such as a social media post or a published performance or lecture. However, the use of publication metrics in the analysis of these is not yet a standard practice.

Different publication databases have different methods of classifying publications. Different publication types are examined here on the basis of the Ministry of Education and Culture's 2021 publication type classification, since in Finland, the collection of publication data from higher education institutions is mainly based on this classification. However, the Ministry of Education and Culture's classification is not universal and other publication types may also be identified in other databases. The Finnish Ministry of Education and Culture's current classification will be replaced by a new [attribute-based data model](#) during 2022–2023. The new data model takes better account of publications outside the previous publication type classification. In the Ministry of Education and Culture's 2021 Publication data collection instructions for researchers, the publications are divided into six classes, as shown in Table 1.

	Class	Definition	Publication type
1	Scientific publications	Publications intended for promoting science and producing new information	A, B, C
2	Professional publications	Publications intended for disseminating research-based information for the use of a professional community	D
3	Popular publications	Publications that disseminate scientific and professional information to the surrounding society	E
4	Artistic publications	Performances or similar event-type public outputs resulting from artistic activities	F
5	Theses	Theses	G
6	Other	Other publications related to higher education research activities, such as patents and invention disclosures, and audiovisual publications and ICT applications	H, I

Table 1. Types of publications and their definitions in the Ministry of Education and Culture's publication data collection. Source: Publication data collection instructions for researchers, Ministry of Education and Culture 2021.

Scientific publications

Analyses using publication metrics tend to focus on scientific publications (Table 1, Class 1). Scientific publications are written presentations of the research findings of an individual researcher or a research group, typically published as an article in a journal, a conference series, as part of an edited book or as an independent monograph, [depending on the field of science](#). To be scientific, a publication must present new research findings in a form that can be accessed, evaluated, repeated and used by the scientific community. Original publication refers to a scientific publication that includes mainly unpublished material (Research management vocabulary).

Scientific publications are published on a scientific [publication channel](#) specialised in the publication of scientific research findings. [Peer review](#) is often an essential part of the process of publishing scientific publications. The main target group or audience for scientific publications is made up of experts in the field of science. On the other hand, the target audiences for scientific publications and professional publications may partially overlap. The research management vocabulary defines the most common publication types as follows:

- An article is a standalone publication on a specific topic to come out in the publication channel with at least one responsible author. In general, the most typical form of publication is an article in a scientific journal.
- A review article is an article based on previously published material that aims to synthesise a selected topic.
- An edited book is an edited book or special issue of a journal consisting of articles by different authors. Edited books can also be referred to as anthologies.
- Conference proceedings are a publication consisting of articles based on presentations given at the conference and accepted for publication. Regularly recurring scientific conferences are important scientific publication forums comparable to scientific journals, especially in the fields of engineering and computer sciences.
- A monograph is a single and independent scientific publication that can have one or several authors.
- A data article is an article published in the publication channel that describes a particular research dataset and the circumstances of its collection. This publication type is not distinguished as its own type in the Ministry of Education and Culture's publication type classification used in this text, but it is included in the newer version of the classification.

In the Ministry of Education and Culture's publication type classification (Table 2), categories A and C represent peer-reviewed scientific publications intended for promoting science and producing new information. Category B includes non-refereed scientific articles.

A	Peer-reviewed scientific articles	
	A1	Journal article – refereed
	A2	Review article in a scientific journal
	A3	Book chapter
	A4	Article in conference proceedings
B	Non-refereed scientific articles	
	B1	Journal article
	B2	Book chapter
	B3	Article in conference proceedings
C	Scientific books (monographs)	
	C1	Scientific book
	C2	Edited book

Table 2. Scientific publications in the Ministry of Education and Culture's publication type classification. Source: Publication data collection instructions for researchers, Ministry of Education and Culture 2021.

Professional publications

Professional publication (Table 1, Class 2) refers to a publication that disseminates information based on research and development for the use of the professional community. Although the main audience of professional publications is made up of people trained in the field who use the information in their practical work, the target audiences for scientific and professional publications may partially overlap. There are no established ways of defining what constitutes a professional publication, but they provide information to the professional community, they are publicly available and they have an editorial board that decides on their publication on a publication channel. Professional publications also include various studies and reports based on scientific research and development produced to support political or professional decision-making, typically commissioned and published by a public entity such as a ministry, an agency or a state research institute (Table 3, D4). Professional publications may also be subject to peer review practices. In the Ministry of Education and Culture's publication type classification, category D represents professional publications (Table 3).

D	Professional publications	
	D1	Article in a trade journal
	D2	Article in a professional research book (incl. an introduction by the editor)
	D3	Article in professional conference proceedings
	D4	Published development or research report or study
	D5	Text book, professional manual or guide or a dictionary
	D6	Edited professional book

Table 3. Professional publications in the Ministry of Education and Culture's publication type classification. Source: Publication data collection instructions for researchers, Ministry of Education and Culture 2021.

Popular publications

Popular publications (Table 1, Class 3) refer to publications that disseminate information based on research and development to the public and the content of which does not require specific knowledge of the field of science to be understood. Examples of popular publications include popular books and festschrifts, as well as articles for public debate in newspapers and popular magazines and on online platforms.

In some cases, the distinction between popular and professional publication channels is unclear. In principle, the distinction between popular and professional publications is made by the target audience of the publication channel or, alternatively, by the membership of the organisation publishing the publication channel or journal. If the target audience of the publication channel or the membership of the publishing organisation is not limited to a specific professional group, the publication channel's publications are classified as popular publications by default. In the Ministry of Education and Culture's publication type classification, category E represents popular publications (Table 4).

E	Publications intended for the general public	
E1	Popularised article, newspaper article	
E2	Popularised monograph	
E3	Edited popular book	

Table 4. Popular publications in the Ministry of Education and Culture's publication type classification. Source: Publication data collection instructions for researchers, Ministry of Education and Culture 2021.

Artistic publications

There are no established definitions for artistic publications (Table 1, Class 4). In the Ministry of Education and Culture's publication type classification, artistic publication refers to performances, works of art or similar public outputs resulting from artistic activities. An artistic publication must always exceed the threshold of originality defined in the copyright legislation. The Ministry of Education and Culture's Publication data collection instructions for researchers (2021) sets out publicity and authorship conditions that determine when artistic publications can be recognised as the result of higher education activities. In the Ministry of Education and Culture's publication type classification, category F represents artistic publications (Table 5).

F	Public artistic and design activities	
F1	Published independent work of art	
F2	Partial implementation of an artistic work	
F3	Artistic part of a non-artistic publication	

Table 5. Artistic publications in the Ministry of Education and Culture's publication type classification. Source: Publication data collection instructions for researchers, Ministry of Education and Culture 2021.

Theses

Theses (Table 1, Class 5) are written works required to be awarded higher education degrees. Typically, thesis refers to a thesis or dissertation in which the student at the final stage of their degree(s) applies the knowledge and methods of their discipline to the solution of the chosen research topic and has extensive knowledge of the theory and previous knowledge (Research management vocabulary). A dissertation is a part of the doctoral degree and its thesis that is publicly defended. Dissertations may be published either as a monograph or as an article-based dissertation, consisting of scientific articles on the same theme, already published or submitted for publication, and a summary section. In the Ministry of Education and Culture's publication type classification, category G represents theses (Table 6).

G	Theses	
G1	Polytechnic thesis, Bachelor's thesis	
G2	Master's thesis, polytechnic Master's thesis	
G3	Licentiate thesis	
G4	Doctoral dissertation (monograph)	
G5	Doctoral dissertation (articles)	

Table 6. Theses in the Ministry of Education and Culture's publication type classification. Source: Publication data collection instructions for researchers, Ministry of Education and Culture 2021.

Patents, invention disclosures and audiovisual publications and ICT applications

Class 6 (Table 1) includes patents, invention disclosures and publications other than written or artistic publications, such as publications using sound and/or image and ICT applications. These publications are the publications and applications made public as a result of voluntary higher education research and development activities. Voluntary research and development activities can also include collaborative research or projects with a third party. The Ministry of Education and Culture's Publication data collection instructions for researchers (2021) sets out publicity and authorship conditions that determine when publications and applications can be recognised as the result of activities. In the Ministry of Education and Culture's publication type classification, categories H and I represent the publications described above (Table 7)

H	Patents and innovation announcements	
H1	Granted patent	
H2	Invention disclosures	

I	Audiovisual publications and ICT applications	
I1	Audiovisual publications	
I2	Information and communication technology program or software applications	

Table 7. Audiovisual publications and ICT applications in the Ministry of Education and Culture's publication type classification. Source: Publication data collection instructions for researchers, Ministry of Education and Culture 2021.

Sources

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