UNESCO UNEVOC

United Nations · International Centre
Educational, Scientific and · for Technical and Vocational
Cultural Organization · Education and Training

OER in TVET

Open Educational Resources for skills development

Digital technology is gaining in importance - not only in life and work, but also in education and training. The availability of quality educational materials to prepare learners for work and life is a key factor to ensure an inclusive and equitable global society. A growing number of platforms with Open Educational Resources (OER) provide access to high-quality educational materials related to skills development. In times in which the development of knowledge is increasingly dynamic, openness in itself has emerged as a quality in education. In this context, it is key to realize the benefits of OER in the area of technical and vocational education and training (TVET).

www.unevoc.unesco.org/oer

Education
2030

The UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training (TVET) is committed to support UNESCO Member States in promoting peace, poverty alleviation, and sustainable development through:

- Promoting knowledge exchange, networking and collaborations between global TVET stakeholders through its platforms
- Developing quality TVET programmes that enable gainful youth employment, entrepreneurship, lifelong learning and respond to the dynamic skill demands;
- Promoting broad-based skills development opportunities that are equitable and accessible by all segments of the society, globally.

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- International Centre
- for Technical and Vocational
- Education and Training

What are Open Educational Resources?

The use of educational materials such as printed textbooks is to a large extent restricted by copyright. The traditional "all rights reserved" model specifies that materials can only be used if the rights holder agrees with such use. In the current digital age in which sharing of information has become easy and convenient and incurring almost no additional costs, copyright restrictions have become a severe limitation. It appears that such limitations go counter the very idea of education, which intends to share information to the widest extent possible. This is the basic idea of Open Educational Resources which are defined as follows:
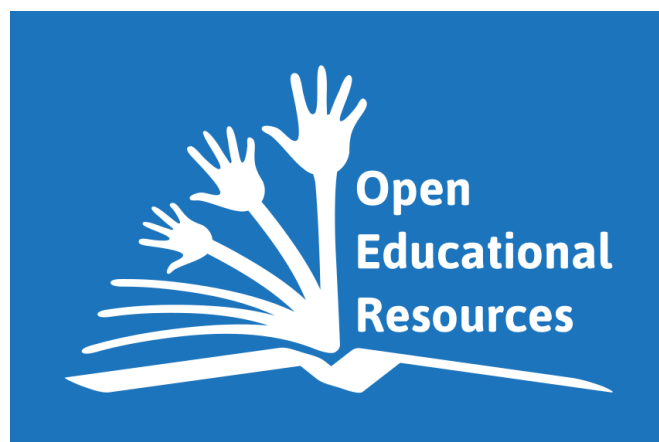
OER Global Logo by Jonathas Mello, CC BY. The open hands stand for the collaboration and collective knowledge involved in OER practices.

"Open Educational Resources are teaching, learning and research materials in any medium - digital or otherwise - that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions."

Paris OER Declaration (UNESCO, 2012)

The idea of open licensing aims to turn the copyright restriction around: Instead of always having to ask the copyright holder for permission, an open license explicitly specifies under what circumstances and conditions a work can be used and reused[1] - it thus encourages the sharing of resources.

OER can take many different forms: They range from textbooks to curricula, syllabi, course materials or lecture notes, assignments, tests, audio, video and animation.

open textbooks   lecture notes & presentations   multimedia   audio   illustrations   animations   assignments   quizzes
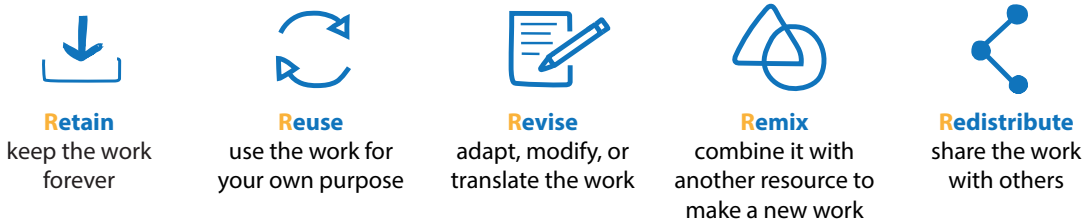
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1   For more information see *"Copyright and Open Educational Resources"*, Achal Prabhala, COL (2010)

Open is more than free: the 5R permissions

The open education advocate David Wiley has pointed out that it is important that educational resources are not only available freely, but that it is necessary to grant additional permissions to users to make resources truly open. Users need to have the 5R permissions to make full benefit of such resources: [2]

Retain
keep the work
forever

Reuse
use the work for
your own purpose

Revise
adapt, modify, or
translate the work

Remix
combine it with
another resource to
make a new work

Redistribute
share the work
with others

OER and open educational practices

OER are more than just textbooks, lecture notes, multimedia resources, and illustrations. Curricula and syllabi can be published with open licenses, and they can be developed in the context of open projects. It is important to recognize that OER and their creation is very often embedded in open and collaborative educational practices.

> *"The goal of Open Educational Practice (OEP) is to build the knowledge, skills, and behaviors that support and improve teaching and learning. Using open educational resources (OER) presents unique affordances for educators, as the use of OER is an invitation to adapt, personalize, and add relevancy to materials that inspire and encourage deeper learning in the classroom and across institutions."* [3]

Open Educational Practices rely on the use of open standards, open source software and open platforms that allow for collaborative editing and easy sharing.
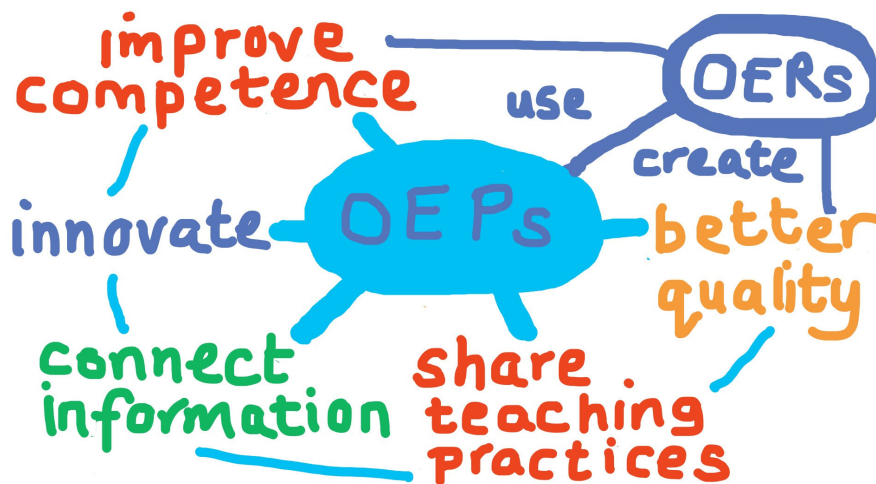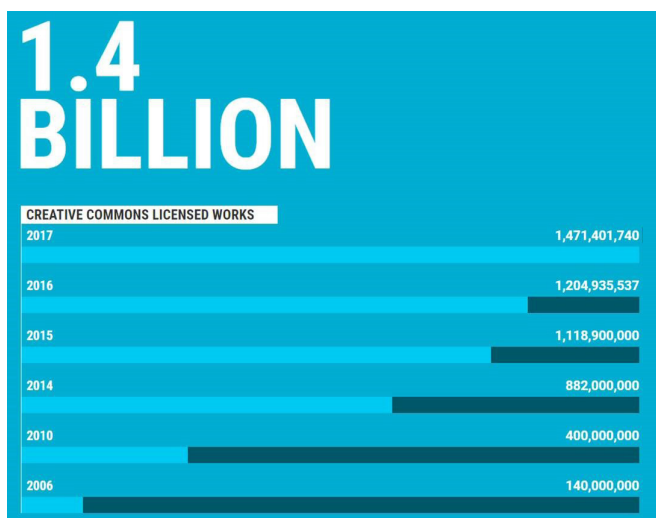

'Open Educational Practices' drawn by Anna Page for the OEPScotland project, CC-BY

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2   opencontent.org, *Defining the "Open" in Open Content and Open Educational Resources* (retrieved on 2 May 2018)

3   oercommons.org, *Open Educational Practice and Professional Learning* (retrieved on 2 May 2018)
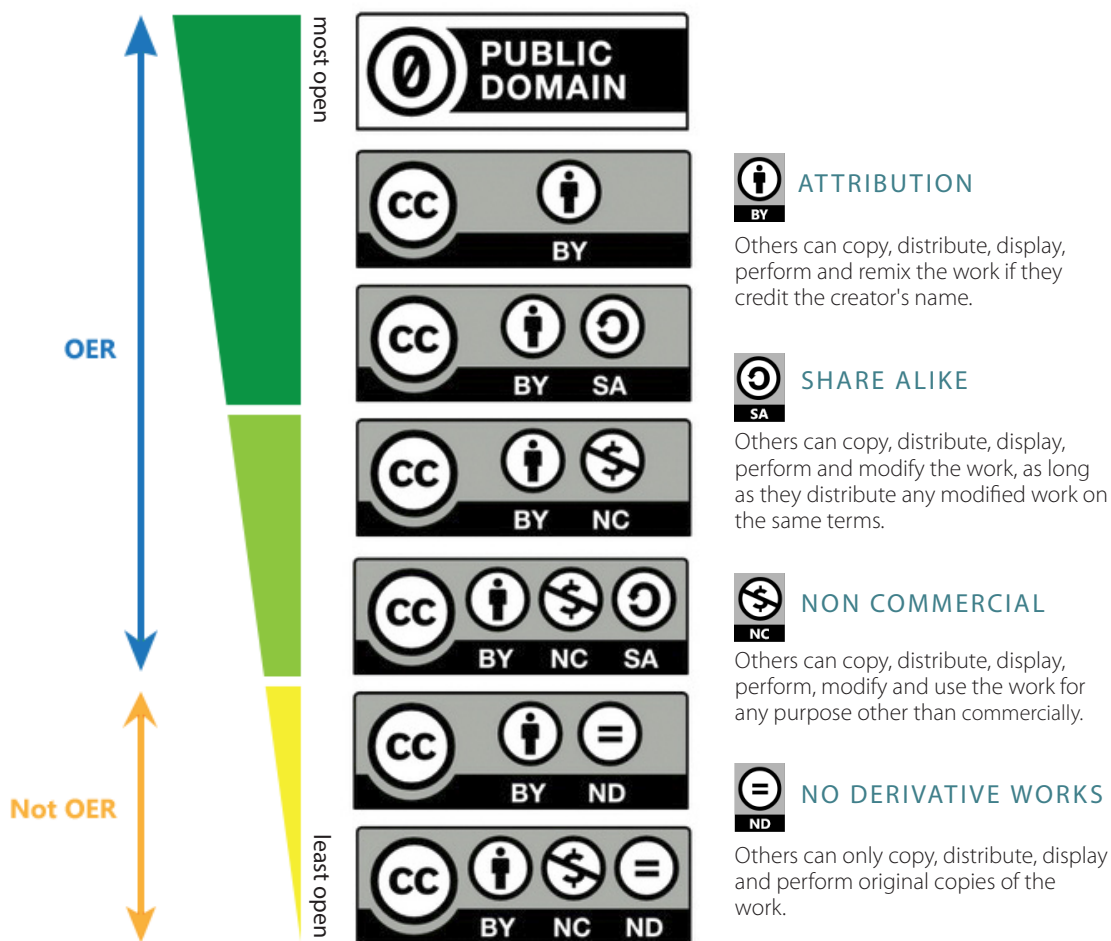
Open license models and Creative Commons

In the last 20 years, various models of public copyright licenses have been developed. Such licenses specify very clearly under which circumstances and in which ways educational resources may be used, re-used, revised and re-shared. The best known and most widely used model which has arguably become a standard are *Creative Commons* licenses. The Creative Commons organization released its first set of copyright licenses in 2002. They build on traditional copyright by extending it in such a way that the copyright owner has no longer to be asked for permission for certain uses. They range from the most open license model CC0 (public domain) to the restrictive CC BY-NC-ND, which many do not consider truely open because it does not permit any changes of the work. The most prominent example of an open resource is the online encyclopedia Wikipedia which uses the CC BY-SA license. From 2006 to 2017 the number of works that are openly available under Creative Commons licenses has increased tenfold - and new ones are added on a daily basis.

1.4 BILLION

CREATIVE COMMONS LICENSED WORKS

Year	Works
2017	1,471,401,740
2016	1,204,935,537
2015	1,118,900,000
2014	882,000,000
2010	400,000,000
2006	140,000,000

Screenshot stateof.creativecommons.org, Creative Commons licensed work 2006-2017

From very open to somewhat open - the Creative Commons licenses suite

most open

OER

Not OER

least open

PUBLIC DOMAIN

CC BY

CC BY SA

CC BY NC

CC BY NC SA

CC BY ND

CC BY NC ND

ATTRIBUTION

Others can copy, distribute, display, perform and remix the work if they credit the creator's name.

SHARE ALIKE

Others can copy, distribute, display, perform and modify the work, as long as they distribute any modified work on the same terms.

NON COMMERCIAL

Others can copy, distribute, display, perform, modify and use the work for any purpose other than commercially.

NO DERIVATIVE WORKS

Others can only copy, distribute, display and perform original copies of the work.

Types of Creative Commons licenses, UNESCO-UNEVOC, CC0

OER and open education on the international agenda

2002

The term "Open Educational Resources" was first coined at a UNESCO Forum on Open Courseware in 2002 and has since received growing recognition and support.

2007

Open Education Declaration

The Cape Town Open Education Declaration made a strong statement in support of open education and OER in 2007: It encouraged educators and learners to become active participants of the open education movement and it called on all stakeholders in the development of educational resources to release them as OER. On its 10th anniversary, the declaration was updated with the aim of taking the open education movement to the next level: "Ten directions to move Open Education forward".

2012

First World OER Congress, Paris

The 1st OER World Congress was organized by UNESCO in full partnership with the Commonwealth of Learning (COL).

Paris OER Declaration

The Declaration encourages governments worldwide to openly license publicly funded educational materials for public use:

"Governments/competent authorities can create substantial benefits for their citizens by ensuring that educational materials developed with public funds be made available under open licenses (with any restrictions they deem necessary) in order to maximize the impact of the investment."

2017

Second World OER Congress, Slovenia

The 2nd World OER Congress, entitled "OER for Inclusive and Equitable Quality Education: from Commitment to Action", co-organized in 2017 by UNESCO and the Government of Slovenia, reflected the pivotal role OER can play toward achieving the 2030 Agenda for Sustainable Development, and above all Sustainable Development Goal 4 on Quality Education.

Ljubljana Action Plan

At this Congress, the Ljubljana Action Plan with 41 "Recommendations for Mainstreaming OER in support of SDG 4" was adopted. The 2017 Ljubljana OER Action Plan calls for the mainstreaming of OER in all levels of education and repeats the Paris Declaration's call on governments to make educational materials available under open licenses. It very clearly demands that

Publicly funded educational resources should be developed and shared as openly licensed resources;

The Plan formulates 41 Actions for government action in five focus areas:

1 Building the capacity of users to find, re-use, create and share OER

2 Language and cultural issues

3 Ensuring inclusive and equitable access to quality OER

4 Developing sustainability models

5 Developing supportive policy environments

2019

UNESCO Recommendation on OER

UNESCO and its Member States are currently working on a *Recommendation for future international collaboration in the field of OER*. The Recommendation will formulate principles and norms for the international regulation of OER. Once it has passed the UNESCO General Conference in late 2019, UNESCO Member States will be invited to take legislative and other steps to apply these principles and norms within their respective territories.

What is the potential of OER to improve access to quality TVET?

An explorative research by Robert Schuwer and Ben Janssen

In 2017 UNESCO-UNEVOC commissioned two researchers with the goal of mapping the landscape of the use of OER in TVET and to provide UNESCO, in particular UNESCO-UNEVOC, with recommendations to promote and support OER and other open educational practices such as MOOCs in TVET.

The study was carried out by **Robert Schuwer**, UNESCO Chair on Open Educational Resources and their adoption by teachers, learners and institutions at Fontys University of Applied Sciences in Eindhoven, the Netherlands, and **Ben Janssen**, an independent researcher affiliated to the Chair. They collected data and information in the period June to November 2017 by means of a literature review, a survey and 10 interviews with experts in the field of TVET and OER. Additionally, a virtual conference was organized by UNESCO-UNEVOC to share the results of the study on the TVeT Forum and to collect further information about experiences and viewpoints on specific topics of the study.

The study found that **TVET is an almost neglected area in the OER space**. Thus far no substantial research on OER in TVET has taken place. A lot more can be found on the role of OER in higher education or secondary and K-12 education. The authors found only few successful examples of OER adaptation in TVET, and OER have thus far had little measurable impact in this educational field. The survey also showed that there is very little knowledge and awareness among TVET practitioners and policy-makers about issues related to OER and open licensing in general. At the same time, the study has found strong support for the **belief that OER have the potential to contribute substantively in the task of skilling people**. Many members of the TVET community hope that increased availability and use of OER will lead to better access, thereby contributing to more equity, and to higher quality and improved efficiency of TVET.

Focus on teachers and trainers, but systemic changes are required

In most projects and programmes identified, the main target group in activities to realize mainstreaming OER in TVET are teachers and trainers. Lack of knowledge, skills and competences with regard to OER constrain their ability to adopt and use OER to improve their pedagogical practices and learning outcomes for students. Therefore, many existing OER projects aim at creating awareness and capacity building among teachers and trainers. Projects implemented by Commonwealth of Learning suggest that OER adoption requires systemic changes. Programmes like INVEST Africa, the Virtual University of the Small States of the Commonwealth, and the University of the South Pacific, suggest that adoption of OER in TVET calls for more than a series of one-off interventions, projects or funding. Adoption of OER in TVET requires changes not only in the ways of teaching and training. It also requires institutional policy and capacity planning, most likely also the adaption of organizational structures. It requires innovative staff and teacher development, ICT skills development, and instructional design capacity development. And last but not least it requires adequate ICT infrastructures.

Is free access more important than 5Rs?

The survey has shown that many TVET practitioners appreciate having free access to resources but do not care much about the 5R permissions. Apparently, learners and teachers have different perspectives on openness. For learners free access may very well be the most important aspect. From a teachers' perspective, however, the rights to re-use, adapt, or to localize according to the needs of specific situations are key.

But given the major challenges facing TVET, it would already be a big step forward if more educational resources became freely available and easily accessible, even without further rights. This could well be a stepping stone towards a broader adoption of Open Education and OER in TVET.

Governments have a crucial role to play!

Profound adoption of OER requires the creation of education and training ecosystems of TVET in which stakeholders at different levels - institutional, sectoral, national and international – agree to cooperate and share information and resources. Inclusion of and engagement with national government and stakeholders are a prerequisite, and it requires an enabling policy at national level for innovation of TVET in general and adoption of OER in TVET in particular.

5Rs
Retain, Reuse, Revise, Remix, Redistribute

Recommendations for UNESCO-UNEVOC

Derived from the findings of the study, UNESCO-UNEVOC is recommended to pursue the following activities:

- **Raise awareness** about the understanding and relevance of OER, particularly at policy level. Governments should be encouraged to require educational resources for TVET produced with public funds to be openly licensed.
- In the area of **policy development**, national strategies and policies on OER for use in TVET should be developed. UNESCO-UNEVOC should encourage and support practices of development and adaption of OER in different cultural contexts. Models, frameworks and guidelines for policy formulation and implementation with regard to OER for TVET that governments and institutions can use, modify and apply should be shared.
- **Develop capacities**. UNESCO-UNEVOC should provide support to TVET institutions, trainers and educators, including the development of guidelines for customizing OER to local/national contexts.
- Get involved in defining **common standards**. There should be guidelines for policy formulation of governments and institutions, and mechanisms for quality assurance of OER in TVET.
- **Partnerships and cooperations** should be formed, including strategic alliances with stakeholders in the public and private spheres. UNESCO-UNEVOC should encourage research on OER for TVET.
- Systematically **collect information about promising practices** of OER for TVET.
- National and international repositories of training materials and case studies of good practices can be created.
- National and international "OER-TVET champions" should be featured to motivate, mentor and enable teachers to develop their E-learning capacities.

OER for TVET: A list of services

UNESCO-UNEVOC has compiled a commented list of platforms and services that provide or facilitate access to openly licensed content for TVET. The list includes services with an explicit focus on vocational education, but also others that do not exclusively feature TVET content.

The full list of resources is available at www.unevoc.unesco.org/oer

Some examples:

The **Massachusetts Institute of Technology** became a pioneer of the Open Education movement by publishing all of its courseware and making it freely available on the Internet in 2001 even before the term OER was coined. Thousands of courses are available as MIT Open Courseware under CC BY-NC-SA.


OAsis is the Commonwealth of Learning (COL)'s Open Access repository for learning resources and publications. The publications found here are licensed under Creative Commons BY-SA 4.0 and can be freely downloaded for reuse and adaptation with attribution to COL. The repository lists a diverse set of recently developed flexible learning resources such as "Sustainable Development Goals & TVET", "Introduction to Bookkeeping", "Basic Sewing Skills", working with concrete etc. COL is an intergovernmental organization that promotes the development and sharing of open learning and helps Commonwealth Member States and institutions harness the potential of distance learning and technologies for expanding access to education and training.
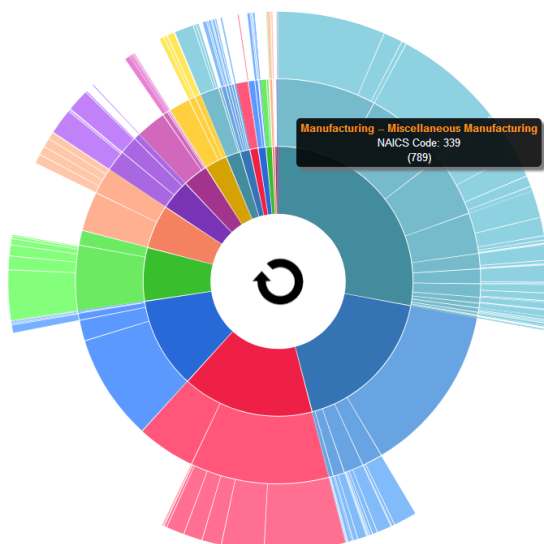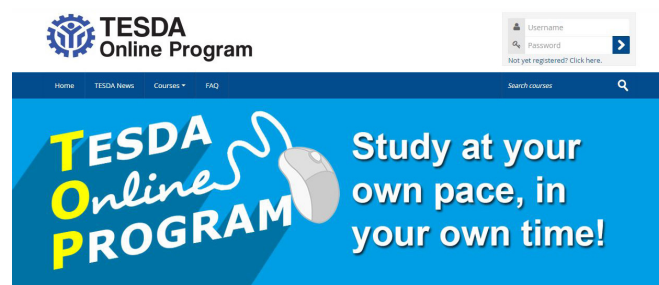

SkillsCommons, launched in 2014, is a free and open online library containing a comprehensive collection of workforce training materials licensed as OER, created by over 700 community colleges across the USA. It includes materials such as lecture presentations, syllabi etc. The contents are organized according to US Standard Occupational Classification codes. The service was created as part of a $1.9 billion investment under the US Department of Labor's *Trade Adjustment Assistance Community College and Career Training (TAACCCT) program*.

The **TESDA Online Program** is an OER platform that aims to make technical education more accessible to Filipino citizens through distance education. Contents include many key areas of TVET: agriculture, automotive, electrical and electronics, entrepreneurship, human health/ health care, heating, ventilation, air conditioning, and refrigeration, information and communication technology, lifelong learning skills, maritime, social, community development and other services, tourism and TVET. A login is required to access the resources. The contents are provided under CC BY-NC-SA 4.0.

The **TVET Academy** offers vocational training materials for disadvantaged youth in developing countries, primarily through multimedia resources which can be used by teachers and students. A download function provides the option to use the resources in remote areas using standalone projectors. TVET Academy provides training on entrepreneurship, sustainable development and life skills. Examples of available jobs are: hotel and catering, cooking, building and public works, masonry, electricity.

YouTube is not explicitly a learning platform and even less a resource focusing on TVET. However, it does contain reams of how-to videos. Many education and training providers use the service to host educational videos. Most of the resources on the platform are published under the Standard YouTube license which does not allow downloading or editing videos. But it is possible to upload and share videos under a CC-BY license, and an enormous amount of 49 million YouTube videos are available under a CC-BY license (2017).

Contact us at oer.tvet@unesco.org

You are invited to contact us at oer.tvet@unesco.org to give feedback on the list and to inform us of any services you would like to see included.

# 4 QUALITY EDUCATION

Skilling up more people...

Sustainable Development Goal 4 aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all by the year 2030. One of its targets is to increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

...is possible with **technology**...
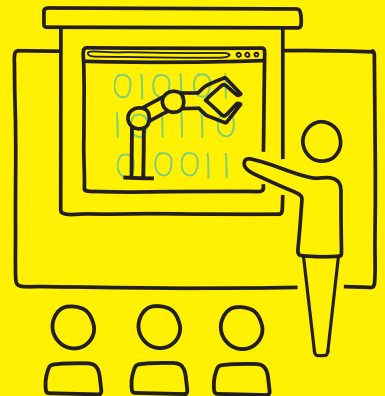
...and **Open Educational Resources** (OER).

Open Educational Resources are teaching, learning and research materials in any medium - digital or otherwise - that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions.

Open Educational Resources
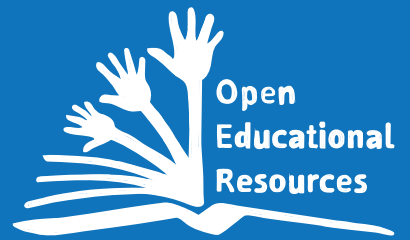
OER come in many different forms:

- open textbooks
- lecture notes & presentations
- multimedia
- audio
- illustrations
- animations
- assignments
- quizzes

...and many more like curricula, syllabi, joint projects etc.

Resources are really open if they meet the **5R** requirements:

Retain
keep the work forever

Reuse
use the work for your own purpose

Revise
adapt, modify, or translate the work

Remix
combine it with another resource to make a new work

Redistribute
share the work with others