

Establishing OER Practice in India: The University of Madras

V. Bharathi Harishankar

Abstract

Open educational resources (OER) are a nascent phenomenon in India, enabled by the growth of information and communication technologies and open source technologies. OER herald a context wherein knowledge and education are free in terms of content, teaching–learning practices and technology. OER also demand that there be freedom to access, use, modify and reuse. However, institutional policies, individual mindsets, copyright issues and restrictions of proprietary software hinder the actualisation of this collaborative ideal. At present, there are no clear exemplars of OER in India and no benchmarks either.

The International Development Research Centre-funded PANDora sub-project, entitled, “Evaluation of the Effectiveness of RLO-Based OER in Enhancing Soft Skills of Students” and carried out at the University of Madras, is an attempt to design and create OER, assess them for their reuse potential and evaluate the impact on individuals (teachers and learners) and participating institutions. The underlying belief is that in India, OER cannot succeed only as a social responsibility but must offer frames for collaborative teaching–learning, and provide viable models and mechanisms for reuse. The present study records the different steps in the OER process, from conception to evaluation and reuse, which involve:

- Assessing the readiness of individuals and institutions to embrace OER.
- Devising collaborative mechanisms.
- Matching technologies and pedagogies by creating templates.
- Designing content that has the potential for the four Rs.

Keywords: OER creation process, collaborative teaching–learning, collaborative mechanisms, reuse potential, open technology tools

Background

The University of Madras (UNOM) is a 154-year-old liberal arts and science institution. At present, there are 66 departments and more than 170 affiliated colleges. The total student enrolment is about 3,000 post-graduate (PG) students in university departments and over 150,000 undergraduate (UG) and PG students in affiliated colleges. In addition, over 170,000 students at the UG and PG levels are enrolled in the Institute of Distance Education.

In recent years, the UNOM has been involved in placement or employability assistance for our students. The slant of the Indian job market at present is towards information technology (IT) and IT-enabled services (ITES). This sector employs a lot of women and is a potentially large employer of our graduates. In these job fairs, employers find the students lacking in soft skills, not necessarily domain skills. Therefore, providing such skill sets has become a priority issue.

The soft skill curriculum devised by our university consists of courses on language and communication, spoken and presentation skills, foreign languages, computational skills and personality enrichment. Out of these, print-based materials have been prepared for the language-related courses. Soft skills courses are handled by the university and college faculty and also by corporate trainers outsourced for this purpose. Present methods of delivering the soft skills courses at the UNOM are neither sustainable nor scalable. The print medium, along with regular classes, can only reach a small fraction of our students. There is an urgent need to develop a complementary delivery mechanism to reach the thousands of remaining students who are not currently served.

Informing Contexts

The present case study has several contexts that provide its frames of reference. The first frame is that OER is an emerging phenomenon in the Indian and Asian contexts. Since there are no clear exemplars or benchmarks, there is a need to create replicable templates for the process of creating, using and reusing OER. The PANdora Project attempts to answer this need by focusing on “Quality and Openness in Asian Education”.

The next frame is to determine the extent of awareness and readiness to use OER across Asian countries and provide a case study of a survey on “The Current State of Play in the Use of OER”, carried out at Wawasan Open University, Malaysia. The third and most immediate frame is to study the ways in which OER can be introduced as a successful model of collaborative teaching and learning in the conventional, 154-year-old University of Madras. A micro-frame of reference is evident in the choice of topic for OER creation, namely soft skills, which are highly culture-specific. When resources have to be created and shared collaboratively, the prevalent tendency is to make them culture-neutral to ensure portability. The research question in the present study is whether the resources can be created culture-specifically but made portable by redesigning the structure of the reusable learning object (RLO) when it is placed in an OER environment.

Table 15.1: Summary view of the case study

No	Research issue	Specific objective	Methodology	Outcome
1	Recasting of learning material	Converting existing print material on soft skills into a suite of RLOs	<ul style="list-style-type: none"> i. Chunking ii. Hierarchical structure iii. Structuring RLOs as independent entities with <ul style="list-style-type: none"> a. learning objectives b. learning content c. learning assessment 	<ul style="list-style-type: none"> a. 30 hours of teaching—learning material b. Teachers/content providers trained to identify RLOs in the existing print-based information packets
2	Creation of pedagogy-oriented technology	Identifying and using tools that will encode the pedagogical value of RLOs at UNOM	<ul style="list-style-type: none"> i. Prepare a schema for RLOs ii. Identify keywords to be used for indexing iii. Employ widely used tools to encode schema iv. Create ontology/taxonomy to relate different parts of the RLOs 	<ul style="list-style-type: none"> a. Template for RLO creation b. Template for concept map generation c. Modules accessible in multiple formats d. Modules navigable by the user in flexible ways e. RLOs and knowledge models bound by a well-defined ontology
3	Learning outcomes	Comparing learning outcomes between face-to-face and distance learners	<ul style="list-style-type: none"> i. Quick assessment tests within the RLOs to check skill acquisition ii. Community spaces (i.e., blogs) to promote teacher–teacher, teacher–learner and learner–learner interactions iii. Questionnaire – 100 users iv. Measure placement (employability) rates at job fairs held at UNOM v. Mock interviews 	<ul style="list-style-type: none"> a. Fine-grained information on skill acquisition b. Basic information on the teacher–learner interaction c. Statistical analysis of user feedback d. Impact assessment of the course
4	Portability of RLOs	Evaluating the reuse of RLOs outside Chennai and outside India to establish accrued benefits in terms of faculty time, cost savings and operational efficiencies	<ul style="list-style-type: none"> i. Structure of RLOs: <ul style="list-style-type: none"> a. Concept definition – culture-neutral, gender-fair b. Concept description – modifiable c. Concept application – cross-references iv. Review by peers for culture/gender-sensitive codes: create – review – edit – publish v. Tracking and testing the reuse and repurposing of the RLOs by partners 	<ul style="list-style-type: none"> a. Minimum modification, maximum useability template b. Capacity-building exercise for shared course development c. Case study of the venture

Fact File

Purpose: To investigate the effectiveness and cost benefits of RLO-based OER in enhancing students' soft skills.

Duration: 27 months

Project Budget: USD 70,320

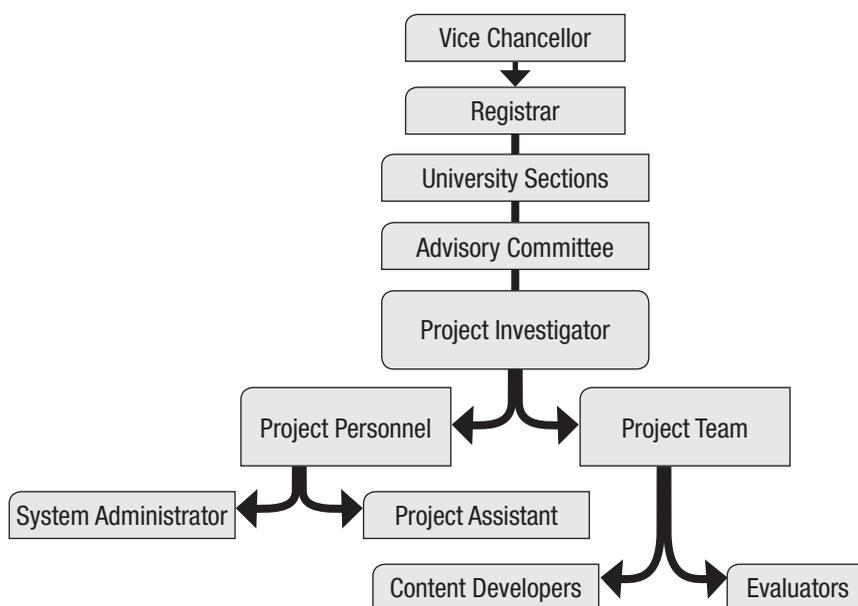
Sign Post I

Establishing Strategic and Boundary Partners

Any new phenomenon requires time, adequate exposure and suitable percolation to gain acceptance. The introduction of the OER concept within the university system is no exception. To address this need, three different working groups were created.

1. **Project personnel** (a system administrator, a project assistant and an external consultant): The recruitment of project personnel involved advertising, screening of applications, interviewing and selection. This phase of project implementation required a balancing of project goals and institutional norms. The external consultant (a professor from the Indian Institute of Technology, Madras, and co-ordinator of the National Programme on Technology Enhanced Learning) has mentored and guided the project.
2. **Core content team** (to create content, edit, review, test and evaluate the RLOs on soft skills).
3. **Advisory committee within the university** (a mixed group of senior faculty, administrators and domain specialists): This committee, as illustrated in Figure 15.1, ensures that the project activities proceed without procedural delays. In practice, I have found this group to be my advocates within the institution. We have regular meetings, with the agenda circulated in advance and meeting minutes presented and approved by university authorities.

Figure 15.1: Structure of the project within the university



Researcher Reflections

Out of these three groups, developing the core content team offered an interesting experience. Whilst younger faculty in colleges were enthusiastic about the project, they were unsure of implementing it in their institutions or braving the power structures. So, I approached senior faculty and heads of institutions to work with the younger members. This gave rise to a problem of hierarchy. I created well-defined roles for each — the younger faculty were content creators and testers whilst the senior faculty were content editors and evaluators. An unexpected outcome was that a not-so-senior faculty member emerged as the leader simply because of that member’s experience in creating resources.

Learnings

In the process of creating the core content team, I had to answer the question, “What’s in it for me?” for each faculty member. Fortunately, the assessment pattern of the University Grants Commission and National Assessment and Accreditation Council is to award extra points for individuals and institutions creating innovative teaching–learning resources.

Sign Post II

Making Space

In this context, space refers to a spectrum spanning physical, interactive and interpersonal. Activities related to this task included:

- Finding suitable office space for the project — in this case, a 15×15-foot room with required electrical connections and office furniture.
- Procuring equipment — two servers, five personal computers, accessories, printer, handycam, etc.

- Creating suitable infrastructure — telephone and Internet connections.
- Determining the costs of producing RLOs.

Even though there were procedural delays, identifying the physical space was not a problem. Tackling the interpersonal, mainly in terms of changing individual and institutional mindsets, proved a challenge. For instance, the faculty perceived the RLO-based OER as a new idea. Similarly, colleges were unclear of the materials' use for them. For the university, it was an untested idea with no proven viability. As of now, there are no major indicators of cost benefits. This is mainly because we are looking at expenses in getting the first suite of 250 RLOs. Once the use and reuse rates increase, the number of RLO versions and additions will increase incrementally, thus leading to expansion of the knowledge resource base.

Researcher Reflections

In effect, individuals and institutions were asking, “Why OER?” The answer, however, had to be communicated differently to different groups.

1. For individual faculty, two distinct advantages were presented: (i) the RLOs can supplement their supply of classroom resources and (ii) as faculty members, they are the ambassadors of OER in their institutions.
2. For colleges, this endeavour was mooted as a valuable collaboration with the university. The added benefit was that at the end of the project, the resources will be shared with them.
3. For the university, OER are not mooted as revenue generators or as providing a competitive edge, but as a good advertisement to establish the university as a pioneer in sharing and collaborating with other institutions.

Learnings

First of all, I realised the value of empathising with others. I also understood that these questions are not always hurdles, but can arise out of a lack of information and a hesitation to embrace something new. For instance, when I communicated the idea of making the resources created in the project open source material on the institutional website, the first query that came was regarding the copyright. Since these resources will be useful to our learners, I explained how the project requirements are useful to the parent institution.

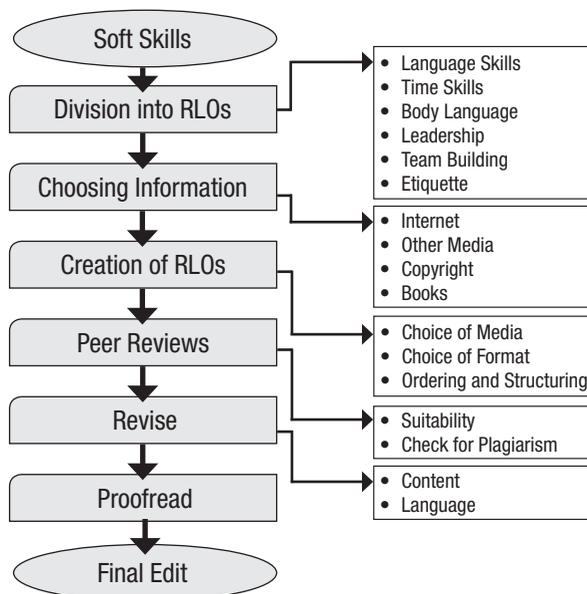
Sign Post III

Creating Frames

Identifying, analysing and creating templates was the next step in the OER process. Templates were created during the project, as illustrated in the workflow diagram, Figure 15.2:

- RLO structure: Can this help in portability?
- RLO divisions and branching: Can we distinguish soft skills from communication skills through this?
- Technology tool — Moodle and FreeMind integration on a Ubuntu Linux platform: Will different versions of different software be compatible?

Figure 15.2: Workflow diagram for the creation of the RLOs



Researcher Reflections

- The basic research premise is that culture-specific OER can be created and made portable if the constituent RLO is designed differently. Each RLO consists of three parts — concept definition (CD), concept explanation (CE) and concept illustration (CI). Of these, CD is culture-neutral, CE is culture-specific and CI is cross-cultural. In this template, CE has to be modified for each culture, and the design ensures the use/reuse potential of two-thirds of the RLO.
- Depending on the content of each RLO and the author, the three parts were rearranged. An unexpected outcome was the emergence of the following pattern:

new idea = CE-CD-CI
distinguishing ideas = CI-CD-CE
known concept = CD-CE-CI

Learnings

The three-part structure of an RLO is based on conventional classroom pedagogy: first give a warm up, then explain the concept, then provide illustrations. (Good teaching practices reinvent themselves!) A resource has to be useful, for the most part, to ensure portability and reuse. Pedagogies can inform technologies — a Moodle I.9+, Xamp Server 1.74 and FreeMind Collaboration module has proved to be a very versatile combination.

Sign Post IV

Devising and Sustaining the Collaborative Mechanism

Introducing the culture of sharing and collaboration amongst faculty required an “unlearning process” of reserving the best for one’s own classes. Apart from defining the individual benefits of sharing, mechanisms for collaboration were introduced through group mail, diary entries, archives of resources, pictures and the like. The major challenge was in creating awareness regarding copyright issues, sourcing of material, etc.

Challenges

- Even though the college faculty showed a lot of enthusiasm, that did not translate into the creation of sample RLOs. Lack of time and work pressures were cited as reasons.
- Even after the day-long induction workshop and several rounds of group and individual sessions, faculty had the following problems whilst creating the sample RLOs:
 - Since the RLOs are all about soft skills, how do we differentiate this from language teaching?
 - How do we determine that we have “chunked”, made the resource sufficiently granular?
 - Do we completely avoid using copyrighted material? If we make minor modifications to existing text/image/animation can we avoid the copyright issue?
 - Can we have the same RLO content in different formats — text, PPT, GIF, audio, etc.?
 - What do we do with RLOs that overlap — say, gesture in a presentation versus gesture as body language?

Researcher Reflections

- On close scrutiny, I found that lack of time was not the real problem.
- Some of the content developers (college faculty) found it difficult to create material that does not infringe copyright.
- One of the content developers circulated a free downloadable software application to self-check for plagiarism.
- We realised that brainstorming helps, so we encouraged members to dialogue with each other.
- Content team members were encouraged to record their experiences in the form of diary entries.
- Broad topics for the suite of RLOs on soft skills have been identified. Members have chosen the topic they want to work on.
- The project assistant and system administrator help the content developers in creating pictures, audio, video and the like. In fact, they have already developed a small archive of pictures, GIFs and audio/video files created in-house.

Problem Solving

Teachers today are also unaware consumers of information, much like the students they teach. Somewhere along the way, the demands of scholarship, such as acknowledging a source, have been left behind. The OER movement in this region has to contend with this issue. We certainly do not want large-scale plagiarism in the name of openness.

Learnings

Collaborative mechanisms (group mail, sharing diary entries) are hard to create and sustain but can provide unexpected benefits.

- For instance, decisions on granularity have led to the identification of more RLOs.
- Commenting on each other's content puts a basic level of peer review in place.
- Diary entries are additional sources of information on the process of collaborative resource generation. Diary entries provide more descriptive inputs than a questionnaire.

Sign Post V

Evaluating the Self and Others

A total of 250 RLOs have been created on six important aspects of soft skills, namely body language, time skills, language skills, leadership, etiquette and team building. The suite includes text files and Microsoft Word documents, pictures with annotations, audio files and video files. Figure 15.3 is a screenshot of the online deployment of the soft skills RLOs. Peer review, quality assurance, version control and editing have propelled the project to the final phase of testing and evaluation. The suite has been tested at three sites in Chennai, and one round is planned outside the city. The aim is to obtain evaluations from a sample of 100 users. There are about 120 initial inputs, and at least two more rounds of testing have been planned.

Figure 15.3: Screenshot of the online deployment of the soft skills RLOs



Researcher Reflections

- Very often, versions prove to be simple proofreading and soft editing exercises. Face-to-face meetings of the content developer and the peer reviewer have enabled focussed discussions resulting in finalisation of each RLO.
- Templates have been created for evaluating the testing sessions. We have also videographed entire sessions and plan to add these as a set of resources.
- Questionnaires for evaluation by users have been created for three different groups: learners, teachers and administrators. Questionnaires are divided into two parts — initiators and reviewers — so that we can mark the progression from a first encounter with the RLOs to identifying their use and reuse.

Learnings

As evidenced from the testing activities, learners have been very open to the idea of OER — in fact, more enthusiastic in indicating the additions/deletions they want on a topic. Whilst the response is mixed from the teacher group (they like the resource but are unsure of creating/sharing their own), the administrators have shown cautious optimism.

Forging Ahead

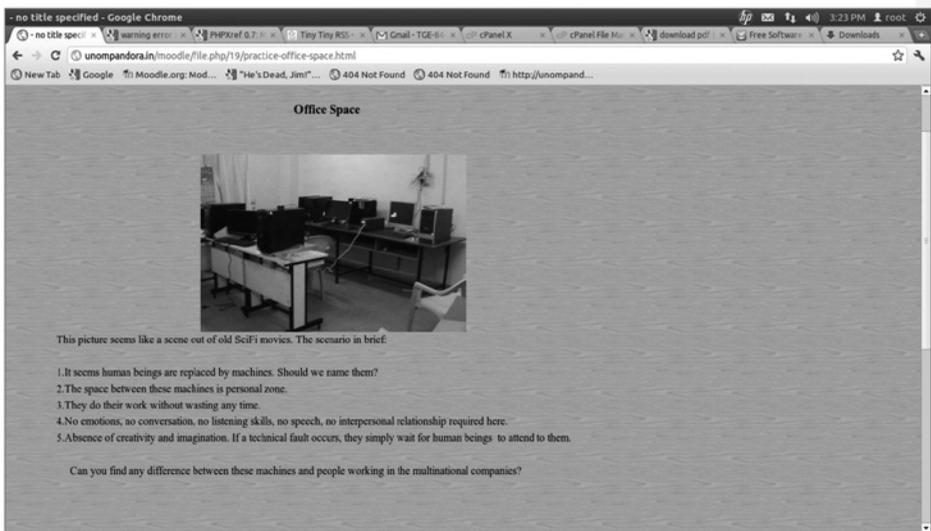
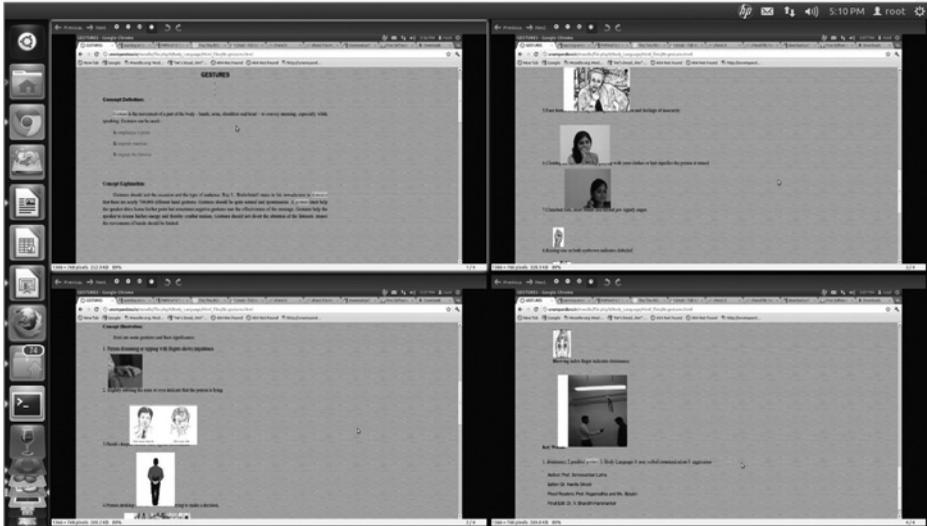
The present case study is an “experience narrative” of the OER process from conception, through creation, to evaluation. This process involves assessing the readiness of individuals and institutions to embrace OER, devising the collaborating mechanism, matching technologies and pedagogies by creating templates, and designing content that has the potential for the 4Rs (reuse, revise, remix and redistribute). The project team is in the process of adding keywords and metadata to index the resource and make it accessible. The preliminary inferences are as follows:

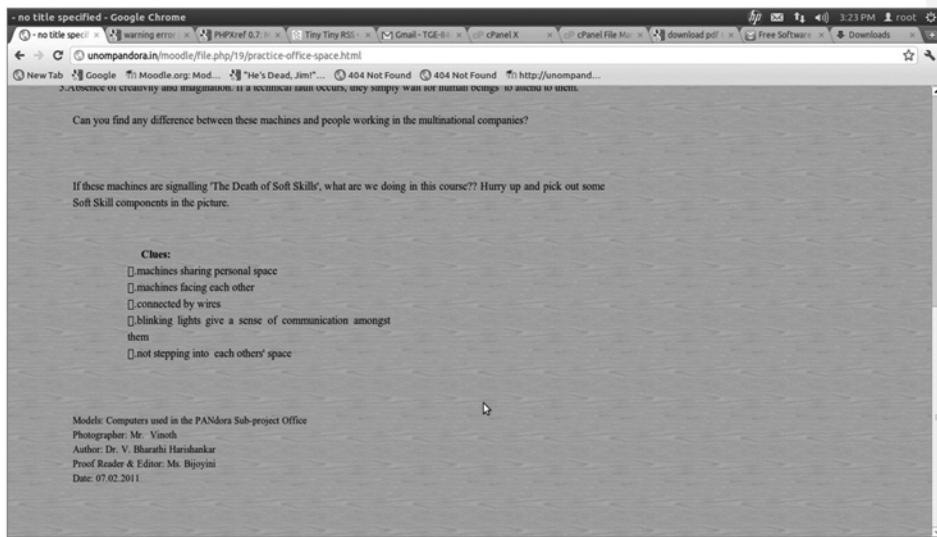
- Given the increased focus on ICT-enabled teaching and learning, OER can emerge as a viable method in education.
- There is ready acceptance of OER from learners. Whether this will amount to independent and experiential learning is a question for the future.
- Teachers and administrators have displayed cautious interest. If they turn into good samaritans, OER will have wider reach and acceptance.
- Cost-effectiveness has not emerged as a key indicator for OER. But costing and pricing have to be defined differently for different media — print, online and other forms.

The encouraging situation is that there are enough government policies in place to encourage OER in India. The ultimate aim of efforts such as the present one is to provide catalysts which will turn government policies into educational transformation.

Appendix 15.1

Screenshots of Sample RLOs





Appendix 15.2

Experiences of a Learner as Content Developer

By Bijoyini Mukherjee, University of Madras

I had no prior introduction to soft skills, mind maps or the Moodle learning management system as a student. Here's a record of my experiences as the first reader/learner of the RLOs created in the project, the author/proofreader of some RLOs and one of the project assistants.

Structure and Format of the RLOs

The concept definition, concept explanation and concept illustration structure for a learner seemed complicated as well as difficult to discern. As the first reader of the created RLOs, I found that subconsciously, the pattern beginning with CI helped hold my interest whilst the ones starting with CD did not.

As a learner, I felt that pictures/audios/videos appeared authentic and compelled me to explore other topics. With some, write-up alone brought out the meaning, whereas skills lessons, such as on gestures, postures, eye contact in body language and some other RLOs seemed to bore me with their blandness. Realisations of this kind led to changes in versions of various RLOs. During creation, I kept in mind how every RLO demands different presentation styles, formats, structure and colours to capture a learner's attention. Sometimes PowerPoint can be an eyesore instead of being eye-catching (e.g., the Business Correspondence PPT — there was so much material that it could have been divided into seven different RLOs).

To me as a learner, the brevity of the RLOs is fascinating. However, as a content developer, it means multiple versions, hard editing and mental work to create fun activities and audio visuals that actually teach.

Copyright Issues

It was good that the RLOs were not repeating/quoting long passages from existing works. However, avoiding Google free images and non-copyrighted YouTube videos was a dampener. The creator in me was left with no option but to photograph people, record original audios and capture video. The plagiarism-checking software was a boon, but I don't know how many faculty content creators liked the idea.

Appendix 15.3

Experiences of a Teacher as Content Creator and Evaluator

By Sumathi Shivakumar, Assistant Professor of English, Agurchand Manmull Jain College, Chennai

I have been teaching English at the college level for over 15 years. I was one of the content creators for the print-based resources on soft skills created by the University of Madras. Soft skills in the form of RLOs certainly provided a new and challenging experience, and I have captured some of my observations in this journal.

Soft Skills and/or Language Skills

It is a common misconception that soft skills and language/communication skills are the same species. However, I believe that an RLO on language skills should not look like a lesson in grammar and linguistics, much less a spoken English class. Hence, I chose an aspect of language skills that affects understanding and meaning-making: communication barriers such as jargon, oxymorons and redundancy, and concepts like stress and intonation. When I began with RLOs on fluency, I decided to look at all the factors that add meaning to good fluent speaking and those that hamper fluency. I chose to spread them across concept explanation, concept illustration and activities.

What Is/Is Not an RLO?

Granularity was an idea that required several iterations. RLOs underwent drastic changes because (i) too many ideas were packed into individual RLOs, making each RLO dense, (ii) a new idea required more explanation or illustration and (iii) more variety was needed within a single soft skill element.

Structuring an RLO

Ideas that are easily understandable and can be rendered through pictures and/or anecdotes were placed under CI. Some, such as CE, required expansion in simpler language, whilst others could engage the learner and even propose activities. The concept definition was provided to make the learner familiar with the idea. The order in which CI, CD and CE are presented depends on the popularity of the concept across multiple learners. If it is a known concept, CI precedes CD and CE, whilst an unfamiliar concept begins with CD.

Reflections on Practice

Whilst peer-reviewing this content, I found recurrent instances of plagiarism. I proposed that the team use plagiarism-checking software. Also, I believe that as teachers, our own experiences may serve well for illustrations, thereby keeping copyright issues at bay. Thus, in all my RLOs, several anecdotes from my own experience became a part of either CI or the activities. I was particularly delighted by pictures created using the draw function or photographed by team members to avoid copyright issues.

Correcting Your Own Answer Sheets

Editing an RLO relates to positioning the sequence of CI, CE and CD. This varies with every RLO and the soft skill element concerned. Certain situations demanded that an illustration be moved to another RLO where it was found to be appropriate. A completely new soft skill element, etiquette, was created whilst editing RLOs on public speaking.

From Teaching to Learning

Once the RLOs were created, the task at hand was to execute them in a classroom. The focus here was on introducing the learners to familiar contexts/situations in which the skill elements could be used. The time consumed to teach each RLO will vary with the amount of information in the RLO and with the difficulty level. When I taught some of the RLOs from the body language unit, I could see that the learners were very interactive and came up with additional information on aspects familiar to them. One was the game Dumb-C, which is played entirely with gestures. The second was the sign language used by the hearing impaired. Students made reference to the state channel's popular television news for the differently abled. This helped enhance the RLO on gestures, in terms of both additional information and quality. Learners' input on the RLO alerted me to the kind of collaboration that OER promises.