A round the world, teachers are busy trying to help their students as best they can, and many teachers now find that storing their own learning materials for re-using in later classes can save time and effort in the future. Each classroom is unique, and you can gradually build up your own collection of materials from which you can select the most suitable and appropriate resources for your students on the day.

To help you prepare your materials for safely storing and re-using later on, we have compiled this pamphlet of ideas that you can look through for ways to develop your own materials so that you can be assured of good quality resources when you next need them.

To sort out these ideas collected from other teachers around the world, we have put them into four sections as layers of quality suggestions - each layer covers certain points that you could consider when designing your materials.

These four layers cover your teaching style (**T**) and then the materials you want your students to learn (**I**). Also you can choose how to present and package your ideas (**P**) and lastly how to make these easily stored on your computer (**S**).

T teaching and learning processes

I information and material content

P presentation product and format

S system technical and technology
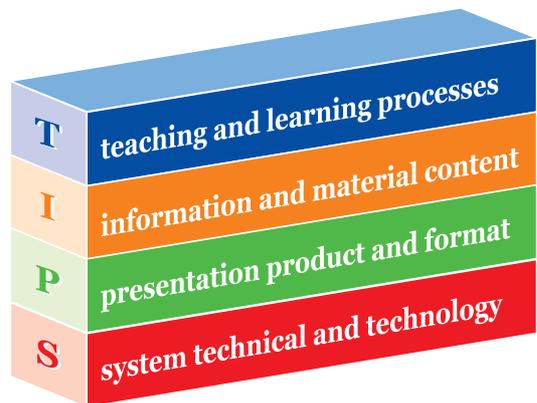
about   Open Educational Resources (OER)

There are many exciting resources available which are free-of-cost for you to recycle into your own materials as you like - but there's a general rule that you must always say where you got these resources. Open Educational Resources here are 'digital' (at some time on a computer) and have an open licence attached so you can safely borrow and also share with other teachers and students online.

The intended purpose of these Guidelines is to offer ideas to those who want to create or adapt OER, and so to build a culture of quality surrounding the use and reuse of OER. There have been calls eg by Tucker & Bateman (2009, p.89) and UNESCO for some guidelines on quality criteria, and this pamphlet provides these clearly in a way that is easy to understand.
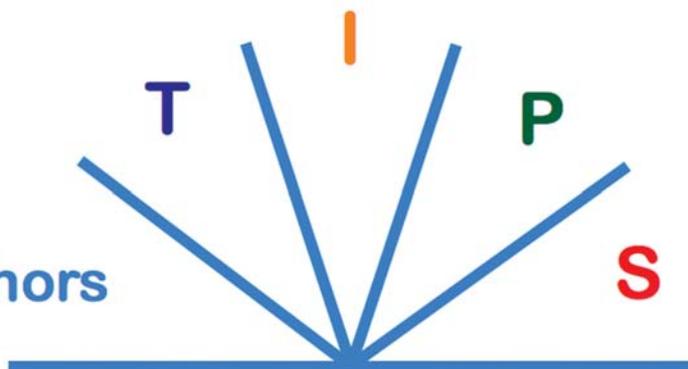
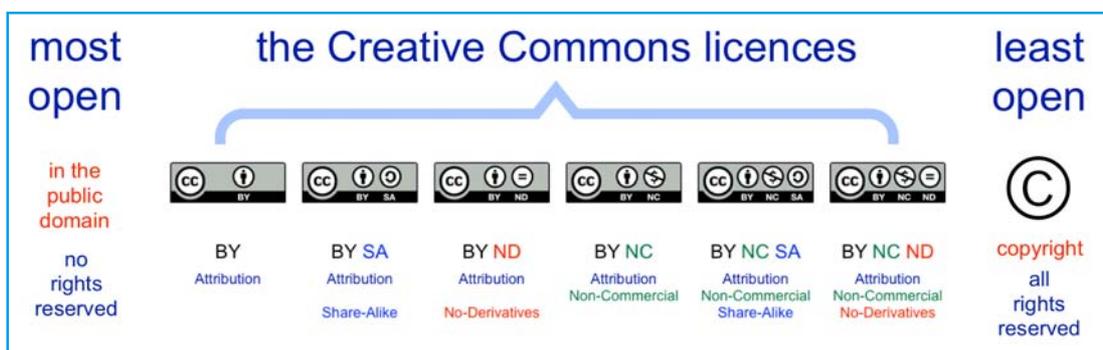| GLOSSARY	some useful words for you to know about Open educational resources (OER)
open educational resource (OER)	digital self-contained unit of self-assessable teaching with an explicit measurable learning objective, having an open licence clearly attached and generally free-of-cost to reuse
localisation	adaptation of OER from any other place to suit the culture, language, and other requirements of a new other specific local context, where the resulting OER appears to have been created in the end-user local culture
internationalisation	creating a new context-free OER that is transmissible and enables later easy adaptation to a local context, having the capabilities built in to be adapted but not local-contents built in
globalisation	taking an old OER and retrofitting it to suit other local context(s), eg taking an OER from an old local context, internationalising it, then re-localising it into a new local context
world-readiness	creating a new OER that is internationalised and having a wide range of local-learning material already built into it
context-free	without any special cultural bias and so ready for a teacher to add local materials to make it suitable and appropriate to reuse in class

in repositories
upper-most level =
easily reusable
context-free

internationalisation
for export/import

reusable

intermediate level =
adaptable *for*
other teachers

adaptable   **adaptable**

lowest level =
customised to the
local context of
student end-users
in the classroom

customised   **customised**   **customised**

localisation

contents : -

Guidelines *for* **Authors**

Remember to put an open licence on your work, to share your work with other teachers ~~ The following figure shows you the six open licences suggested by the Creative Commons.

We recommend you put the BY-SA licence, so others keep your name and licence attached.

most open	the Creative Commons licences						least open
in the public domain	BY	BY SA	BY ND	BY NC	BY NC SA	BY NC ND	copyright
no rights reserved	Attribution	Attribution Share-Alike	Attribution No-Derivatives	Attribution Non-Commercial	Attribution Non-Commercial Share-Alike	Attribution Non-Commercial No-Derivatives	all rights reserved

Everyone finds creating their own OER a little difficult. However, you might prefer joining with some other teachers or with your own students in a team together. Whether you are in a face-to-face or in an online forum, you should easily find some others to form a team and help you create your OER.

There are quite a few points here, because the learning by your students is so important;

T-1 Why is your OER useful?

Explain the rationale for your OER. Say clearly what are the learning objectives to be achieved by the student, and why these are important and relevant. One way is to align your content with a specific examination or the national curriculum. Another way is to align your content to current or future employment - perhaps including some encouraging endorsements from prospective employers.

T-2 Who will use your OER?

Say clearly the suggested age range and academic level of your intended students, so they can find an OER at their appropriate level. Where you describe them, say any special cultural or local characteristics about them. Help them develop their own identities and sense of own worth, by asking them to reflect on benefits and by emphasising that their efforts bring them rewards in achieved learning, increased capabilities, independence and autonomy.

T-3 How to teach?

Use a learner-centred approach where suitable. This approach adopts the student perspective and relates new ideas with those already known by the student. One way to be sure is to ask the student to bring in his or her own situation and past knowledge to think about the new material, and how it relates to the already known ideas.

T-4 How to speak?

Use a gender-free conversational style in your language - whether written or spoken. Use the active-voice and personal terms, and avoid slang and difficult language. Check the readability of your texts to make sure your use of language is most suitable to the level of your students.

T-5 Motivate the student!

Involve the student in the learning, through posing questions and challenges. Use interactive learning activities which recycle new information and foster the joy of learning. Say explicitly why each learning task is useful, with real-world relevance to the student's own world. Use personal stories to illustrate points, and inspire the imagination of the student. Measure how many hours your OER will take, and be careful not to give the student too much to do.

T-6 What results?

After each significant point in your materials, ask the student how this can be related to other knowledge. Give examples of different answers as formative feedback. Where it is convenient, offer puzzles and self-assessment exercises for the student alone to test out his or her own understanding of the concepts just covered. Use well-designed multiple choice questions, and afterwards show how and why each alternative is right or wrong. Offer remedial OER as well.

T-7 Show you care ...

Offer many various ways of supporting their learning. Show them how to improve their outcomes in a study guide, tell them where they can find help, and where discussions are available if they have questions or just want to talk more about their own interests, experiences and any worries. This can be done by giving links to websites and to other OER.

Examples...

how to motivate your students:

There are more than sixteen ways to motivate the will to learn intrinsically and extrinsically. The intrinsic motivations are reported in detail in Kawachi (2006) and are shown here briefly as being vocational, academic, personal, or social.

The intrinsic vocational motivation to learn is usual among working adults wanting further skills or for job mobility. However, these days with social media becoming popular, the four main intrinsic social motivations to learn are becoming more important.

Intrinsic Motivation Categories		Description		
1. Vocational		enculturation within one's job		
2. Academic		acculturation into new discipline		
3. Personal	challenge	tempo	initial difficulty	outcome
		- steady	raised	raised
		- recurrent	raised	fixed
		- sporadic	low	fixed
		- one-shot	very high	fixed
	curiosity	- sensory - cognitive	combined media novelty, inconsistency	
	fantasy	intrinsic	- near bridging, hugging - far bridging, modelling	
4. Social	acculturative	S ⟷ T	integrate into the discipline	
	affiliative	S ⟷ Ss	become a group member	
	interactive	S ⟷ C	negotiate meaning	
	aesthetic	S ⟷ P	lifelong learning	

These points below give ideas about accuracy, and the skills or knowledge to be learnt;

I-1 Everything is up-to-date, isn't it?

Make sure that the knowledge and skills you want the student to learn are up-to-date, accurate and reliable. One way to do this is to follow closely the content that is going to be tested in a national or external examination, or which is detailed in the school curriculum. Consider asking a subject-matter expert for advice.

I-2 What to include?

You need to limit the content to as little as possible, but also keep in mind the potential diversity of your students. All your content should be relevant and appropriate to purpose. Avoid superfluous material and distractions.

Try to keep your OER compact in size.

Remember **smaller is better ...**

and then all your OER will be easier to reuse as small building blocks later on to create a new larger lesson. Other teachers will benefit too!
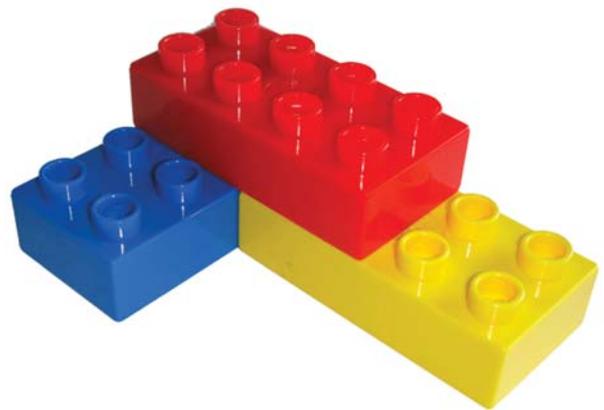
I-3 Localise your content

Your content should be authentic, internally consistent and appropriately localised to best suit your students learning. Try out your draft OER with real students as you are writing.

I-4 Who can help?

Ask your students to help you. They can offer their perspectives and their input to create localised content for situated learning: draw on your students' prior learning and experience, and their empirical and indigenous knowledge.

I-5 How to cater for different students?

Add links to other materials to enrich your content, and then different students can click to find whatever extra content they want. They can choose according to individual differences.

I-6 How to develop mastery?

To induce mastery of the content and inspire the joy of learning, include anecdotal stories of misunderstandings and their consequences - some examples are given on the next page.

I-7 Be fair to your students ...

Your perspective should support equality and equity, promote social harmony, and be fair to all kinds of students, be socially inclusive, law abiding and non-discriminatory.

Examples ...

Start from where the student is - remember your lesson starts in their mind: so asking them to help you make your OER is a great way to create good OER.

In your text, give *links to more information* so students can discover other ways to learn your content. You can add links to content at a lower level, and to other content at a higher level.

Add links to video, radio or voice recordings, to cater to different learning styles.

After your lead-in introduction

give different pathways
A, B, C, D etc
with crossover
interlinking
to cater to
different individual
learning styles

as free choices
of ways to learn
your content

before giving your
final assessment

and lead-out
suggesting further
OER for the student

```
lead-in

D1
C1
B1
D2
A1          C2
B2          D3
C3
D4

final

lead-out
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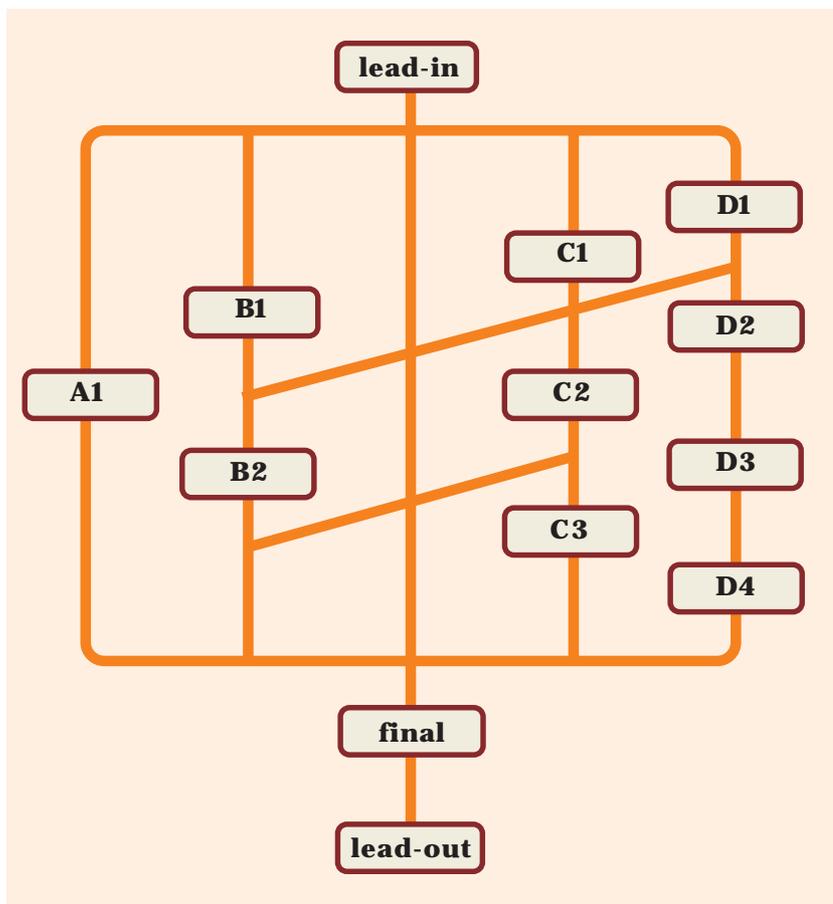
To develop mastery, you want the student to experience alternatives - and this is easy to do vicariously using stories of what happens if things go wrong or other paths are taken.

eg-1 Saying "You must lock your bicycle" might not be enough, and it would be better to explain "If you don't lock your bicycle then someone might steal it. Then you'd have to walk to school, and later buy a new one". Knowing consequences helps develop mastery.

eg-2 In a drama, you can have an accident-prone character alongside the commendable character, and then use the accident-prone character to demonstrate 'what not to do'.

P-1 Make beautiful OER ...

Beauty is in the eye of the beholder. So use your imagination to create OER that appeal to the senses of your future students. Use colours, sounds, images, and video. Empty white-space can make your text look less dense and pleasing to the eye - keep everything light and airy.

P-2 Which multimedia is best?

You should use only two or three types of multimedia in one OER. This will then be attractive and yet not distract the student from seeing and learning the content. Whichever multimedia you choose, remember to present your content material in a clear, concise, and coherent way, taking care so that any sound or image is of suitable good quality.

P-3 Is my way of teaching okay?

No one knows which teaching style is best. Try to be flexible and use different ways to convey your ideas - so that students with different learning styles are happy. Offer choices to suit different students - remember some like video and others prefer text. Consider whether your OER will be printed out, usable off-line, or is suitable for mobile use.

P-4 What about using music?

If you use any theme music, try to make this appropriate to the local culture and context. Perhaps a short passage of music at the beginning will catch their attention and act as a cue to recall schema to help them remember past episodes eg in a series of OER podcasts.

P-5 Who do the students want to watch?

Sometimes realia or video of a famous person can be exciting for students. Some students might be fond of a special fashion star, but others might not, so be very careful to choose suitable characters. In video, students probably don't need to watch the teacher (you!) talking all the time, and instead you could change camera angle to other views.

P-6 Be interactive and invite feedback ...

Design interactive OER, by posing pre-reading questions, or inserting questions into the middle or end of your OER. Also at the end ask for feedback, comments and suggestions for ways to improve the OER. Instead of pre-reading questions, you could say which OER could be studied beforehand as preparation. And you could suggest OER to study afterwards.

P-7 Be safe!

Be careful about using copyright materials. It is a good idea to reuse other OER which have an open licence attached. Always put an open licence clearly on your OER, and state who was the original author(s) of any work you reuse. Add a link (eg *email address*) to yourself.


This open licence is designed by Creative Commons. It says that you want anyone who reuses your OER to state that you were the original author (Attribution) and also to keep your chosen licence on any adapted work in which anyone reuses your OER (Share-Alike).

Examples ...

see *http://www.open-ed.net/oer/unit21.html*
as an example of an interactive OER with supporting files
using print or video, or as slides with script for easy voice-over
and formatted for either online or offline use.

Choose your multimedia carefully to suit your content and suit your prospective students.
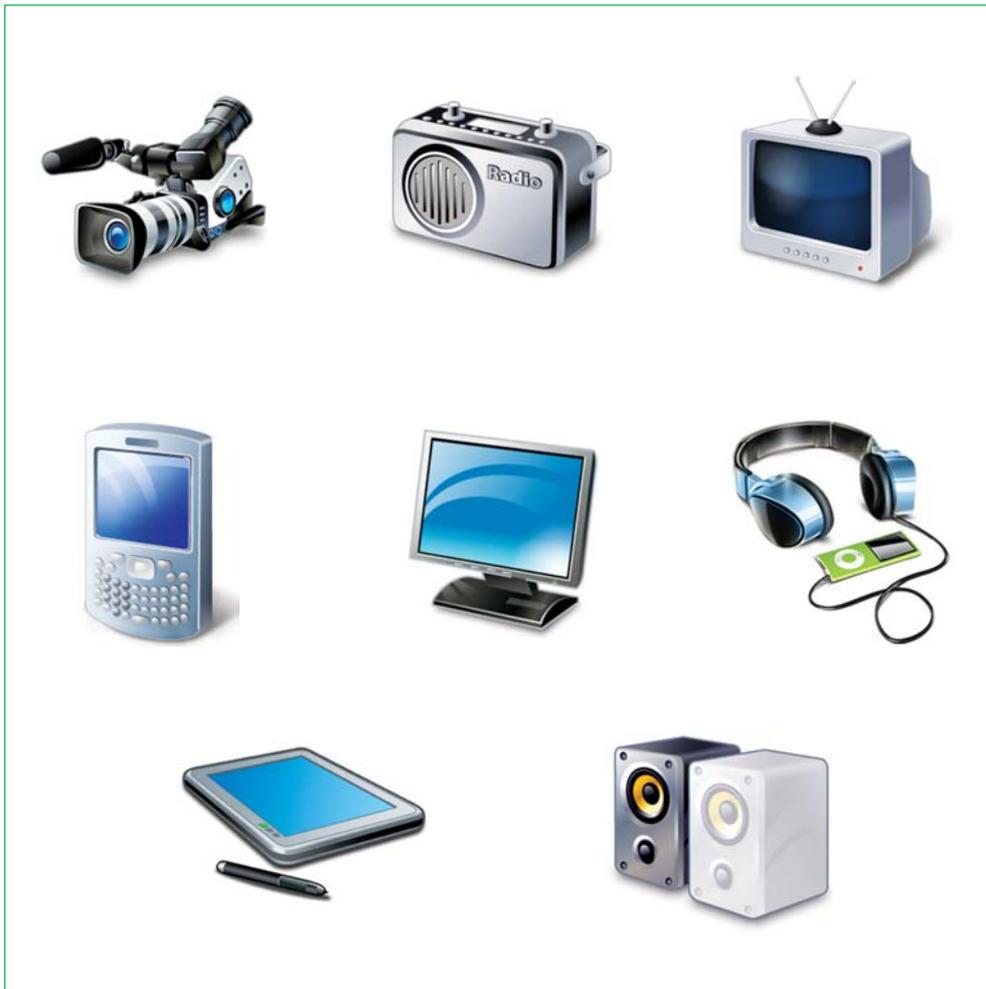
These free multimedia icons available from *http://www.iconarchive.com*

S-1 Which software to use?

Use free open access software to create your OER. This means that you or anyone in the future can easily adapt and improve your OER. In particular you can bring it all up-to-date without having to re-start from scratch later on. Using freely available software in open formats for delivery of OER then enables easy reuse and re-mix by others.

S-2 Label your OER

Consider adding metadata tags about the content to help you and others later on to find your OER. Ask for help if you don't know how to do this. You can add keywords at the beginning as an easy way for students to know what your OER is about. In a classroom, many teachers write in the corner of the blackboard these Advance Organiser terms about the lesson plan.

S-3 What technical information is useful?

Include a date of production, and date of next revision, so your students know your OER is current and up-to-date, and also know when a new version might be available. Say how many hours you expect an average student will take to study your OER and learn the content. Also say the academic level (how difficult you think it might be), format and size of the OER.

S-4 Using another language or picture?

To reuse your OER in future, you might want to change the language or change a picture or two. So that this can be done easily by you or anyone else, keep your text-files, sound-files and images separately from your software code. Ask a technical expert for help if you want to learn how to do this. Then others can translate and localise your work to the culture and context of different students. Your work will help other teachers in developing countries.

S-5 Can students use your OER offline?

Many students want to study quietly offline, especially when it is expensive for them to get internet access. In the same way, any writing or work by the student can be done on the student's own computer - rather than on a distant website - and thus afterwards the student has a record and can build up his or her own individual learning portfolio. If your OER is designed for other platforms eg mobile telephones, then your students may be able to learn at any time and at any place which is most convenient to them.

S-6 Where to store your OER?

You can upload your digital OER to a website, to your institution's server computer, or to a large free storage site called a repository where students can access, retrieve, reuse and study your OER. Most repositories generally offer free storage. An ideal choice of repository is one where there are OER on similar topics, so they are all kept in one place.

S-7 Anything afterwards?

After you have designed your OER and uploaded it to a repository, then consider setting up an online discussion group for students. You can point the students to this in your OER text. You could also mention where they can find technical as well as learning support. You might wish to monitor or take part in the online discussions. In any case you will want to get feedback from your students and other teachers to improve your own professional skills.

Examples and further information...

If you do an online search for "open office software" you can find many free packages to do word-processing, slides presentation and spreadsheet documents. These will be useful for creating your own OER. eg *http://www.libreoffice.org* offers free software under a CC-BY-SA licence and also *http://www.openoffice.org* which is covered by its own open licence. If you want to create video, then look through the list of free video software at *http://en.wikipedia.org/wiki/List_of_video_editing_software.*

The Wikimedia Foundation *http://wikimediafoundation.org* develops free educational content, and it operates the following free resources to help you create your own OER.

Wikipedia :
free encyclopedia

Wikibooks:
free textbooks

Wikiversity:
free learning tools

Wikimedia:
free media files

Look through WikiEducator for a wide range of free resources to help you with the technical aspects of creating your own OER.

http://wikieducator.org

Creating OER from scratch can be expensive. You can save time and money by reusing small OER by other authors and then re-mix and adapt them to suit your own future students. Read the article by Ishan Abeywardena (pages 173-184) in the book on OER by Dhanarajan & Porter (2013) on how to build up a whole course through re-using or recycling other OER.

References:

If you have any difficulty obtaining a copy of any reference here, please ask us for help

Dhanarajan, G., & Porter, D. (Eds.) (2013). *Open educational resources: An Asian perspective*. Vancouver: Commonwealth of Learning.
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Kawachi, P. (2006). The will to learn: Tutor's role. In P.R. Ramanujam (Ed.), *Globalisation, education and open distance learning,* (pp. 197-221). New Delhi: Shipra.

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Tucker, K., & Bateman, P. (2009). A research agenda for OER: Discussion highlights. In S. D'Antoni, & C. Savage (Eds.), *Open educational resources: Conversations in cyberspace,* (pp. 85-96). Paris: UNESCO.

Validations and future revisions :

We know that the field concerning OER is evolving, and new ideas are coming from teachers; both experts and beginners in open and distance learning, and we are listening to how these Guidelines are used in the field and how to improve them to keep them up-to-date. Your own contribution towards validating the effectiveness of these Guidelines is extremely helpful. We want to thank all those who have contributed so far and all of you who do so in the future.

Paul Kawachi (email: *kawachi@open-ed.net*) has prepared this training handout as a derivative of the CEMCA Publication entitled "Quality Assurance Guidelines for Open Educational Resources: TIPS Framework" written by him based on data collected through consultation with experts and research.