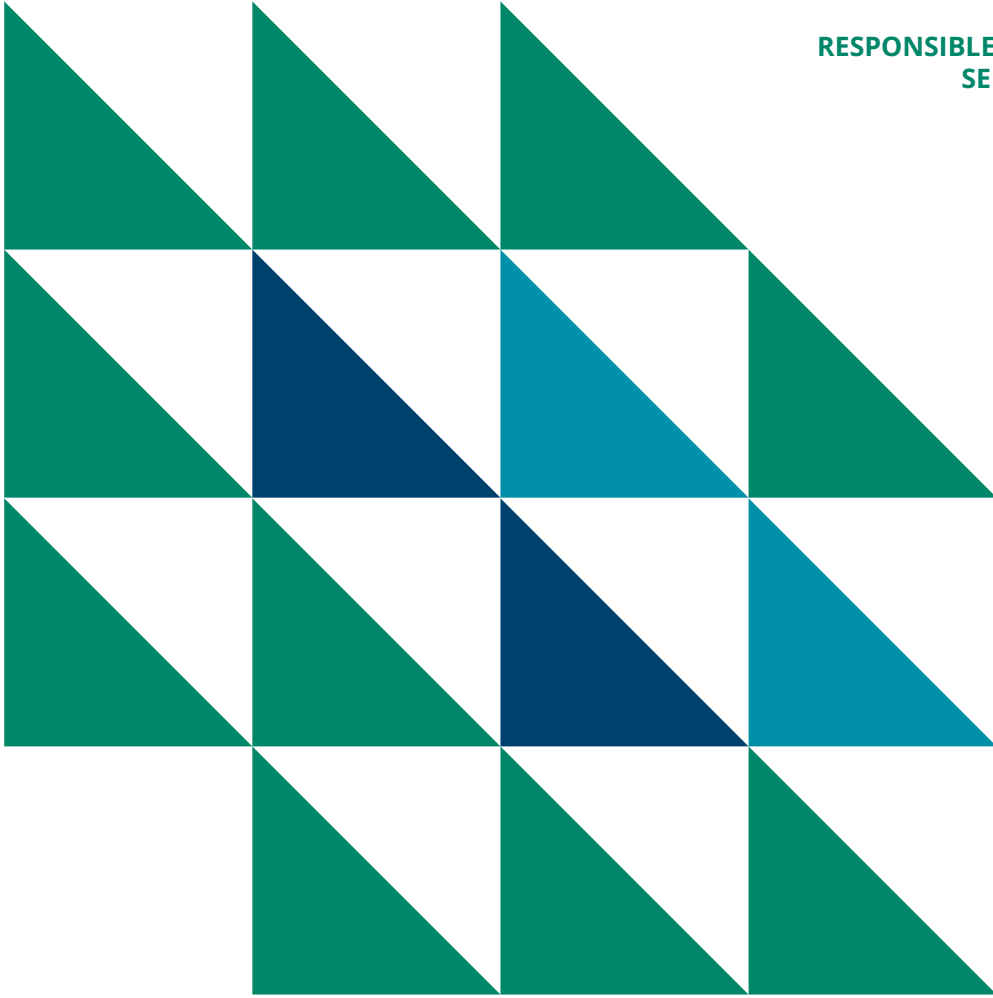# RECOMMENDATIONS
FOR OPEN EDUCATION

RESPONSIBLE RESEARCH SERIES

Responsible Research Series publishes declarations, policies, studies, recommendations and other documents relating to the openness, responsibility and accessibility of science and research. Publications also cover science communication and science-society interactions. The publication series is not a scientific peer-reviewed publication. The series is published by the Committee for Public Information (TJNK) and the Federation of Finnish Learned Societies (TSV).

Recommendations for open education

CONTENTS

PREFACE

IN THE INTRODUCTION to the Policy for Open Education and Educational Resources[1], plans were outlined to provide national recommendations that would clarify the details of the policy. These were intended to assist organisations in implementing the policy actions, and offer teachers and other individuals involved in education valuable tips for promoting open education, as well as for creating and utilising open educational resources. This publication contains the recommendations that have been completed so far.

The recommendations have been organised based on the principles or policy components they relate to. Although each of the recommendations is an independent work, they contain many references to one other.

The recommendations will be updated during the updating of *the Policy for Open Education and Educational Resources*. The updated versions of the recommendations and any new recommendations published later will be published in future editions of this publication.

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1   Open education and educational resources. National policy and executive plan by the higher education and research community for 2021–2025. Policy components 1 (Open access to educational resources) and 2 (Open educational practices). The Responsible Research series 16:2022. https://doi.org/10.23847/tsv.419.

QUALITY CRITERIA FOR OPEN EDUCATION

THIS RECOMMENDATION SPECIFIES the first principle of *the Policy for Open Education and Educational Resources,* according to which education and the content of the open educational resources created in conjunction with education are assessed for reliability and other quality factors alongside openness.

PART 1. QUALITY CRITERIA FOR OPEN EDUCATIONAL RESOURCES

These guidelines support the examination of the quality of open educational resources from the perspective of openness. The quality criteria presented in the form of a checklist are intended as assistance to authors and users of open educational resources and the organisations behind them. The quality criteria will:

- help authors create resources of a higher quality from the perspective of openness;

- help users in quality assessment as they are reviewing open educational resources;

- give the background organisations a tool they can use for facilitating the preparation and evaluation of open educational resources as part of other guidelines and instructions provided by the organisation.

The guidelines support the first principle of the national policy on open education and open educational resources, according to which, the education and open educational resources developed with it should be assessed not only for their openness, but also for quality.

The guidelines define five different quality criteria for open educational resources and more detailed quality dimensions for each of them. The criteria are:

- **Content**. The content of high-quality open educational resources is reliable.

- **Learning and teaching methods**. High-quality open educational resources enable the use of diverse ways to learn and teach.

- **Usability and accessibility.** High-quality open educational resources are as easy to use as possible for everyone and in any situation.

- **Findability and sharing.** High-quality open educational resources are easy to find, and the users know under which terms and conditions they can share them.

- **Lifecycle and adaptability.** High-quality open educational resources are maintained and updated on a regular basis. In addition, other open resources and co-development practices are used in the production of the materials.Lisäksi materiaalin tekemisessä hyödynnetään muita avoimia materiaaleja ja yhteiskehittämisen käytäntöjä.

Under each criterion, the quality dimensions have been arranged according to different levels – a check in the box indicates that the element applies to open educational resources of this level. The first-level quality dimensions describe basic characteristics that all open educational resources should have. The second-level quality dimensions describe more advanced open educational resources in terms of quality and the third-level quality dimensions apply to highly advanced open educational resources.

The guidelines are based on the international TIPS Quality Assurance Framework for open educational resources.[2] The guidelines focus on quality dimensions of particular importance for openness. General instructions on the quality of online implementations and related materials can be found, for example, in eAMK Quality criteria for online implementations.[3]

When preparing and using open educational resources, it is a good idea to get acquainted with the G*uidebook on accessibility of open educational resources* and *The recommendation on copyright issues to be taken into consideration in the open publication of educational resources.* It should also be noted that open educational resources should only prepared and used in accordance with the Responsible conduct of research guidelines[4] of the Finnish National Board on Research Integrity TENK. For how to observe open educational resources in gaining merit, see *Recommendation on gaining merit in open education and open educational resources*.

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2   https://www.cemca.org/ckfinder/userfiles/files/OERQ_TIPS_978-81-88770-07-6.pdf.
3   https://www.eamk.fi/fi/campusonline/laatukriteerit/.
4   https://tenk.fi/fi/ohjeet-ja-aineistot/HTK-ohje-2012.

Table on quality criteria for open educational resources				
Quality criterion	**Quality dimensions**	**Basic level**	**Advanced level**	**Highly advanced level**
CONTENT	Educational resources are based on research-based knowledge and meet the sector-specific quality criteria.	X	X	X
	Copyrights have been taken into account when preparing the educational resources.	X	X	X
	The sources used have been mentioned in the educational resources.	X	X	X
	The educational resources provide tips and links to supplementing material.		X	X
	For the most part, the sources of the educational resources are openly available.			X
	The educational resources have been peer-reviewed.			X
LEARNING AND TEACHING METHODS	The educational resources describe their learning objectives.	X	X	X
	The educational resources and their components can be used in a variety of teaching situations and educational resources.	X	X	X
	The educational resources suggest what kind of methods can be used for assessing learning.		X	X
	The educational resources are suited for a diversity of learners and different learning situations.		X	X
	The educational resources contain participatory content.		X	X

Table on quality criteria for open educational resources				
USABILITY AND ACCESSIBILITY	The educational resources are accessible (see *Guidelines on the accessibility of open educational resources*).	X	X	X
	The educational resources contain necessary instructions for using them.	X	X	X
	The educational resources have been adapted to meet the needs of the target group.	X	X	X
	The educational resources are printable and available offline.		X	X
	The educational resources can be adapted to different use situations.		X	X
	The educational resources are suited for mobile use.			X
	The technical limitations of the educational resources have been specified.			X
FINDABILITY AND SHARING	The educational resources have been published on an open platform that enables findability of the educational resources.	X	X	X
	The educational resources describe how they can be linked to existing study modules or curricula.	X	X	X
	The educational resources and their metadata bear the marking of an open access licence.	X	X	X
	The educational resources are described as comprehensively as possible in the national Library of Open Educational Resources.		X	X
	The educational resources describe for what kind of use situations they were originally prepared.		X	X
	Open file formats have been favoured in the sharing of the educational resources, enabling their further use.		X	X

Table on quality criteria for open educational resources				
	The educational resources contain information on potential affiliations and author identifiers.			X
	Open-source software was used for preparing the educational resources.			X
LIFECYCLE AND ADAPTABILITY	The authors of the contents used in the educational resources are clearly indicated and separated from each other.	X	X	X
	The educational resources indicate the update cycle or a time when the content is no longer up to date or should be checked.		X	X
	Open materials were used when preparing the educational resources.		X	X
	The educational resources describe how to give feedback on them and suggest improvements to them.		X	X
	The use of educational resources and feedback received are monitored.			X
	The files needed for editing the educational resources have been shared alongside the resources (e.g., caption files of videos for translation purposes).			X

PART 2: QUALITY RECOMMENDATION FOR OPEN EDUCATIONAL PRACTICES

Introduction

Open educational practices (OEP) refer to ways of making learning and education transparent, shareable and adaptable. Such practices include open educational resources as part of learning and teaching, opening up ways in which teaching is planned and provided, making a wider range of education open, and co-creating education with teaching and research staff, students and the wider society.

Open educational practices already exist in the daily operations of organisations. The purpose of the quality recommendation is to promote this trend and make practices increasingly open. The recommendation is intended to help organisations, teachers and learners. It stresses the importance of the active role of various operators in the implementation of open educational practices. When it comes to teachers and learners, their ability to advance the use of open educational practices at different stages of the learning process through their actions is emphasised.

Organisations are responsible for ensuring the necessary resources and support for the implementation of these practices, so that teachers can provide education and use the related educational practices in an open and high-quality manner, engaging learners. For the organisation, the recommendation describes items derived from the policy that are central in the high-quality adoption of open educational practices.

When it comes to teachers and learners, quality is assessed using the table below, according to the processes of learning and teaching, as well as four other dimensions: responsibility, accessibility, equality and a culture of sharing. This recommendation focuses specifically on the quality aspects of open education.

The Policy for Open Education and Educational Resources and the national e-learning quality criteria created in the Digivisio 2030 programme were used as background and support material for this recommendation.

Organisation's role in quality

High-quality open educational practices are based on a culture of open scholarship in an organisation, which facilitates open education and the functioning operation of teachers and learners, in accordance with the principles of openness. The organisation is responsible for harmonising different practices pertaining to openness and taking them to grass-roots level. The following describes things that an organisation must take into account in order to promote high-quality open education.

- The organisation must incorporate the high-quality openness of education into its existing accessibility, equality and accountability policies and guidelines.

- The organisation must allocate sufficient resources for the implementation of open educational practices and allow working hours to be used for the promotion of open education.

- The organisation must ensure that its support services posses sufficient skill to promote the implementation of open educational practices.

- The organisation must support the support services' coordination and internal cooperation.

- The organisation must provide training and guidance on open educational practices, so that the higher education community is able to take data protection, copyright and other similar laws, regulations and guidelines into account.

- In the procurement of digital education services, the organisation must factor in the availability of high-quality open educational practices (e.g. open content sharing, co-creation across organisational boundaries, etc.), favouring and creating mutually compatible open systems and open-source software.

- The organisation must take into account high-quality open educational practices in career paths, recruitment and other merit building.

- The organisation must encourage open education experts to network across organisational boundaries, and to share and co-create quality open educational practices.

Teacher's role in quality

This table illustrates open educational practices from a teacher's perspective. The table is intended for teachers to reflect on their work and improve the openness of educational practices, as well as for organisations to understand which elements they ought to facilitate.

Through their actions, teachers enable learners to participate and use open educational practices in a high-quality manner in their own activities. Teachers are supported by a background organisation, which establishes uniform practices, and provides resources and tools to support the successful implementation of open educational practices.

The table examines the teaching process (planning, implementation, evaluation, further use) from the perspective of open educational practices through four dimensions related to open education: responsibility, accessibility, equality and a culture of sharing.

Learning process from the standpoint of open education and educational practices				
Teacher's	**Planning**	**Implementation**	**Evaluation**	**Further**
RESPONSIBILITY	• Takes responsibility for the planning and development of education, and enables learners to participate in these as openly as possible.	• Ensures the responsibility of and open access to education content, and the provision of education.	• Is responsible for the transparency of evaluation. • Provides guidance and facilitates the learners' self-assessment and peer reviews.	• Enables learners and colleagues to further use education content and educational practices, and actively develops them. • Looks after the copyright and licensing of their own material and the material they use.
ACCESSIBILITY	• Takes accessibility laws and recommendations into a ccount. • Uses accessible (educational) resources that are open to all.	• Complies with accessibility laws and recommendations. • Offers a wide range of implementation options with support from the organisation. • Guides and supports learners in the accessibility of open educational practices.	• Provides evaluation criteria in an accessible form.	• Ensures the accessibility of practices and materials that are to be used further. • Shares their experiences in achieving accessibility.
EQUALITY	• Takes the learning and participation of a wide range of target groups into account in planning. • Uses (educational) resources open to all and, where necessary, modifies material according to a target group. • Utilises feedback and provides it in return on an equal basis.	• Offers various implementation methods for a variety of target groups.	• Ensures that the evaluation criteria are fair and transparent.	• Enables practices and materials to be adapted to the needs of various target groups.
CULTURE OF SHARING	• Clearly specifies the level of openness, for example in the learning environment. • Engages learners in planning. • Utilises co-creation when planning education.	• Provides education and guidance through methods that allow learners to have an active role. • Encourages and instructs learners to share their output.	• Facilitates peer reviews and co-assessment.	• Shares their own educational practices in a findable and engaging form.

Learner's role in quality

This table illustrates open educational practices from a learner's perspective. For the purposes of this recommendation, a learner refers to a person who participates in education, or utilises open educational resources or other open education. A learner is seen here as an active agent who promotes the use of high-quality open educational practices through their own actions. The table illustrates the ideal level but must, in practice, be adapted according to the diversity of learners. The active agency of a learner is promoted by the teacher, the education and guidance received, as well as the ability to act according to the principles of openness.

When assessing the role of a learner in the level of quality achieved in openness, the focus is on learning. A learner plans their learning process by making use of open education opportunities, such as open educational practices (e.g. by using open educational resources as support in independent study). They recognise and assess their own skills, and seek openly shared evaluation criteria to support their learning. Furthermore, the learner openly shares their skills acquired through learning with other learners, among others.

The table examines the learning process (planning, implementation, evaluation, further use) from the perspective of open educational practices through four dimensions related to open education: responsibility, accessibility, equality and a culture of sharing.

Learning process from the standpoint of open education and educational practices				
Learner's	**Planning a learning process**	**Completing a learning process**	**Skill evaluation**	**Further use of skills**
RESPONSIBILITY	• Seeks and recommends reliable open educational resources and online courses.	• Takes advantage of open educational resources in independent study.	• Evaluates their own skills and those of others.	• Takes part in developing open education. • Is familiar with the laws, principles and recommendations concerning the use of materials. • Understands what personal information regarding education is available and how it can be utilised.
ACCESSIBILITY	• Knows their rights in relation to accessibility. • Is able to assess the suitability of various approaches or materials for themselves. • Seeks and recommends accessible open educational resources and online courses.	• Chooses an implementation method suitable for themselves.	• Requests the evaluation criteria in an accessible form. • Provides feedback on accessibility.	• Shares what they have learnt and their learning output in an accessible form.
EQUALITY	• Seeks and recommends open educational resources and online courses suitable for a variety of learning styles.	• Takes other education participants into account, for example in open learning environments.	• Provides constructive feedback, taking the recipient into account.	• Shares what they have learnt and their learning output in an adaptable form.
CULTURE OF SHARING	• Seeks and recommends previous learning output.	• Utilises peer learning as part of their learning process. • Shares the good practices of their learning process.	• Utilises peer reviews as part of their skill development.	• Is able to share their learning output and use the learning output of others, while respecting copyrights and utilising open licences.

RECOMMENDATION ON COPYRIGHT ISSUES TO BE TAKEN INTO CONSIDERATION IN THE OPEN PUBLICATION OF EDUCATIONAL RESOURCES

THIS RECOMMENDATION clarifies the second principle of the policy for openness of education and educational resources, which asks to respect copyright and other relevant rights in the development and use of open education and open educational resources. The purpose of the recommendation is to highlight best practices that will help in the application of the principle.

IMPORTANT FUNDAMENTAL ELEMENTS

Copyright protection is given to any work that exceeds the so-called **threshold of originality**. The threshold of originality is exceeded if the work is an independent and original result of the author's intellectual creation. Copyright is given to the author of the work.

Photographs, performances of works (such as lectures), sound and video recordings, catalogues, databases and TV and radio signals are protected by related rights. In addition to related rights, all of these can also have a copyright if they exceed the threshold of originality. In such cases, the related right and any copyright shall be conferred on the producer, which may be an educational establishment.

The names of authors must be stated in accordance with the Copyright Act and the open licence. Consent must be obtained for the use of the images of persons.

PERSPECTIVE OF THE AUTHOR OF THE OPEN EDUCATIONAL RESOURCE

Plan the opening

Plan the opening of the educational resources in advance:

- where,
- how and
- on what terms of use

the educational resource or part of it will be opened.

Take these matters into account, among others:

- **You can only open material for which you are an author or which you have received for your use with a licence that allows use to the extent equalling the licence you select for the material to be opened.** For example, if you plan to open your material with a CC BY license and use the other material as an illustration, the images of your material must be licensed with a CC BY license.

- **The author decides on the opening of the educational resource with a licence.** The author is also entitled to transfer the copyright to his/her employer organisation, unless the rights have been separately agreed on before the educational resource is drafted.

- **If the educational resource has more than one author, consent from all authors is required to open the educational resource.**

- **Submit the author and source information that are the prerequisite for the permit of use.** For example, it is a good idea to indicate in each CC BY licensed image how the author and source information of the image should be disclosed.

- **You must ask the students for a permission to use the materials they have created, such as texts or images.**

  - Ask if the student wants to be mentioned as the author of their text or images. If a student does not want to be mentioned as an author but is authorised to use the material anonymously, remove the names and any other personal data of the student.

  - If photos have been taken of a student, note that the student's photo, video or sound recording is the student's personal data and in order to process it you need a basis for processing it, such as the student's consent.

- **Minimise the processing of personal data.** Avoid using personal data if it is possible to implement the educational resource without personal data. If you are processing personal data, ensure that the data subject is informed and that you have the legal basis for processing it. If the processing is based on consent, you can provide the information required by Article 12 of the GDPR on the consent form, such as:

  - purpose of processing the personal data;
  - period for which the data are stored;
  - potential subsequent use of the data;
  - where the data may be disclosed;
  - who is the controller.

Opening with the use of open licences

Explain under what terms and conditions the material can be used. A good way to do this is to add a Creative Commons (CC) licence to the material. The use of the Creative Commons licence makes it easier to make extensive use of educational resources and to give merits to the authors. The software should also be licensed with corresponding open source licenses.

CC licences give users the right to use the material. Some licences are more permissive, and some are more stringent: for example, commercial use may be prohibited or authorised and processing may be prohibited or authorised. The authors of the educational resource can use a licence to determine the terms of use.

See https://creativecommons.org/about/cclicenses/ and https://creativecommons.org/share-your-work/public-domain/free-works/

The author of the educational resource decides which CC licence to license the resource with. Open CC licences include:

- **CC BY (Attribution):** The author authorises others to copy, distribute, display and perform their work and the modified version thereof, provided that the author and the licence of the work are referred to in a linkage and any changes are clearly stated. The modified versions must not infringe on the specific nature of the original author's work.

- **CC BY-SA (Attribution) and (Share-Alike):** The author authorises others to copy, distribute, display and perform their work and the modified version thereof, provided that the author and the licence of the work are referred to in a linkage and any changes are clearly stated. If the editor publishes the modified version, it must be published under the same license. The modified versions must not infringe on the specific nature of the original author's work.

CC licences also include licences restricting the further use of the work. The Non-Commercial (NC) condition excludes the commercial use of a work, including use in commercial training situations. The No Derivative Works (ND) condition, on the other hand, prevents making modified versions of the work. The materials licensed under the limited licenses are not considered open educational resources in which the user is, by definition, always entitled to copy, distribute, display and perform the material and modified versions made of it. Even when publishing educational resources with more limited access, CC licenses are often the most convenient way to indicate what kind of rights the user has for using the material.

There are many good reasons to use a CC licence, which gives others the right to modify the material:

- The permission to modify makes it easier, for example, to adjust the material with another type of study module or course;
- The permission to modify allows the material to be translated into another language, which increases its international use;
- The permission to modify allows video recordings to be subtitled and text to be converted into voice recordings, which makes them more easily accessible;

If the author of the educational resource decides to transfer all or part of the copyright to the employer organisation, the opening of the material under the Creative Commons licence can be agreed upon at the same time. If the employer is granted a parallel copyright, the author may also independently decide to publish their material by using the CC licences.

Collaborative educational resources

If the educational resource has more than one author, consent from all authors is required to open the educational resource.

Agreement between teachers: At the very beginning of the work, it is a good idea to consider how to agree on the rights in such a way that they are as appropriate as possible for each party involved in drawing up the material. One option is to agree on parallel copyrights - agreeing on the rights as a whole may better support individual use by everyone involved. If no right to modify has been agreed upon, there is no right but to modify and use one's own contribution separately from the output of the others. If teachers agree on open licensing of the material with a CC BY-SA licence, for example, they will also gain the right to modify the entire material.

ORGANISATIONAL PERSPECTIVE

Agreeing on cooperation between organisations

It is worth agreeing in advance on the open publishing of the educational resource and where the open educational resource is published (on which websites, for example). Open publishing of jointly produced educational resources always requires the consent of all authors.

Copyright in a text or image is afforded to the individual teacher who wrote the text or took the photos. An organisation may agree on copyright only if it has first been transferred the copyright or at least the right to use the material and the right to grant licences to the material to a third party. If the material is CC licensed, transfer of rights to an organisation is not necessary.

The organisation also needs the right to modify the material in order to update the educational resources, which is ensured by a CC licence granting the necessary rights, for example. Such modifications must not infringe on the specific nature of the work of the original author and shall be clearly stated. In addition, the original author must always be stated.

When organisations produce educational resources jointly, the following must be taken into account in the planning:

- If such material is jointly prepared from which independent, copyright-protected parts of the output of different authors cannot be separated, it is important to agree on the rights to a jointly prepared work. Open publishing of jointly prepared educational resources always requires the consent of all authors.

- If each author creates an independent, copyright-protected component that is distinguishable from the whole, at least sufficient rights of use are required from the author of each component in relation to the terms of opening the agreed educational resource in order for the component to be used for the intended purpose.

- The opening of educational resources should be separately agreed upon for each project. Opening the educational resources guarantees the employer the necessary access rights to them, which is why agreeing on copyrights in employment contracts is not necessary in this case.

- In projects where open educational resources are prepared, consideration should be given to whether the authors use CC licences to open the material or whether there is any need to transfer the rights from the author(s) to the organisation. When the intention is to produce open material, transfer of rights to an organisation is not necessary.

- In projects that have received external funding, it is especially important to ensure that all those who have prepared some material for the project have licensed their work with a CC licence granting the necessary rights, or that the rights to the results have been transferred to the organisation receiving the funding. This applies to employees, visitors, students and, for example, participants in workshops. If the copyright is not transferred, a sufficiently extensive licence is required for all those who have prepared some material so that it can be used for the intended purpose.

Principles of agreement:

If there are several organisations involved in the project, the organisations shall agree on the use of the project results and on the ownership and use of intellectual property rights. Each organisation is obliged to agree with its own employees, students and any contractors, volunteers, etc. how the necessary rights will be transferred to the organisation to such an extent that the contractual obligations agreed on between the organisations can be fulfilled. In addition, the following must be agreed on:

- rights to modify and update jointly produced material and the responsibilities thereto;
- terms and conditions under which the materials are published.

It is also possible to use a CC licence for materials jointly produced by organisations. The agreement will specify who will open the material, how the authors will be displayed and what kind of CC licence will be used.

Agreement between organisations may only take place if the educational resources have been CC licensed or if sufficient rights to the resources have otherwise been granted to the organisation:

It is worth agreeing between the teacher and the employer organisation already at the planning stage:

- Whether the organisation will receive access rights only or other rights as well;
- What purpose the material will be used for;
- If the rights are to be transferred, for how long will they be transferred;
- What will be agreed on potential commercial use in continuing education, for example;
- What will be agreed on the distribution and further transfer of the material;
- Who has the right to modify the material.

Cooperation agreement between universities on open educational resources

The cooperation agreement should include agreement on:

- Purpose, objectives and methods of implementation of the cooperation;
- Terms and conditions of educational resources;
- Potential joint study modules:
  - how to implement joint study modules;
  - who is responsible for their execution
  - how many times will the study module be carried out and how often (frequency).

Furthermore, it should be agreed in the contract who has the right to results if something new arises in the process of producing the educational resources. For example, new inventions and trademarks form part of other intellectual property rights, whereas Creative Commons licences only apply to copyright. Unless otherwise agreed, co-ownership means that the use of results is agreed upon together.

It would also be good to agree on modification and updating rights of the materials:

- Who can modify or update?
- Who is responsible for keeping the material up to date?
- Does modifying the material require the approval of another organisation or another party?
- Who has the right to use the updated or modified material?

STUDENT PERSPECTIVE

In student works, the copyright belongs to the student. As with other authors of educational resources, the ownership of the educational resources must also be agreed with the student if, with regard to the content created by the student, the threshold of originality is exceeded.

A student may transfer the ownership to the higher education institution. It is best to make an agreement at the planning stage and no later than at the beginning of the course or study project. The students must be made aware of the nature of the course and the contractual basis for intellectual property rights already when they register for the course. In any case, it is important that the contract be concluded before the material is drawn up, as the student also has the right to prevent the use and opening of the material compiled by them. If several students have prepared material together, an agreement on the use of the material is needed from each student. It is also worth noting that a student's participation in a course where they prepare material must not require the transfer of copyright.

A student may also use the CC licence for his/her material, unless otherwise agreed by agreement.

A student as an author must be reported in accordance with good practice when the student's share is evident in the educational resource. The rights to modify and update and the responsibilities thereto shall be agreed with the student, as with other authors of the material.

RECOMMENDATION ON THE ACCESSIBILITY OF OPEN EDUCATION

THIS RECOMMENDATION SUPPORTS the third principle of *the Policy for Open Education and Educational Resources*, which states that accessibility must be ensured when developing open education and open educational resources. The purpose of the recommendation is to highlight good practices that help with the practical application of the principle.

PART 1: GUIDELINES ON THE ACCESSIBILITY OF OPEN EDUCATIONAL RESOURCES

What does accessibility mean?

Accessibility means that as many people as possible can use online services as easily as possible. It also means that accessibility has been taken into account in the planning and implementation of the services.

Accessible open educational resources support the equality and inclusion of learners. The contents of accessible open educational resources are understandable, and the materials are technically easy to use both on the website and on mobile applications. Technical usability also covers the readability of resources with the help of assistive technologies. Physical accessibility has been taken into account by ensuring the accessibility of facilities and environment.

Accessible content is useful for a large number of people. Accessibility benefits especially those with a diagnosed disability or functional defect. In the Finnish Student Health Survey, many respondents mentioned difficulties with reading, writing and concentration that can be facilitated with accessible educational resources (Finnish Student Health Survey 2016).[5]

People with temporary limitations, such as an illness, injury or disruptive environmental factors, benefit from the provision of educational contents in various formats, such as videos with captions. The educational resources need to be accessible to accommodate learners with limited language proficiency or poor IT skills.

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5   https://1285112865.rsc.cdn77.org/app/uploads/2020/01/KOTT_2016-1.pdf.

Areas of accessibility

Accessibility can be examined from the perspective of technical implementation, ease of use, and clarity and comprehensibility of content. When an online service is **technically well implemented**, i.e., compliant with the HTML standard and WCAG guidelines, it uses error-free and logical source code. Technically well implemented service operates on a wide range of terminals and with various assistive technologies, such as voice control or screen readers.

Ease of use means:

- the online service has a clear user interface
- the system entity is easy to conceive
- navigation is clear
- the page, function or content one is looking for is easy to find.

Therefore, in practice, the main content of the educational resources must be easy to distinguish from other elements. Attention should also be paid to how the users navigate in digital learning environments and how the resources are named, so that it is easy for everyone to study using them. It must also be possible to use them independently.

The comprehensibility of content is an essential part of an accessible online service and it enables learning. Comprehensibility derives from clear language and logically proceeding entities. Different learners have different ways by which they perceive and understand information presented to them, so providing content in ways that can be observed through various senses promotes individual learning. The provision of resources in alternative ways is particularly useful for students with sensory impairments or learning difficulties or with a mother tongue other than Finnish.

Accessibility regulations

The Act on the Provision of Digital Services (306/2019)[6] defines the minimum requirement level for accessibility (AA) of online services based on the Web Content Accessibility Guidelines (WCAG) 2.1 standards. The act is based on the European Union Directive (2016/2102) on the accessibility of the websites and mobile applications of public sector bodies that entered into force on 22 December 2016. According to the directive, all digital services and 'published content' should be accessible. In Finland, the supervisory authority for compliance with the law is the Regional State Administrative Agency for Southern Finland. The Act applies to organisations operating in the role of a public authority (e.g., universities, universities of applied sciences, local authorities). In

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6   https://www.finlex.fi/fi/laki/alkup/2019/20190306.

addition to public authorities, accessibility requirements apply to bodies governed by public law; organisations and services whose activities are supported by public funds; and some private sector service providers (banks, insurance companies).

The online services and content published online by public authorities and governed by public law must meet the accessibility requirements. The requirements apply to all content published online, including text, images, videos and different kinds of files. The law applies retroactively to files shared or presented online only in part: videos and audio files published earlier than 23 September 2020 and document files published earlier than 23 September 2018 are not covered by the law.

The Act does not need to be applied to education provided under the Universities Act or the Universities of Applied Sciences Act when a website or mobile application is created in connection with teaching and its use takes place in a closed group for a fixed period of time. Furthermore, the accessibility requirements of the Act do not apply to live video broadcasts.

Every organisation subject to the legal accessibility requirements under the Act shall make an accessibility statement on their websites and mobile applications and publish it on their website. The statement[7] should specify any deviations from accessibility requirements (e.g., accessibility gaps on websites or in Microsoft Office documents) and inform about the possibility to give feedback on accessibility.

At best, how accessible open educational resources and learning environments are from the learner's perspective?

Accessibility is for everyone as it makes it easier and smoother for everyone to use educational resources and learning environments. People almost inevitably encounter situations in which they benefit from the various elements of accessibility – for example, sufficient contrast used in the educational resources helps if the user tries to read the material in bright sunlight.

At best, open educational resources and learning environments reflect the application of the Design for All principle. In accordance with this principle, as a rule, the educational resources and learning environments try to accommodate diverse groups of learners and use situations, which contributes to the equality and social inclusion of learners.[8]

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7   https://www.saavutettavuusvaatimukset.fi/digipalvelulain-vaatimukset/tietoa-saavutettavuusse-
     losteesta/.

8   http://designforall.org/.

From the perspective of those using accessible open educational resources or learning environments, the Design for All principle is helpful in the following ways:

1. **Everyone has equal opportunities and access to the educational resources and learning environments.** Equal opportunities and access are ensured when preparing educational resources and learning environments. Equal opportunities and access include taking into account different hardware environments and network connections, and the varying language proficiency of learners. When properly realised, equal opportunities and access also prevent the stigmatisation of learners or groups of learners.

2. **The educational resources and learning environments can be used flexibly**. It is possible for learners to adapt the educational resources or learning environment to their specific needs and devices and software available to them with various individual settings and features. At best, the same resources may even contain alternative sections suited for different ways of learning, for example.

3. **The educational resources and learning environments are easy to use.** The educational resources or learning environments are not too complex, but learners know how to use them regardless of their previous experience, skills, linguistic competence, level of concentration or devices and software available to them.

4. **The possibilities of using or understanding the educational resources and the learning environment in a wrong way have been prevented.** When learners do not need to spend time reading error messages, they can focus on the content of the educational resources or learning environment. Accessible educational resources prevent potential misunderstandings, which means that the learners can be sure that they have internalised the content of the material in the right way.

5. **The educational resources and learning environment encourage people to learn more.** Accessible educational resources and learning environments generate good learning experiences and do not discourage the learner.

6. **Openness disseminates good accessibility practices.** If the educational resources or learning environments are open, the good examples provided by them can be used as models for developing them further. In this way, good accessibility practices applied to educational resources and learning environments spread rapidly to wider circles, which also helps learners.

What to do if learners notice shortcomings in the accessibility of educational resources?

The user experience alone may be indicative of insufficient accessibility of educational resources. For example, learners may notice that the educational resources cannot be used without a mouse or that a video shared by the teacher lacks captions. In some cases, learners can also evaluate the accessibility of educational resources using the same tools as the authors of the material, for example, when checking the colour contrast.

First, learners should give feedback on shortcomings in the accessibility of open educational resources to the author of the material or the teacher who used it in their teaching. If the author or teacher works in a higher education institution or other organisation subject to accessibility requirements, they are obligated to respond to the feedback and provide the educational resources in a format suitable for the user. Even if the accessibility requirements do not apply directly to the author, feedback gives them the opportunity to improve their educational resources.

If the author of the educational resources or the teacher who used them does not respond to the feedback or does not offer replacing educational resources, even if they should under the law, learners should contact the organisation behind the author or teacher. The background organisation should have either an online form or an email address for accessibility feedback, and the response to the feedback should come within two weeks. If the response to the feedback is not satisfactory or there is no answer at all, learners may contact the Regional State Administrative Agency for Southern Finland and submit a request for information or a complaint concerning shortcomings in accessibility.[9]

How do you take accessibility into account as an author?

Accessibility should be taken into account already when planning educational resources, and it should be worked on when preparing the educational resources. When sharing your educational resources openly, you allow others to improve the accessibility of the materials.

Authors who take account of good accessibility of educational resources:

1. Familiarise themselves with accessibility guidelines
2. Use the accessibility features of the tools and environments they use
3. Describe the accessibility of the educational resources and their potential limitations
4. Listen to feedback and develop material based on the feedback

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9   More information on the user's rights: https://www.saavutettavuusvaatimukset.fi/kayttajan-oikeudet/.

You can take accessibility into account in your educational resources in the following ways:

Consideration of accessibility in educational resources			
Issue	**Examples on how to take into account**	**Further information**	**Tools**
Clarity and comprehensibility of language	• Use a clear general language that is easy for all learners to understand. • Explain the unfamiliar terms used.	Institute for the Languages of Finland[10] Accessible online text[11]	
Use tools for creating a clear and logical structure	• Divide the material into sections with descriptive titles to inform the learner about the structure of the educational resource. • Take advantage of the built-in styles of the software. • Name the links illustratively.	Instructions of the Saavutettavasti.fi website to accessible documentation[12] eOppiva course:Accessible documents online[13]	• Styles tools for preparing the documents and for checking their accessibility
Visibility and alternative presentation methods of non-textual elements	• Take text and colour contrasts into account to ensure that the different contents are as easy as possible to distinguish in the material. • Make sure that the material also functions in black and white. • Produce equivalent content for non-textual material: for example, type alternative texts or captions for images, and add captions, subtitles, media alternative transcripts or audio descriptions to video and audio recordings.	Image and sound[14] About captioning videos[15] Plain language videos[16] The guideline Captioning of videos promotes accessibility shows the differences between different modes of captioning (open or closed captions) [17]	Accessibility extensions to web browsers, such as the NoCoffe extensions to Chrome Contrast checkers[18] It is easy to make an accessibility check on videos (www. saavutettavasti.fi)

10   https://www.kotus.fi/.
11   https://kaltura.hamk.fi/media/N%C3%A4in+kirjoitat+saavutettavaa+verkkoteksti%C3%A4/0_b20hi76r.
12   https://www.saavutettavasti.fi/saavutettavat-asiakirjat/.
13   https://www.eoppiva.fi/koulutukset/saavutettavat-asiakirjat-verkossa/.
14   https://www.saavutettavasti.fi/kuva-ja-aani/.
15   https://support.google.com/youtube/answer/2734796?hl=fi.
16   https://selkokeskus.fi/selkokieli/selkokieli-videoissa/.
17   https://digipedaohjeet.hamk.fi/ohje/nain-tuotat-saavutettavan-videon/.
18   https://webaim.org/resources/contrastchecker/.

Consideration of accessibility in educational resources			
Findability of resources and their contents	• In the metadata of educational resources, describe what the resources are about, who they are intended for and how accessibility has been taken into account in them.	Glossary for accessibility metadata[19] Instructions for adding metadata[20]	Library of Open Educational Resources
The usability of resources with different devices and in various environments	• Use file formats and solutions that allow the user to customize the appearance according to their own needs.	Comparison of Epub and PDF formats[21]	
Make use of accessible materials	• When you use resources produced by others in teaching, check their accessibility, e.g., captioning.		You can find accessible educational resources, for example, in Library of Open Educational Resources (aoe.fi)

How does the organisation ensure and support accessibility?

Legislation sets a minimum level of accessibility for online services. In Finland, the supervisory authority for compliance with the law is the Regional State Administrative Agency for Southern Finland, and the Agency's saavutettavuusvaatimukset.fi website gives support to operators on accessibility issues.

The organisation assesses which educational resources the accessibility requirements apply to and what the requirements mean for each organisation's activities. According to current legislation, accessibility requirements do not need to be applied when the educational resources are used in a closed group on a fixed-term or experimental basis.

However, organisations should already start examining the European Accessibility Act adopted in 2019.[22] The directive extends the requirements to new products and services, such as e-books and devices and software used for reading them. The aim is to have the directive transposed into national law by 28 June 2022 and to have it enter into force in June 2025.

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19 https://wiki.eduuni.fi/display/CscOppimateriaalivaranto/Oppimateriaalien+metatietomalli#Oppima-teriaalienmetatietomalli-saavutettavuus.
20 https://aoe.fi/#/materiaali/606.
21 https://daisy.org/info-help/time-to-use-the-modern-digital-publishing-format/.
22 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32019L0882&from=EN

Accessibility can be seen as part of user-oriented development of services to support learning and participation. Accessibility supports high-quality production and utilisation of educational resources in organisations.

The legal obligations and the instructions drawn up from the perspective of the user and the author are taken into account in the organisation's operations.

Measures by the organisation:

- The organisation determines how accessibility is realised in its operations
- The organisation assigns responsibilities for measures related to accessibility and arranges the necessary resources for these measures
- The organisation supports and instructs in the implementation of statutory obligations and provides adequate legal advice
- The organisation supports the continuous development of educational resources
- The organisation uses and shares good practices in the implementation of accessibility
- The organisation invests in strengthening its personnel's accessibility competence
- The organisation receives accessibility feedback and responds to feedback within 14 days

In addition to meeting its statutory obligations, an organisation that supports good accessibility has:

1. defined accessibility targets and their continuous monitoring

2. guidelines for drawing up accessible educational resources and assessing the accessibility of educational resources (see previous sections in the recommendation on the user and author's perspectives)

3. orientation on the implementation of accessibility for all personnel and especially for specialists in learning and education support

4. support for authors of educational resources in the preparation and use of educational resources

5. support for the users of educational resources

6. accessibility documentation (accessibility statement, accessibility feedback) and agreed processing practices for them

Sources and additional information

- Further information on the Regional State Administrative Agency website[23]
- Draw up an accessibility statement[24] (in Finnish)
- Accessibility guidelines of the Association of Finnish Local and Regional Authorities[25] (in Finnish)

More general information on the implementation of accessibility in different forms of educational resources:

- Universal Design for Learning[26]
- The Association of Finnish eLearning Centre webinar on online materials[27] (in Finnish)
- Other material in English on the accessibility of educational resources[28]

Examples of good practices and common guidelines:

- Accessibility criteria for higher education institution's – a tool for assessing the accessibility of the higher education institution, especially the sections on "Digital accessibility" and "Teaching and learning"[29] (in Finnish)
- Accessibility of video and audio material in Moniviestin – Digital services (jyu.fi)[30] (in Finnish);
- Celia. (2021). Instructions and tips for accessing online content: Accessibility documentation – PowerPoint[31] (in Finnish)
- Accessible documents online (2021). Accessibility of Power-Point slideshows[32] (in Finnish)

You can check the accessibility of PDF files using a variety of tools:

- Check by using Adobe Acrobat Pro: Check accessibility of PDFs (Acrobat Pro)[33]
- Online checking tool PAVE: PDF Accessibility[34].

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23 https://www.saavutettavuusvaatimukset.fi/.
24 https://www.saavutettavuusvaatimukset.fi/saavutettavuusseloste/.
25 https://www.kuntaliitto.fi/tilastot-ja-julkaisut/verkko-oppaat/saavutettavuusopas.
26 https://www.cast.org/impact/universal-design-for-learning-udl.
27 https://eoppimiskeskus.fi/webinaari-esimerkkeja-verkkomateriaalin-saavutettavuustyosta/.
28 https://inclusivepublishing.org/educator/.
29 http://www.esok.fi/oho-hanke/julkaisut/saavutettavuuskriteeristo.
30 https://moniviestin.jyu.fi/ohjeet/m3ohjeet/saavutettavuus.
31 https://www.saavutettavasti.fi/saavutettavatasiakirjat/powerpoint/.
32 https://www.eoppiva.fi/kurssit/saavutettavat-asiakirjat-verkossa/#/lessons/zpnW1nvh4pO_hxuGo7k-GivZ3bqw2Sl2V.
33 https://helpx.adobe.com/fi/acrobat/using/create-verify-pdf-accessibility.html#check_accessibility_of_PDFs.
34 https://pave-pdf.org/index.html?lang=en.

PART 2: ACCESSIBILITY OF OPEN LEARNING ENVIRONMENTS

What does the accessibility of open education mean?

Open education refers to the extension of access to and participation in education to cover a larger audience and more target groups by reducing barriers and improving accessibility, supply and focus on the learner. Open education diversifies the opportunities for teaching, learning, information generation, co-creation and sharing, and combines formal and informal learning paths.

One opportunity for open education is offered by teaching that is open for all. According to the Policy for Open Education and Educational Resources, this includes all types of education that are widely available and free for everyone. However, granting credit for education that is open for all may be subject to a fee. Education that is open for all can take place face to face, remotely or as hybrid education, for example through open online courses.

Open education and teaching that is open for all take place in an open learning environment. In general, a learning environment is a combination of a physical or digital environment and psychological elements, social relationships and pedagogical solutions, in which teaching, instruction, studying and learning take place. An open learning environment, on the other hand, refers to an environment (digital or built) that is openly available to a learner and facilitates open education through its openness.

Open education, by definition, requires that the accessibility of education is increased. Accessibility in the context of open education means that as many people as possible can use (digital) open education services and open learning environments as easily as possible, and that accessibility is kept in mind when designing and providing these services.

- The requirements of the Act on the Provision of Digital Services: Accessibility laws and standards – accessibility requirements[35] (in Finnish)
- Act on the Provision of Digital Services (306/2019)[36] (in Finnish)

Accessibility in open education means that everyone has equal opportunities to participate in open education in different physical learning environments. The Directive on the Accessibility Requirements for Products and Services (2019/882),[37] which has

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35 https://www.saavutettavuusvaatimukset.fi/digipalvelulain-vaatimukset/.

36 https://www.finlex.fi/fi/laki/alkup/2019/20190306.

37 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32019L0882

been applied to national legislation, requires providers of products and services intended to support open education to take into account the accessibility requirements in the acquisition of products governed by the Directive. Furthermore, purchasers of products and services must take accessibility into account in their procurement (Section 71 of the Act on Public Procurement and Concession Contracts).[38]

When planning the use of an open learning environment, the education provider must ensure that the learners will be able to take part in the education safely. Among other things, this entails the safe use of facilities and equipment, support with a goal-oriented approach to learning and sufficient resources for providing the learners with support. In addition to learners, the accessibility of open learning environments also serves teachers.

An organisation must ensure that learners participating in an open learning environment receive comprehensive information about the limits and conditions of the accessibility of the learning environment and education.

The purpose of the minimum requirements for the accessibility of buildings is to promote equality. This means equal opportunities to participate in society's different functions and use services. The accessibility of built environments (Land Use and Building Act (132/1999), Section 117e Requirements Concerning Construction; Accessibility)[39] directs the construction of open learning environments and changes in buildings' use. Accessibility makes the use of a learning environment easier and promotes learning for everyone. Accessibility is particularly important for individuals with temporary or permanent mobility or functional impairments. In the premises, factors such as good acoustics, the required sound reproduction and transmission systems, clean indoor air, good and glare-free lighting, clear material and darkness contrasts, and uninterrupted guidance, should be taken into account. Some of these elements must also be included in digital open learning environments (e.g. adequate audio quality). Digital open learning environments are governed by the accessibility requirements of the Act on the Provision of Digital Services.

- For more information on the accessibility requirements, see www.saavutettavuusvaatimukset.fi (in Finnish).

Organisation's guidance and support for open education

The primary responsibility for the accessibility of an open learning environment lies with the organisation providing the

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38   https://www.finlex.fi/fi/laki/kaannokset/2016/en20161397.pdf
39   https://www.finlex.fi/en/laki/kaannokset/1999/en19990132.pdf

environment. Higher education institutions are responsible for how people can participate in teaching that is open for all, and ensuring that the built environment, digital platforms and digital services in use are accessible.

The organisation must guarantee up-to-date services for providers of and participants in education that is open for all. The organisation supports providers of open education with the accessibility of online teaching tools and learning environments. Support and training is offered for the enhancement of the quality of open education, keeping in mind different types of open learning environments and learners.

Co-creation of open educational practices and peer learning are part of an organisation's operations. The inclusion of learners in the planning and provision of open education is part of the co-creation process.

The organisation supports learners in the identification and recognition of competence acquired through open education, creating guidelines that promote this practice. In higher education institutions, teaching, IT management and libraries promote the interoperability of open educational and cooperation platforms, software and open education services. National guidelines on identifying and recognising competence are being prepared by a working group appointed by the Ministry of Education and Culture.

As a teacher in open learning environments

A teacher initiates the promotion of accessibility in open education at their specific skill level, and receives training and support in this from their organisation, cooperation networks and peers. As skills are enhanced, the teacher gains a wider range of means to promote open educational practices and influence not only students, but other teachers, their own organisation, various national and international stakeholders in teaching and research, as well as the wider society. The national *open education skill requirements* can be utilised in the self-assessment of skills.

Teachers use their higher education institution's guidelines on open education when planning and providing education. They also use their institution's support services to ensure the accessibility of open education.

Furthermore, teachers assess and improve the accessibility of open education in their own teaching together with the support services, engaging learners in the planning and provision of education, as well as the assessment and improvement process.

As a learner in open learning environments

It is in the best interests of all learners to facilitate open education that takes accessibility into account. When enrolling in

education that is open for all, learners must be fully informed of the potential conditions and limitations linked to the open education in question. An open learning environment may be an openly available digital or built environment for a learner. A good example is the STEAM project created by the City of Turku and a number of higher education institutions.

Learners may have a variety of obstacles hindering their participation in open education. A learner with reduced mobility could be, for example, a user of a wheelchair, a wheeled walking aid or other mobility aid, as well as a learner with limitations in the use of their hands. Mobility aids may be manually operated or electric. A learner with a functional impairment has challenges related to vision, hearing, memory, comprehension or conceptualisation. (Accessibility; Ministry of the Environment instructions on the accessibility of buildings 2018.)

A learner knows their own obstacles to learning and participation best, and they must be able to obtain information and support on the accessibility of open education and an open learning environment during registration and studies. A learner must also be able to get information and support enabling them to make their own openly shared learning output accessible.

The learners can, to the extent possible, participate in the planning and provision of open education. The learners may provide feedback on any shortcomings they have detected in the accessibility of open learning environments to the organisation responsible for them.

RECOMMENDATION ON RESPONSIBLE OPEN EDUCATION

THE NATIONAL POLICY for Open Education and Educational Resources determined that Open Science Coordination in Finland is responsible for preparing a recommendation on open education and educational resources that takes the diversity of learners and responsibility of content into account. The purpose of the recommendation is to provide advice on good practices with which open education and educational resources can be made more responsible. In particular, the recommendation specifies the following points of the policy:

- principle 1, according to which the reliability of the content of education and open educational resources developed in connection with it is assessed as one aspect of quality

- principle 2, according to which ethical practices must be adhered to when developing and using open education and educational resources

- principle 3, according to which the suitability of open education and educational resources for different types of learners must be ensured when developing them.

In addition to the policy, the recommendation is based on UNESCO's Recommendation on Open Educational Resources[40], the Guide to Research integrity[41] by the Finnish National Board on Research Integrity (TENK) and the Ethical Principles of Teaching (OAJ, in Finnish).[42] Two workshops were held during the preparation phase of the recommendation, and the material collected was utilised when creating the recommendation.

RESEARCH INTEGRITY AND CONTENT RELIABILITY IN OPEN EDUCATION

What is research integrity?

According to the European Code of Conduct for Research Integrity, reliability, honesty, respect and responsibility are the cornerstones of research integrity. Research integrity consists of good

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40 https://www.unesco.org/en/legal-affairs/recommendation-open-educational-resources-oer.

41 https://tenk.fi/en/research-misconduct/responsible-conduct-research-rcr.

42 https://www.oaj.fi/tyoelamaopas/opetustyon-eettiset-periaatteet2/opettajan-arvot-ja-eettiset-periaatteet/.

research practices which ensure that it is adhered to throughout the entire lifecycle of research. Among others, these practices include the following:

- research is planned, carried out and documented carefully in compliance, where possible, with the principles of open science;

- the openness and further use of material is promoted wherever possible;

- communication on research is honest and open regardless of the publication format or channel;

- work carried out by others in the research community is respected, due credit is given to the achievements of others and other people's publications are appropriately referred to.

Research integrity must also be observed not only in research but also when serving as a teacher or an instructor, and in addition to research, it also applies to educational resources.

Learner's perspective

Opening up education, for example with the help of open educational resources, makes information easier to access. Open educational resources and open education modules (e.g. an open online course or face-to-face education open for all) are often planned for the wider audience, which improves the understandability of research-based knowledge. In addition to that, openness allows information to be further developed and modified, thereby making its application easier.

However, learners may struggle to identify when information is reliable, for example in open educational resources. If material is presented in a very concise form, it may not have been possible to include any arguments or other evidence that are an integral part of research. Furthermore, even if material contains arguments or evidence, it may take plenty of existing knowledge to understand them. Additionally, it may be difficult to tell whether material contains outdated information.

The reliability of open educational resources or education modules is easier to assess if the resources or modules list the sources that their content is based on. However, the challenge is that not all sources are openly available yet, which may make it difficult for a learner to view them.

Services such as the Library of Open Educational Resources provide an opportunity to review educational resources. Openly available reviews like this may help with the identification of reliable information. It is worth remembering, however, that reviews may be one-sided or even spreading false information. Therefore, learners should be able to distinguish when a reviewer's views are

based on reliable information, that is, when they form a genuine peer review.

In other words, utilising open educational resources and other open education requires that learners have a diverse set of skills to assess the reliability of content. In addition to that, if a learner also wants to use and apply elements such as open educational resources further, they will benefit from knowing that the work of the authors must be respected. For example, it is not responsible behaviour to cherry pick elements from educational resources that solely support a person's own views.

If a learner suspects that open educational resources or education modules associated with a higher education institution or other research organisation violate research integrity, they may submit a written notification to the principal. The notification must specify the type of violation and provide grounds to justify the question and suspicions. Notifications may not be made anonymously.

- Notification form for suspected violation of research integrity (TENK)[43]

A learner may also participate in the creation of open educational resources, for example during an education module. In that case, they should study the advice on how to improve the reliability of material, provided from the teacher's perspective. In addition to this, it is advisable for them to familiarise themselves with the recommendation on copyright issues related to open educational resources by Open Science Coordination, which provides guidance on establishing authorship for material, for example.

Teacher's perspective

When promoting open education, it is good to make it as easy as possible to assess the reliability of open educational resources and open education modules. For this reason, open educational resources and education modules must state the original sources and information about their authors. If open original sources exist, they should be highlighted, in particular, so that the user of the material can verify the information, if they so choose. Reliability is also enhanced by providing information on where feedback about the resources or education modules can be submitted.

- Agreeing on the authorship of scientific publications (TENK, in Finnish)[44]

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43 https://tenk.fi/sites/default/files/2023-05/HTK-loukkausepa%CC%88ilyn%20ilmoituslomake_2023.pdf.

44 https://www.tenk.fi/sites/tenk.fi/files/TENK_suositus_tekijyys.pdf.

Since open educational resources, in particular, can spread widely, it is important to indicate when a text was created, especially if it contains new or rapidly changing information. If you know that specific material will no longer be reliable after a certain date, you should also include an estimate of when it may cease to be reliable.

On platforms such as the Library of Open Educational Resources, open educational resources can also be updated. If necessary, this can be done by someone other than the author.

An open educational resource or plan for an open education module should be peer-reviewed by a colleague familiar with the subject matter. The reliability of open educational resources and education modules is also increased if their creation process is opened up, for example by explaining which research-based knowledge or evidence they are based on. Any contradicting views should also be expressed openly.

When providing teaching that is open for all, it should be kept in mind that some of the participants may not necessarily have the same level of scientific literacy as degree students.[45] In that case, science education should be included in the instruction, if possible. For example, as part of the instruction, the participants can be asked to explain what information is based on more solid arguments and what is still uncertain.

Open educational resources and open education modules are often prepared in cooperation with other teachers or a teacher's own pupils, for example. In that case, the authorship and responsibility for updating the material, among other things, must be discussed when planning the work. When it comes to learners, in particular, a teacher must ensure that they understand the rights and responsibilities associated with the authorship of material and the possible transfer of usage rights. Further guidance on open educational resources created through cooperation, particularly when done with learners, can be found in the recommendation on copyright issues related to open educational resources by Open Science Coordination.

A teacher may be both an organiser of open education modules and an author of open educational resources, as well as a user of such resources, for example. If that is the case, they should

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45 "Science education is a systematic and purposeful way of strengthening people's and society's scientific literacy and science capital through the means of education and communication. Scientific literacy refers to the basic skills of processing research-based knowledge, acquiring reliable information, critical thinking and learning. It also includes an understanding of findings, tasks and meaning of different disciplines. Science capital, on the other hand, involves views, experiences, attitudes and resources of individuals and society, connected to science and shaped over time." Scientific literacy changes the world. Science education recommendations 2021 (https://tjnk.fi/sites/default/files/2021-03/Science_education_recommendations.pdf).

assess the reliability of the material they use in the same way as a learner would.

Organisation's perspective

An organisation's reputation is enhanced if open educational resources and education modules created by people affiliated with the organisation are based on reliable, research-based knowledge. Therefore, organisations should establish support processes to increase the reliability of open educational resources and teaching that is open for all. These support processes may include peer reviews of open educational content or regular updating cycles of open educational resources, to name a few. If an organisation holds an employee responsible for the regular updating of the employee's material, the employee must be allowed to use some of their working time for this purpose or be compensated financially. If rights must be transferred to an organisation, for example for updating open educational resources, financial compensation must be ensured, where relevant.

Furthermore, an organisation should provide guidance on the type of metadata that facilitates the assessment of open educational resources' and education modules' reliability. This metadata includes elements such as the necessary information about the author, including the author's ORCID iD, affiliations and other significant commitments, as well as information about when the educational resources will expire. Organisations should provide instructions and model agreements on the authorship of and responsibilities for collaboratively created open educational resources.

An organisation's name creates an image of the reliability of open educational resources and education modules. That is why it should market open educational resources and education modules that have been created by people affiliated with the organisation, and that have been found to be reliable and of high-quality through peer reviews. Moreover, organisations should, in general, enable their teachers to profile themselves as authors of quality open educational resources and providers of quality open education, promoting this through merit building practices.

Moreover, an organisation should have a designated contact person in place for learners to contact if they have any doubts about the reliability of open educational resources or education modules created by people affiliated with the organisation. This may be the same individual who handles alleged violations of research integrity in the organisation. Information on the contact person and how they can be reached should be made openly available. Additionally, organisations should establish a

process for investigating suspected violations and responding to suspicions that have proved accurate.

Organisations should offer guidance on finding, utilising and creating reliable open educational resources and education modules (e.g. teaching reference practices). In particular, students should be given advice whenever they want to make their learning output openly available. Furthermore, organisations should have access to open educational resources, open online courses and/or teaching that is open for all on information and science literacy, as well as the assessment of the reliability of information.

INCLUSIVENESS, NON-DISCRIMINATION AND EQUALITY IN OPEN LEARNING

What is inclusiveness?

The ethical principles of teachers emphasise, among other things, the importance of respecting the human dignity of learners and promoting gender equality and parity. One important aspect in promoting the equality of learners is to ensure that services are accessible, i.e. that their technical features allow everyone, or as many people as possible, to use the services without the help of others, potentially with aid equipment. Open Science Coordination has published a specific recommendation on the accessibility of open education and, in particular, open educational resources.

Where accessibility describes a kind of minimum level of equality promotion, inclusiveness means a more active transformation of structures that create inequality into ones that support equality and diversity. The concept of inclusion first appeared in UNESCO's 1994 Salamanca Statement, according to which everyone should have the right to attend a regular school, regardless of any support needs. The fourth Sustainable Development Goal (SDG) of the United Nations calls for inclusive, equal, high-quality and lifelong learning opportunities for all. The opposite of inclusion is exclusion, which can mean, for example, that a learner is left outside of regular education due to their individual support needs.[46]

In UNESCO's recommendation on open educational resources, one of the central goals is the inclusive and equal accessibility of high-quality open educational resources. More specifically, the

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46 Salamanca Statement, 1994: https://unesdoc.unesco.org/ark:/48223/pf0000098427.

   4th SDG Goal: https://sdgs.un.org/goals/goal4.

   Takala, Lakkala, Äikäs: "Inklusiivisen kasvatuksen monet mahdollisuudet," 2020, p. 15. In Mahdoton inkluusio, 2020, ed. Takala, Äikäs and Lakkala, Jyväskylä.

recommendation calls for the development of gender-sensitive open educational resources adapted to local cultures and languages, and for the promotion of gender equality, non-discrimination and inclusiveness of open educational resource policies. In educational resources, inclusiveness can be manifested, for example, as diversity among the people shown in illustrations.

Learner's perspective

Typically, opening up education increases its equality, as openness facilitates learning for more individuals, for example by making learning independent of time and place. Thus, opening up education makes it easier for people to access education, for example if they live in remote areas or have reduced mobility.

Making education openly available also includes the idea of engaging learners in activities such as planning study modules. This will allow modules and educational resources to be tailored to the needs of a specific target group. For example, different language subtitles or sign language interpretation can be added to video-formatted open educational resources as needed without requiring separate permission from the material's creators.

While open education facilitates the adaptation of educational content to the diverse needs of learners, open educational resources alone do not guarantee learning. In fact, some learners may need interactive instruction, in addition to open educational resources.

Furthermore, not all open educational resources and education modules can be made suitable for everyone if they require prior knowledge or skills that not everyone has. Therefore, learners should be informed of the level of prior knowledge and skills required for specific open educational resources and education modules. This way, learners can decide more easily whether the material or module is suitable for them.

One additional aspect of open learning is the use of open learning environments. Among other things, open learning environments enable open discussions between learners on the topics studied. Such open discussions may contribute to a sense of inclusion. However, it should be noted that sensitive topics may require that open discussions be limited to a degree.

Teacher's perspective

The first step in promoting the inclusiveness of open education is for teachers to ensure that the open educational resources that they create or use in their teaching are accessible. Similarly, the accessibility of the open learning environments that are used should be verified. Guidelines for ensuring accessibility can be found in the open education accessibility guide published by Open Science Coordination.

Teachers should be aware of the meaning of inclusiveness, gender sensitivity, and both gender and sexual diversity. For example, they should avoid using language that promotes otherness, particularly when discussing sensitive topics. In planning open educational resources and open education modules, attention should be paid to inclusiveness, for example when choosing the teaching methods. This requires that, in particular, the target group and level of the subject matter are defined. The target group and level should be included in the metadata of educational resources, so that learners can select the material that suits them.

In promoting inclusiveness, it is beneficial to take advantage of the collaborative nature inherent in open education, in which something like open educational resources are refined to be more inclusive together. In particular, learners should be involved in adapting open educational resources and education modules to the needs of their reference group.

Organisation's perspective

According to the law, organisations have the primary responsibility for the realisation of the equality, non-discrimination and accessibility of open education, as well as for the adequate allocation of resources for these purposes. Mainstreaming inclusiveness and the gender perspective should be evident in the organisation's policies for open education and educational resources. Guidelines for taking accessibility into account can be found in the open education accessibility recommendation published by Open Science Coordination.

It is important for organisations to ensure that their staff members understand the various aspects of inclusiveness. The main tools for this include guidelines, training and merit building. Furthermore, organisations should also support their teachers' own networks, in which expertise in inclusiveness and inclusive open educational resources can be shared. Guidance on compiling metadata that promotes the inclusiveness of open educational resources should also be available.

Just as with reliability, an organisation should have a designated responsible party to contact regarding open educational resources and education modules created by individuals affiliated with the organisation, that may violate equality or inclusiveness objectives. Information on the contact person and how they can be reached should be made openly available. Additionally, organisations should establish a process for investigating suspected violations of equality objectives in open education and responding to suspicions that have proved accurate.

UNESCO's recommendation on open educational resources highlights the need to have these available in multiple languages to promote inclusiveness. Therefore, organisations should contrib-

ute to the availability of open educational resources in several languages. At the very least, this means ensuring that the open educational resources affiliated with a specific organisation can be adapted as easily as possible to different languages. It is particularly commendable to make sure, for example through collaboration with other organisations, that open educational resources are available in a diverse range of languages and, in particular, that there is a sufficient supply of open educational resources in minority languages on key topics.

RECOMMENDATION ON GAINING MERIT IN OPEN EDUCATION AND OPEN EDUCATIONAL RESOURCES

THIS RECOMMENDATION SUPPORTS the fourth principle of the national policy, according to which the work carried out in the development of open education and educational resources shall be taken into account in merit criteria and the planning of duties. The purpose of the recommendation is to highlight good practices that help with applying the principle.

INTRODUCTION

Open education in its various forms benefits society as a whole by offering more opportunities for expanding competence and acquiring knowledge and new understanding. This recommendation contributes to ensuring that those promoting open education receive the recognition they deserve for their work and that the promotional work naturally supports their career advancement.

Teachers are the most important promoters of open education, but many other parties also work for open education. For example, higher education institutions support and encourage teachers to use and produce open educational resources and to participate actively in promoting open education at the national level. This recommendation on gaining merit in open education and educational resources is primarily intended as guidance on how to take these matters into account in teachers' merits, but the instructions given in the recommendation can also be applied to other tasks and roles that promote open education, such as:

- researchers and research projects that produce open educational resources

- students who have participated in promoting open educational resources and open education

- persons supporting open education in their own work, such as library experts, researchers, education planners and other support staff

- influencers who have communicated about open education and inspired others to promote open education

- leaders and decision-makers who have made a significant contribution to promoting open education and whose input has had extensive impacts on open education.

It should also be noted that the same person can act in many different roles and promote open education in different ways in each of them.

PRINCIPLES TO BE TAKEN INTO ACCOUNT IN RECOGNISING MERIT

From teachers, promoting open education requires time and competence, and it may constitute an important part of the teacher's work. It is recommended that organisations have clear criteria and guidelines on how the promotion of open education should be taken into account as a part of the evaluation of the teacher's work as a whole, for example, in recruitment, advancement on the career path, determination of pay, funding applications and award of prizes. In addition, it is recommended that higher education institutions in particular ensure that teachers have the opportunity to use their working time for promoting open education and take it into account in their work schedule planning. The most important instructions for recognising merits can be found in Table 1.

Depending on the purpose of the evaluation, it may vary how much weight and importance is given to open education. The persons being evaluated should always be informed about the criteria used and emphases given.

When evaluating merits in open education, many other factors should also be taken into account than the number of published open educational resources and other publications and merits. Things to be taken into consideration include:

- **Quality:** Expert assistance should be used when assessing quality. In the case of open educational resources, the *National quality criteria for open educational resources* can be applied for quality assessment.

- **Impact:** As far as impact is concerned, the assessment can be based on such factors as download or user volumes of educational resources, the number of people who participate in or complete open courses or lectures, and the feedback received from all of these. Even in terms of impact, the numbers alone do not tell everything, but, for example, the development of an individual learner's competence and the profound impact on a limited community can be more significant a merit than superficial influence on a wider audience.

- **Level of openness:** In principle, the greater the merit, the more open education the teacher has promoted. For justified reasons, it is possible to stretch the principle a little and grant equal merit for, for example, educational resources with more restricted licenses (e.g. no derivatives)

as for fully open educational resources. A reason for lower level of openness may be, for example, sector-specific practices or specific risks associated with the content of certain educational resources, such as data getting out of date or sensitivity of content.

- **Cooperation:** One idea of open education is to enable cooperation between teachers and, for example, between teachers and students. In the evaluation, matters such as the use of open materials made by others in the preparation of one's own open educational resources, the co-development of open courses and lectures and educational resources, and the inclusion of students in the development of open education should be seen as a positive issue in the evaluation.

- **The workload and competence required for merit:** As concerns courses, lectures and educational resources, the workload can be estimated based on their scope, for example. In the case of educational resources, the type of material may also be of significance; preparing, say, an online course or an educational game often requires more work and competence than publishing lecture slides.

TEACHER COMPETENCE LEVELS

Open education and educational resources can be developed and promoted in many ways. Everyone can start promoting open education from their own level of competence. As competence develops, more ways and opportunities open up for teachers to promote open education and influence not only students but also other teachers, their own organisation, various national and international stakeholders in education and research, and the rest of society.

Organisations should make it possible for teachers to make use of their development in promoting open education, say, as part of advancement on their career. When assessing the openness of education, different emphasis can be given to ways of promoting open education suited for various levels of competence and the relevant merits. The following division can be used to define competence levels and the merits characteristic of them.

1. Every teacher can take, for example, following measures to promote open education:

   - develop their own competence in open education and related matters (see *Competence requirements for open education*);
   - make use of open educational resources and software in their teaching; and
   - apply educational practices related to open education in their teaching.

2. As they gain more experience, teachers can take, for example, following measures to promote open education:

- peer review open educational resources made by others;
- publish open and accessible educational resources;
- participate in preparing online courses available for anyone (MOOC) or give lectures or courses open to the general public (e.g., Studia Generalia);
- help others in open education issues;
- participate as an expert in open education in the evaluation of other teachers;
- engage students in producing open educational resources; and
- openly share or publish their own educational practices (e.g., those related to the planning, implementation or evaluation of education).

3. Teachers with in-depth knowledge of open education can promote open education in a variety of ways, including:

- conduct research related to open education;
- participate in national or international open education networks or projects; and
- lead national or international open education working groups or projects.

ABOUT RECORDING OF MERITS

Organisations should provide clear instructions on how to record the merits in open education and educational resources in evaluation situations. Merits related to open education and educational resources can be recorded in the CV, the teaching portfolio or the organisation's research information system. The aim is that, in the future, the data related to merits earned in promoting open education and educational resources could be harvested directly from different information systems.

In their guidelines, organisations can divide the merits in open education and educational resources into open educational resources, research outputs concerning open education, online courses and lectures open to anyone, and activities related to open education. If possible, the division should also be taken into account in the organisation's research information system. The same division can also be applied by teachers who want to maintain their own CV, for example.

Open educational resources

The author of the educational resources decides whether the materials are made available for open access. In accordance with the *Policy for Open Education and Educational Resources*, it

is recommended that the Library of Open Educational Resources (aoe.fi) be used for publishing the metadata of open educational resources. The library improves the findability of materials, and supports the production of metadata and the monitoring of references. In the Library of Open Educational Resources, in addition to the metadata, the educational resources are attached with a license describing their terms of use and other documentation that facilitates the use of the material. The library also creates a permanent identifier for the open educational resources, which enables them to be found and referenced.

In evaluation situations, it is worth highlighting some of the materials of particularly high quality among the published open educational resources. National *Quality criteria for open educational resources* can be used for selecting high-quality open educational resources. On the selected materials, more information can be given on:

- how much impact the educational resources have had (e.g., download and use volumes, references and reviews received on the educational resources):
- how the materials meet the quality criteria for open educational resources;
- the scope of the educational resources and/or the workload their preparation has required;
- collaboratively prepared educational resources and what has been the author's own role in preparing them; and
- if the educational resources have been published under a more limited license (e.g., a licence prohibiting derivatives), why this license has been selected.

Research outputs

Research outputs recorded as merits in open education include:

- research publications on open education and educational resources and
- open research data generated from teaching.

When recording these, established practices for recording research publications and research data should be followed.

Courses and lectures available for anyone

On courses and lectures available for anyone, it is advisable to record such data as:

- the topic and implementation method of the course or lecture;
- the scope of the course or lecture and/or the workload required for planning it;
- on online courses, potential permanent identifier;
- how much impact the courses and lectures have had (number of participants or courses completed and feedback received),
- on collaborative lectures and courses, the author's own role and input; and
- on contact lectures and courses, whether they were free of charge or grounds for carrying a fee (e.g., covering organisational costs).

Activities related to open education

For example, the following activities can be recorded as merits in activities related to open education:

- courses on open education and competence acquired by other methods (in addition to courses completed, authors can verify their competence with, for example, Open Badges);
- use of open educational resources, and open educational practices in one's own teaching and feedback on them;
- the development and sharing of open educational practices (e.g., a brief description of the practices developed and reference to where they can be examined in more detail);
- peer review of open education and educational resources produced by others;
- helping and training others in open education;
- national and international cooperation related to open education; and
- management of national and international open education projects (e.g., reference to project documentation).

Table 1: Summary of merits in open education *Specifications on items in the table and the criteria used can be found in the text*		
Merit	**Things to consider when recording merits**	**Things to consider regarding principles and competence level**
Educational resources		
Basic issues (for all educational resources)	The educational resources and their metadata should include a licence describing the terms and conditions of use of the material. Open licences include CC BY and CC BY-SA. It is recommended that the grounds be given if the material is not openly licensed or if it cannot be used free of charge.	The reason for lower level of openness may be, for example, sector-specific practices or specific risks associated with the content of certain educational resources, such as data getting out of date.
	It is advisable to publish the educational resources or their metadata on a recognised national or international platform (e.g., aoe.fi), which guarantees a permanent identifier for the material and access to the metadata for the material – even if the material no longer exists – and a place from which the data can be harvested.	
	Sufficient metadata and other documentation of the educational resources facilitate reuse and are, therefore, an important merit.	
	As far as possible, glossaries, ontologies and standards should be taken into account in the metadata of educational resources, as well as the machine readability of the metadata.	
	The use of open file formats can be recorded as a merit.	
On educational resources selected for assessment (see more)	It is advisable to describe how the educational resources meet such requirements as the national quality criteria.	When doing quality assessment, use expert assistance and national *Quality criteria for open educational resources.*
	It is advisable to specify the impact and significance of the educational resources (e.g., download and use volumes, references and reviews received on the educational resources):	Please note that download and use volumes alone are not the only indication of impact.
	If necessary, descriptions on the scope of the educational resources and/or the workload required for preparing them can be given.	
	As regards collaboratively prepared educational resources, it is advisable to describe what has been the author's own role in preparing them.	

Table 1: Summary of merits in open education *Specifications on items in the table and the criteria used can be found in the text*		
Merit	**Things to consider when recording merits**	**Things to consider regarding principles and competence level**
Research outputs		
Research publications on open education	Compliance with the established practices on research publications.	Can be taken into account especially in assessments focused on research on open education.
Open research data generated from teaching	Compliance with the established practices on research data.	Can be taken into account especially in assessments focused on research on open education.
Courses and lectures available for anyone	Issues such as the following can be recorded:	Can be taken into account especially in the evaluation of more experienced teachers.
	the topic and implementation method of the course or lecture	
	the scope of the course or lecture and/or the workload required for planning it	
	on online courses, potential permanent identifier	
	how much impact the courses and lectures have had (number of participants or courses completed and feedback received)	
	on collaborative lectures and courses, the author's own role and input	
	on contact lectures and courses, whether they were free of charge or grounds for carrying a fee (e.g., covering organisational costs).	

Table 1: Summary of merits in open education _Specifications on items in the table and the criteria used can be found in the text_		
Activities related to open education		
Courses on open education and competence acquired by other methods	Competence can be verified with courses completed and Open Badges.	Suited for evaluating all competence levels.
Use of open educational resources and educational practices in one's own teaching	Can record examples and feedback received.	Suited for evaluating all competence levels.
Developing and sharing open educational practices	Can describe practices developed and provide references on where to learn more about them.	Can be taken into account especially in the evaluation of more experienced teachers.
Peer review of open education and educational resources produced by others	Can provide examples.	Can be taken into account especially in the evaluation of more experienced teachers.
Helping and training others in open education	Can provide examples.	Can be taken into account especially in the evaluation of more experienced teachers.

COMPETENCE REQUIREMENTS FOR OPEN EDUCATION

THESE COMPETENCE REQUIREMENTS have been prepared to support the objectives set out in the National policy on open education and educational resources. Competence requirements define what kind of knowledge and skills the users of open educational resources, the authors of open educational resources and the open education influencers should have. Competence requirements can be used, for example, when organisations plan training courses that provide competence in open education.

The competence requirements are cumulative: the authors of open educational resources are also required to master the competence requirements for the users of open educational resources, and the open education influencers are also required to master the competence requirements for the authors of open educational resources.

USERS OF OPEN EDUCATIONAL RESOURCES

The users of open educational resources understand the basic concepts of open education and are able to set them in a wider field of open science and research, are able to find and use open educational resources in their own teaching, respecting the copyrights and licensing clauses, and are able to assess the quality of open educational resources. In more detail, users of open educational resources are required to:

- be able to explain basic concepts of open education, such as concepts of open educational resources, open educational practices, open-source code and open technology;
- understand the links between open education and the framework of open science and research;
- understand the importance of open education for the higher education and research community and the rest of society;
- know how to use educational resources and other materials in their own teaching and preparing their own educational resources in compliance with the terms and conditions set by copyrights and general licensing clauses;
- know the best channels for finding open educational resources;
- know how to use the Library of Open Educational Resources to find open educational resources;
- know how to identify various forms and formats of open educational resources;

- know how to utilise other open materials in their own teaching and for preparing their own educational resources;
- understand the impact of the accessibility and quality of educational resources on learning outcomes,
- understand the grounds used for assessing the accessibility and quality of open educational resources with the help national criteria; and
- understand how open educational resources can be peer-reviewed.

AUTHORS OF OPEN EDUCATIONAL RESOURCES

The authors of open educational resources know how to prepare, publish and describe open educational resources, understand data protection and information security issues related to open educational resources, and can demonstrate their merits in the preparation of open educational resources. In more detail, authors of open educational resources are required to:

- understand what kind of rights and obligations the Copyright Act imposes on the authors of educational resources;
- understand how data protection affects the preparation of open educational resources, such as the permits required for using photos;
- understand information security issues related to open educational resources;
- know how to give others access rights to materials with different licences,
- know how to use the tools for the preparation of open educational resources, in particular those based on open-source code and open technologies;
- know how to use national quality criteria for open educational resources in the preparation of their own educational resources,
- understand how accessibility requirements and the Accessibility Directive apply to open educational resources;
- know how to enter the metadata on open educational resources to the Library of Open Educational Resources;
- know how to publish open educational resources in the Library of Open Educational Resources;
- understand the principles according to which merits are gained on open educational resources; and
- know how to include open educational resources in their own list of publications.

OPEN EDUCATION INFLUENCERS

Open education influencers are familiar with open educational practices, know how to co-develop open educational resources and open online courses, and are familiar with networking practices and practices applied to gaining merit in open education. In more detail, open education influencers are required to:

- know how to apply different open educational practices;
- understand how data protection affects open educational practices, for example, through data protection risks on open platforms;
- understand what is required for preparing open online courses and MOOCs;
- know how to engage students in preparing educational resources;
- understand practices related to co-developing educational resources, such as agreements on rights and responsibilities;
- are familiar with networks related to open education and educational resources;
- know how to use, for example, Open Badges in demonstrating the competence achieved in open education;
- understand the principles according to which merits are gained in open education; and
- know how to record the merits gained in open education in their CV.

RECOMMENDATION ON TOOLS AND PRACTICES FOR OPEN EDUCATIONAL RESOURCES

THIS RECOMMENDATION CONCERNS the practices and tools related to open educational resources. The recommendation supports *the Policy Component for Open Access to Educational Resources* and is one of the actions mentioned in it. The policy component states that:

"By 2022, Open Science Coordination, together with higher education institutions and other open education organisations, will have in place a joint recommendation on the practices and tools that will ensure that open educational resources are findable, interoperable and reusable and can be further developed."

The recommendation was created by the Open Education Services working group of the Open Education expert panel. For this purpose, a survey was carried out in the field of higher education (1/2020).

The recommendation delves into the principles and aspects that authors of open educational resources should consider when utilising practices and tools for creating these resources. The pieces of advice have been divided according to different phases of creating educational resources: familiarisation phase, creation phase and publication phase. At the end of the recommendation, further advice is given on how organisations should support authors of open educational resources in selecting tools.

HOW TO GET STARTED

Before creating educational resources, the author should familiarise themselves with the key practices related to openness. These include open licences, copyright and related agreements, benefits of openness and merit building, privacy protection in open resources and lifecycle management of educational resources, in particular. In addition to the organisation's guidelines, other recommendations in this document will help authors to manage these practices.

Creating open educational resources can be a very simple process, with only a few tools to support the author's thinking and knowledge base, but the process can also be a highly complex one, during which the author makes use of a number of tools and the expertise of others. This recommendation aims to help authors make decisions at different stages of creating open educational resources by suggesting things to keep in mind

during the process. Authors may benefit from several tools and practices, but while these may change over time, we recommend at least the following:

- Creative Commons licences[47] for stating openness (in Finnish)
- The Library of Open Educational Resources[48] for ensuring the findability of educational resources.

WHEN CREATING EDUCATIONAL RESOURCES

The main focus when creating open educational resources is on the tools and practices used in their development. There are plenty to choose from, and they vary depending on factors such as the type of educational resources. For example, the tools and practices for creating and further developing open educational resources are different for videos and text-based materials. In addition to this, several tools often exist for the same purpose. For example, text can be edited with a variety of tools.

Many of the tools used to create open educational resources may be the same as those used for non-open educational resources and other output. However, when selecting tools and practices for the production and further development of open educational resources, the following should be taken into account.

Terms of use

By using different tools, you also agree to their terms of use. As with all tools, it is advisable to find out what rights a tool claims to your content and from which country it is operated (if the tool stores your information). In particular, questions concerning openness arise when a tool provides ready-made elements (such as graphic elements, video or sound) to make content creation easier. In such cases, check whether you can use these elements in Creative Commons licensed materials. For example, images from stock photo libraries cannot often be openly licensed, so they cannot be used if the intention is to publish the end product openly.

Open file format

Find out which formats you can use to download your educational resources from the tool. Favour standardised, common and open file formats, so that you and other users of the resources can use and modify them with any tool. This guarantees the continued

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47   https://creativecommons.fi/.
48   https://aoe.fi/.

existence of the educational resources, even if the tool can no longer be used.

Material should be published in an editable format, in addition to the actual files intended for teaching (for example, publish the project file of the video editor you used together with your video material).

- Recommended guidelines or practice: You can find a list of open formats in the table of contents of this guide by the Ministry of Education and Culture[49] (in Finnish).

Tool lifecycles and material's dependency on a specific tool

Assess a tool in terms of its continuity. It is recommendable to select a tool that takes advantage of open file formats and allows you to save your material in an editable format on your device. If you decide to use a tool that does not allow this, consider whether the tool has a stable future. You should also consider things that you can do now in order to benefit from the material and the effort that has gone into it, even if the tool will no longer be available for use.

Many special tools include an export function that allows you to make at least some sort of a standard copy of the file, even if the editability of the file is not guaranteed.

Accessibility

Organisations are legally required to produce accessible materials; as an author of educational resources, you can use accessibility to ensure that all users can use your material. The way that resources can be made accessible varies from tool to tool. You can make the process easier by checking that your chosen tool provides instructions on how materials can be made accessible, and thinking ahead whether you have the skills and time to do so yourself.

- Recommended guidelines or practice: *A guide to the accessibility of open educational resources*.

Data protection

It is important to consider what practices you have available in each tool for protecting privacy. This applies to videos and images, in particular. For example, can you make a lecture recording so that the Q&A part (and thus the voices of learners) is excluded from the recording? If you share a copy of your course platform, how can you exclude the participant information from the copy?

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49   https://digitalpreservation.fi/files/PAS-tiedostomuodot-1.7.0.pdf.

Make sure that the data protection measures are adequate in terms of the sensitivity of the data to be stored.

Ability to generate information together

Open educational resources are often produced together. Consider what framework the tool provides for collaborative work. When producing material together, it is important to ensure that everyone understands the principles of open scholarly publishing. This is particularly vital when material is created with students. Agree on the publishing method with the organisation and other authors (platforms/channels, file formats, size of audience, licence, timing, display of author names/pseudonyms).

- Recommended guidelines or practice: *Recommendation on copyright matters to be taken into account in the open publication of educational resources*

WHEN YOU PUBLISH EDUCATIONAL RESOURCES

Once your educational resources are ready to be published, the majority of the work has been done. However, open educational resources are intended to be used and should, therefore, be published in a way that makes them easy to find. For publications, different platforms may be used for teaching, a wider audience and the closest colleagues, or everything can happen through a single publishing platform. When choosing the publishing platform, the following should be taken into account.

Findability

One of the purposes of publishing educational resources is to make them findable. When selecting tools, you can assess this aspect by examining whether the publishing platform allows you to store metadata about the educational resources and what this information is like. You can also note how resources are made available, for example via library and education services. Tell your networks about the educational resources you have published.

- Recommended guidelines or practice: How to use the Library of Open Educational Resources (aoe.fi)

Licensing

Check whether the publishing platform supports open licensing. How are licences displayed on the platform? Is it possible to browse material according to specific licences? Which licences does the tool support? Favour publishing platforms that use Creative Commons licences and display the licence terms clearly. Remember to check whether the platform requests other rights to your content.

Even if you cannot choose the licence on the publishing platform, you can add it as part of the educational resources along with a descriptive text – follow the text format provided by the Creative Commons licence chooser[50] as accurately as possible.

- Recommended guidelines or practice: *Recommendation on copyright matters to be taken into account in the open publication of educational resources*

Quality of educational resources

Consider how well the quality criteria for open educational resources can be taken into account on the publishing platform. This means, for example, whether the platform allows (peer) reviewing, the inclusion of metadata required by the quality criteria, the later editing of the educational resources and the information they contain, and the collection of feedback on the educational resources.

- Recommended guidelines or practice: *Quality criteria for open educational resources*

Lifecycle and long-term storage of educational resources

Educational resources often contain information that will ultimately expire or they may otherwise need updating. This should be taken into account when choosing the publishing platform: will you be able to update your material, what is the process like and what other related features (e.g. version management) does the platform offer? If the date by which the work needs updating is known when work is published, you should inform the users of the resources of this.

You should also check the terms and conditions of the platform regarding the storage of your educational resources. Is material periodically deleted? Is a permanent identifier for or a link to the educational resources available?

Usability and various uses

Check what uses the platform offers for your educational resources: can they be saved on a user's device, can they be used on a browser or mobile device and can other users edit the material directly? Favour publishing platforms that allow material to be downloaded so that it can be used offline as well. Additionally, you should select a publishing platform that clearly indicates the authorship of edits. When making educational resources open, you should favour publishing platforms that

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50   https://creativecommons.org/choose/?lang=fi.

do not restrict access to the material only to users within your organisation or those who are logged in.

Accessibility

Finally, check whether the publishing platform has an accessibility statement and how it takes accessibility into account. Favour publishing platforms where you can describe the accessibility of your educational resources in the metadata, for example. Consider whether the users of your material will be able to notify you if they identify any shortcomings in its accessibility.

- Recommended guidelines or practice: *The quality criteria for open educational resources and A guide to the accessibility of open educational resources.*

ORGANISATION'S PERSPECTIVE

Open educational resources provide visibility and continuity to an organisation's education and competence. However, work that is carried out in an open way brings its own challenges, where authors of educational resources require support. This recommendation determines which aspects an organisation should take into account when it comes to tools and practices.

Before authors start creating educational resources or opening them up, it is good for the organisation to have the following things organised and clearly communicated:

- Who is responsible for providing support in the creation and publication of open educational resources at different stages of the process?
- How will the organisation monitor the educational resources and their use, and what is considered to be an educational resource for the monitoring purposes?
- How will different types of learning environments allow educational resources to be opened?
- Which (in-house or nationwide) guidelines and policies on open educational resources will be followed?
- How can the staff members' skills pertaining to open educational resources be enhanced?

The Policy for Open Education and Educational Resources and the other recommendations included in this document offer support in answering these questions.

Supporting the creation of educational resources

Organisations use a variety of practices and tools to create and further develop open educational resources. Tools intended for the creation of open educational resources should ensure that they have a long lifespan and can be updated. The use of open file formats is particularly important. In addition to the published

version, tools should have the option of saving an editable copy in an open file format[51] (in Finnish), so that the resources can be upgraded even if the tool is no longer available.

Organisations should have recommendations that make known the tools used for creating educational materials within the organisation. Additionally, they should have guidelines in place on the use of the tools and, for example, the selection of file formats. These guidelines should mention any limitations associated with the tools and describe the type of educational resources that can be created and made open with them. Furthermore, the guidelines should include advice on how the tools can be used to produce accessible educational resources. In addition to the guidelines, it is beneficial to provide training and help from support persons in the use of the selected tools and the creation process of educational resources.

In many cases, the services provided by an organisation alone are insufficient when it comes to the needs of comprehensive educational resources. An organisation able to take the needs associated with the creation of open educational resources into account will also be aware of this, and will provide support and guidance to authors of this material.

A culture of collaboration

It pays for an organisation to encourage its staff members to work together in creating open educational resources. Partners can also be found in other organisations, which is why staff should be encouraged to form extensive networks. Collaboration is a natural part of project work, so it is good to consider as early as during the planning phase whether a project could involve the creation of open educational resources.

It is easier to agree on the rights of co-creation using an open licence than through individual usage agreements between project parties. Therefore, an organisation should provide guidance on things that should be negotiated when co-creating open educational resources, for example in relation to the publishing, licensing, mentions of names and background information, and potential updating of the material. The document Recommendation on copyright matters to be taken into account in the open publication of educational resources contains useful tips. As a concrete form of aid, organisations can offer agreement templates when educational resources have several authors.

Learners can also participate in the creation of open educational resources. Organisations should decide in advance on the practices for how the involvement of learners in creating educational

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51   https://tieteentermipankki.fi/wiki/Avoin_tiede:avoin_tiedostomuoto.

resources is handled. The recommendation on copyright matters to be taken into account in the open publication of educational resources, including the section on material created with learners, can be used when deciding on the practices.

The tools offered by an organisation should have the option of creating open educational resources together and across organisational boundaries. Furthermore, more detailed instructions should be provided on how the tools can be used when working together with other organisations and learners.

Quality assurance of educational resources

The publication of open educational resources is a critical phase for organisations in the lifecycle of these materials, as open educational resources also reflect on the organisation – meticulously finished open educational resources will garner more appreciation than material published in an unfinished state. That is why organisations should ensure that the quality of the open educational resources associated with them is as high as possible. The quality criteria for open educational resources can be used as quality assurance help, in addition to which an organisation may have more specific practices in place regarding the quality of open educational resources. Concrete support services include help with proofreading and editorial work with resources.

Organisations are legally required to verify that their online content is accessible, in addition to which accessibility is also one of the areas of quality. Tips for promoting the accessibility of open educational resources can be found in A guide to the accessibility of open educational resources. Concrete examples of support include automatic video subtitling tools and subscriptions to subtitling services. The accessibility of open educational resources is increased if they are made available in the users' own languages. That is why it is worth for organisations to consider which educational resources to have translated and how the translation process works.

An organisation should provide instructions to authors of open educational resources on the types of materials that must include the name and other possible contact information of the organisation, and which types may not contain this information. Further instructions should also be given on, for example, the use of an organisation's logo and visual identity.

Organisations should ensure that the open educational resources associated with them are created and published in compliance with the copyrights of all parties. The recommendation on copyright matters to be taken into account in the open publication of educational resources can be used in this. Additionally, organisations should provide guidance and in-person support on the copyright matters of open educational resources and licences

to be used. As stated above, guidance is also necessary on agreements regarding co-created educational resources.

Publishing educational resources

An organisation should have a recommendation on the publishing platforms for open educational resources. The recommendation should also include the principles for selecting a platform and state whether different types of materials should be stored on different platforms, for example. Additionally, it is also worth checking that material published on the recommended platforms is adequately backed up. Good options for publishing are open platforms that have become a standard, such as the Library of Open Educational Resources.

An organisation should provide instructions to authors of open educational resources on how to publish descriptive information about their content. At a national level, the recommendation is to publish open educational resources' metadata in the Library of Open Educational Resources (aoe.fi). The organisation will benefit from support in creating metadata for educational resources.

Organisations may also have their own learning platforms, either for external or internal use. If a platform is also available for individuals outside the organisation, it may be one possible place to store open educational resources in. Learning platforms only used within an organisation should also offer the option for learners to download the material uploaded onto the platform on their own devices. The use of MPASSid[52] and Haka authentication[53], which make the cooperation between different organisations easier, is recommended on learner platforms intended for external use.

It is worthwhile for an organisation to advertise its staff members' open educational resources in its communications. Authors should also be provided with guidance on the findability of the resources and how to become profiled through them.

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52   https://www.oph.fi/en/finnish-national-agency-education-services/mpassid.
53   https://www.csc.fi/haka-kayttajatunnistusjarjestelma.

Open
Science

Federation of Finnish
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