



A QUALITY FRAMEWORK FOR OER

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ABSTRACT

Quality in teaching and learning has always attracted the attention of policy makers, educators, parents and students. It is the bedrock of a quality output-the student and it marks the effectiveness and efficiency of the provider. The quality of teaching and learning is constantly questioned due to many reasons, some of which could be skills and knowledge of the teaching and learning process, the competency of the educator in the content knowledge, the passion and attitude of the educator vis-à-vis the expectations of students. This phenomenon has become more urgent as the availability of free electronic learning resources is equated to higher quality. As a teacher and also an e-learning educator, I find the sharing of open educational resources or OERs freely (as per CC License) a right move towards increasing the quality of learning and hence democratization of education. However there seems to be some concerns as per the quality of the OERs. After all the whole idea of the OERs apart from “sharing resources freely and making an institutional mark” is also to ensure we overcome the constantly nudging issue of ineffective learning. Now that OERs have been created, it is important to evaluate the effectiveness of these OERs.

This paper will first look at some crucial definitions, followed by a review of available efforts on quality of OERs and end with some case studies and suggestions

I. INTRODUCTION

It is undeniable that quality resource is fundamental in any initiative to educate learners. As more and more OER become freely available, a new challenge has emerged, the issue of quality. Many researchers have raised concern on quality aspects in OER but so far no review has been conducted on the quality of resources developed by these OER creators. Access to education is not freely available to all. As such, Open Educational Resources (OER) has the potential to give every individual the right to free education. The increasing number of learning materials and repositories makes the issue of how to locate and judge resources that are most relevant and of best quality a pressing one.

There are both technical and attitudinal barriers that seem to daunt educators from using OER (Dhanarajan & Abeywardena, 2013). Their research confirmed that the attitudinal barriers are hesitation on the quality of the digital resources, its suitability to support the curriculum and concern over plagiarised material. Wiley and Gurrell (2009) reported that, “there is a desperate demand in the world for high-quality OER”. They also argued that many people believe that since OER is free, it certainly has to be of poor quality.

1.1 Definitions

The following section will provide definitions to 2 concepts: OERs and Quality.

1.1.1 OERs

A widely acknowledged working definition of OERs reads as follows: “OER refers to educational resources (lessons, plans, quizzes, syllabi, instructional modules, simulations, etc.) that are freely available for use, reuse, adaptation and sharing” (Wiley, 2008). A further expansion is given by Butcher (2011): OER are educational resources that are “openly available for use by educators and students, without an accompanying need to pay royalties or license fees”. OECD defines OER as “digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research” (2007). The OECD has categorized the digitized materials into 3:

1. Learning Content: Complete courses (probably in both/either HTML and PDF), learning objects, courseware and journal articles
2. Tools: Software that will support the development, use, reuse and delivery of learning content
3. Implementation resources: IP licenses, etc (OECD, 2007)

According to the Hewlett Website: “OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge”

Further according to the Hewlett website: “Open Educational Resources (OER) are high-quality, openly licensed, online educational materials that offer an extraordinary opportunity for people everywhere to share, use, and reuse knowledge. They also demonstrate great potential as a mechanism for instructional innovation as networks of teachers and learners share best practices”

Apparently since 2002, the Hewlett Foundation has worked with OER grantees to improve education globally by making high-quality academic materials openly available on the Internet. The Education Program continues to work toward establishing a self-sustaining and adaptive global OER ecosystem and demonstrating its potential to improve teaching and learning.

OER Commons define OER as teaching and learning resources that are **freely** available **online** for everyone to use and examples include complete curriculum, lecture notes and accompanying resources, modules etc. Creative Commons (2002) have an almost similar meaning but add that these materials have been released under an open license that permits their free use and re-purposing.

As stated by the Achieve website, “there are literally millions of OERs currently available on the Internet”. But what differentiate them from one another? To further tweak the thinking of OER enthusiast, the following question is posed “how can educators determine whether the resources are of high quality”

1.1.2 Quality

The following are meanings of quality as proposed by quality gurus Juran, Demning and Crosby:

Juran: “fitness for intended use”; Demning: “meeting or exceeding customer expectations”; and Crosby: “quality is conformance to requirements”. Each of the definitions above provide us a different way to view quality more so in the production and management industry. One question to be answered is: How does one evaluate whether a product is of quality or not in the education sector? More so now that the product has become an important resource, uploaded somewhere and is tangible. At least the following can be said if an educational resource/product is of quality or not:

1. The product demonstrates the “producer’s” profound knowledge in the subject matter.
2. The product demonstrates the “producer’s” profound knowledge and skills in instructional design
3. The content is “humanized” in a technology environment
4. The technology issues are considered in producing and uploading the product

So what may be acceptable in the classroom is subjected to a totally different ball-game when uploaded into a digital resource. For a video, one’s quality of voice (the 4 Ps- pace, pronunciation, pitch and power), presentation style, spoken nuances, body-language etc are important. So a question to ask here is who produces these OERs and what guidelines have been used to produce them to ensure a certain standard is achieved before sharing freely with the rest of the world. Given the fact that the OERs are freely available, does it mean that anything and everything an institution/individual can offer goes in? A cursory evaluation of about 15 OER sites showed that very few demonstrated some kind of quality learning materials, which follow principles of instructional and technology design.

1.2 Literature on Quality of OER

As reported by Kawachi (2013), “More than thirty frameworks of quality dimensions were discovered in the

literature, and fifteen of these were of sufficient merit and relevance to be then explored in detail to extract dimensions and sub-dimensions of quality related to learning

materials. These frameworks are those reported by Achieve (2011), Bakken & Bridges (2011), Baya’a, Shehade & Baya’a (2009), Binns & Otto (2006), Camilleri & Tannhäuser (2012), CEMCA (2009), Ehlers (2012), Frydenberg (2002), Merisotis & Phipps (2000), Khan (2001), Khanna & Basak (2013), Kwak (2009), Latchem (2012), McGill (2012), Quality Matters Program (2011), and SREB – Southern Regional Education Board (2001) in alphabetical order” (p. 13). A number of institutions have started the process of quality assessment of OERs, and these include MERLOT. MERLOT adopted the approach of **professional review** by a committee of peers. The production and selection process is centralised to safeguard the quality of OER developed (Downes, 2007). According to Hanley (2005), despite MERLOT’s initiative to sustain the quality of OER, only 14% of materials submitted at MERLOT have been reviewed. Hylen (2005) had outlined these alternatives to address the issue of quality management in OER:

1. Use the **reputation of the institution** to convince users that their OER are of good quality;
2. Use the **peer review approach**, a most commonly used quality assurance in learning institutions; and
3. Open **users review approach** in which users are encouraged to determine if a learning resource is of good quality, effective or has value in any way.

Apart from questions on access and usability of OER, quality related issues are also raised very often as users expect learning resources to be credible (Downes, 2007). “There is little doubt that the generic lack of a **review process** or quality assessment system is a serious issue and is hindering increased uptake and usage of OER. User commentary, branding, peer reviews or user communities evaluating the quality and usefulness of the OER might be possible ways forward.” (Larsen, K. & Vincent-Lancrin, 2005). *Achieve* and the *Institute for the Study of Knowledge Management in Education* (ISKME) launched a tool for users to rate the quality of OERs in the form of rubrics (see Appendix 1).

The Open, Transferable and Technology-enabled Educational resources (OTTER) team devised “progressive and cumulative” quality process criteria to evaluate and develop quality OER i.e. CORRE. Each stage of the CORRE (‘Content, Openness, Reuse, Repurpose and Evidence’) framework incorporates an additional set of criteria. For example, the quality criteria at the end of the ‘Reuse’ stage include all the criteria in previous 2 stages (See Appendix 2). Briefly, ACHIEVE and CORRE have the following criteria for quality evaluation of OERs

ACHIEVE	OTTER/CORRE (selected criteria)
Rubric I. Degree of Alignment to Standards	Content "Has been used in specific modules" "has cleared initial screening 'as useful educational materials'"
Rubric II. Quality of Explanation of the Subject Matter	Openness "Legally clean and clear to be moved to public domain" [usability and accessibility issues]
Rubric III. Utility of Materials Designed to Support Teaching	Reuse [mainly about the content] Example: "Accurate content"; "Visually engaging"
Rubric IV. Quality of Assessment	Repurpose Easy to: Download, manipulate, integrate
Rubric V. Quality of Technological Interactivity	Evidence: can be tracked
Rubric VI. Quality of Instructional and Practice Exercises	
Rubric VII. Opportunities for Deeper Learning	
Rubric VIII. Assurance of Accessibility	

Misra (2013) proposed a comprehensive **tripartite review mechanism** to evaluate quality assurance in OER based courseware. He has outlined the four important aspects of OER based courseware: content, pedagogy, presentation and publication. The review mechanism includes the three main reviewers in OER based courseware i.e. developers, peers and users. His mechanism has covered from the time the courseware is developed till the user by proposing this tripartite mechanism. He says "the mechanism is easy to understand and applicable to quality assurance measures". Dhanarajan (2013) reiterates that quality in the context of OER can be contextualized in these three aspects - quality in the production of OER, quality from an institutional context and quality from the perspective of users.

Kawachi (2013) reported in a CEMCA publication of another framework collaboratively discussed in a CEMCA-COL sponsored workshop in March 2013 called T.I.P.S which consist of guidelines for quality encompassing Teaching and Learning (T), Information and Content (I), Presentation (P) and System (S) which consist of 19 categories and 65 criteria.

1.3 Evaluation of OER Sites

1.3.1 University of Nottingham

At the request of the University of Nottingham, nine members of the OER Africa team briefly reviewed the UNow website – <http://unow.nottingham.ac.uk> – using the survey feedback form provided (Appendix 3). The survey

looked at impressions, clarity, audience, usability, accessibility, clarity, amount of information, searching/browsing of resources, range and types of materials available, accessing the materials, formats, suggested improvements and other websites. It is interesting to note that in the section on "suggested improvements" there was no mention of quality of teaching and learning materials.

1.3.2 Open University UK

The writer, in evaluating at least 15 OER institutional sites, found that the following course had incorporated quality measures in the OER (see Figure 1) <http://www.open.edu/openlearn/education/creating-open-educational-resources/content-section-0>

Figure 1: Screen Capture of OpenLearn OER Site
Why is this considered a quality OER? The following are some reasons:

1. Learning outcomes are clearly stated.
2. A pre-test is given in the manner of a Quiz. The Quiz enables a learner to test his/her prior knowledge on the subject matter. The Quiz is well designed as there is immediate feedback and the learner can ascertain the errors made, further learning happens at the mastery level.
3. A variety of resources are given: videos, text-based and power-point slides. This meets the different learning styles exhibited by different learners.
4. There is practice and feedback of concepts presented.
5. Interface design is intuitive.

By: The Open University

Duration: 15 hours
Level: Introductory

Published on: Monday 22nd August 2011
Posted under: Education

Comments (0)



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1 What is open learning and why OERs?

2 What makes a good OER?

3 Finding and evaluating OERs

4 Copyright and OER

5 The pedagogy of open learning

6 Tools for creating an OER

7 Making the case for OER

References

Acknowledgements



Creating open educational resources

Introduction

This unit introduces you to the concepts of:

- open educational resources (OERs)
- issues involved in the creation, use and re-use, and pedagogy of OERs
- a range of tools and media to support you in developing your own teaching and learning practices.



It will provide you with the skills and confidence to engage in further OER work as both creator and user.

→ Next: Learning outcomes

However, there are some suggestions on how this can further be improved:

- Screen design- it is rather cluttered with too much unnecessary information.
- This may result in cognitive overload.
- This may distract the learner.
- The videos can be made more audible and focused.

- The use of screen-shots in some videos is not advisable.

1.4 Suggestions

A quality framework for OER could consider a number of factors. The following is a selection of criteria that can be used to review quality of OER from the literature of quality OER framework

Item	Review Criteria	Fully met	Partially Met	Not Met	Comments
1	The content meets the stated learning outcome.				
2	The content is appropriate to the level of learners.	/			
3	Appropriate media is chosen in terms of audio, video, simulations and graphics.				
4	The activities are appropriate for the chosen content and meet the learning outcome.	/			
5	The OER engages students to think deeply when doing an activity.	/			
6	The OER enables practice in authentic real-world situations.	/			
7	The OER is interesting and motivating.	/			
8	The OER uses simple language.	/			
9	The OER is accurate and error free.	/			
10	The interface is intuitive and easily navigable.	/			
11	The OER is easy to repurpose.	/			
12	Licensing is clearly visible and follows suggested and accepted license structure.	/			

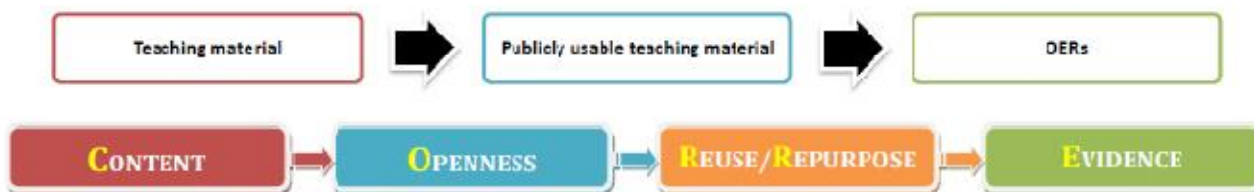
REFERENCES

1. Creative Commons. Undated. What is OER?. Retrieved 15 Sept 2012. http://wiki.creativecommons.org/What_is_OER%3F
2. Kahle, D (2008). Designing open educational technology. In Iiyoshi, T and Vijay Kumar, M.S. (2008). *Opening up education: the collective advancement of education through open technology, open content and open knowledge* .pp 27-45, MIT Press.
3. Kaur, A (2012). How to adopt OERs in learning design to enhance learning effectiveness: An OUM case study. Paper presented at Southeast Asian Open and Distance Learning in the 21st Century conference. 26-28 October 2012. Danang, Vietnam
4. <http://www.hewlett.org/programs/education-program/open-educational-resources>
5. Helping Educators Determine the Quality of Open Education Resources. Retrieved 20 February 2013 at: <http://www.achieve.org/helping-educators-determine-quality-open-education-resources>
6. Lane, A (2010). Designing for innovation around OER. *Journal of Interactive Media in Education*. Retrieved 15 September at <http://jime.open.ac.uk/2010/02>
7. OER Commons <http://www.oercommons.org/> . Retrieved 15 September 2012.
8. Olcott, D (2012). OER perspectives: emerging issues for universities. *Distance Education*. 33, 2, pp 283 - 290.
9. Organisation for Economic Co-operation and Development (OECD). (2007). *Giving Knowledge for Free: The Emergence of Open Educational Resources*. Paris: Centre for Educational Research and Innovation, OECD. p. 10.

Appendix 1: Rubrics for Evaluating Open Education Resource (OER) Objects <http://www.achieve.org/files/AchieveOERRubrics.pdf> (or see attached file)

Appendix 2: OTTER/CORRE Criteria to Evaluate Quality of OERs

<https://openeducationalresources.pbworks.com/w/page/24838164/Quality-considerations>



CUMULATIVE CRITERIA				
CONTENT	OPENNESS	REUSE	REPURPOSE	EVIDENCE
<ul style="list-style-type: none"> Available in electronic format Can be largely understood by a non-specialist Can be used 'as is' Has been used in specific modules Has cleared initial screening as 'useful educational material' Self-contained Decoupled (i.e. with minimal or no binding to other components) No gaps No major editing needed Level(s) the materials designed for are clear Does not contain institution-specific names or jargon 	<ul style="list-style-type: none"> Legally clean and clear to be moved to the public domain Meets usability and accessibility standards Specific sMIs needed by the user are spelled out (e.g. how to set up a group wiki or edit an HTML page) 	<ul style="list-style-type: none"> Accurate content Benefit to the learner is clear and given upfront Structured in manageable 'chunks' Does not require additional support for reuse Contains appropriate and relevant metadata Tagged for easy searchability Available in different formats for use 'as is' Low-tech options available for immediate use, e.g. a printed handout Estimated amount of time required for completion clearly shown Clear, user-friendly interface Visually engaging Includes an indicative pedagogical wrap-around (i.e. it works well if used in this way) Validated by partners and students Uploaded to relevant repository for internal testing 	<ul style="list-style-type: none"> Easy to download in different formats Technically easy to manipulate Designed for tweaking Easy to integrate into other materials 	<ul style="list-style-type: none"> Trackable Up-to-date Validated by users Users can submit feedback Users can contribute improved or context-sensitive version

Appendix 3: U-Now Feedback Survey Form



The Site	Rating	Comments					
<p>First Impressions</p> <p>What was your immediate first reaction to the web site?</p>	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> <p>←Very good ----- ----- Very Bad→</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<p>Clarity of Purpose</p> <p>How obvious is the purpose of the site?</p>	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> <p>←Very clear ----- ----- Unclear→</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<p>Audience</p> <p>Who do you think would use the site and its resources? Is our audience primarily tutors or students?</p>	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> <p>←Tutors ----- ----- Students→</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<p>Usability</p> <p>Was the site easy to navigate and use?</p>	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> <p>←Easy ----- ----- Difficult→</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<p>Accessibility</p> <p>Was the site accessible to you? Could any improvements be made, for example, if English is not your first language?</p>	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> <p>←Very good ----- ----- Very Bad→</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<p>Clarity of Information</p>	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			



The Site	Rating	Comments										
The information on the web site is clear?	<input type="checkbox"/> ← Very clear ----- ----- Unclear → <input type="checkbox"/>											
Amount of Information Does the web site contain too much or too little information?	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> ← Too much ----- ----- Too little → <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								
Searching / Browsing resources Could you easily browse the resources available?	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> ← Easy ----- ----- Difficult → <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								
Range of materials available Does the site offer a good range of materials?	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> ← Good range ----- -- limited range → <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								
Types of materials available Are the types of material offered appropriate for re-use? Accessing the materials Could you easily download and reuse the materials?	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> ← Very good ----- ----- Very Bad → <input type="checkbox"/> <table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> ← Easy ----- ----- Difficult → <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								
Formats Are the materials presented in formats you can use? What sort of formats are you looking for?	<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> ← Appropriate ----- Not appropriate → <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								



The Site	Rating	Comments
<p>Suggested Improvements</p> <p>Please tell us any other comments you might have.</p>		
<p>Other Websites</p> <p>If you are aware of any similar websites that you like, tell us about them, and what you like about them. Where else do you look for OER?</p>		