

## **A novel OER initiative under University of Delhi's new Four Year Undergraduate Programme: an investigation into the Pedagogical Impact**

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### **Abstract**

Recently University of Delhi (DU) has introduced a new four year based undergraduate programme (FYUP) wherein all (> 50,000) newly admitted undergraduate students have been given laptops that are powered exclusively with Ubuntu OS (12.04 LTS) and other freeware including Open Office, Firefox, VLC and Rythmbox. Out of a batch of 52 students selected for case study 26 were introduced with concept of high quality OER (HQOER). The present investigation seeks to analyze pedagogical impact of the same on the twin effects of a) students utilizing internet enabled laptop computers during real-time classroom teaching and b) using OER content linked with resource based learning so as to leverage both most effectively. The investigation concludes that topic specific OER ought to be available preferentially through a dedicated search engine for HQOER. Further, an independent OER regulatory body should recommend chronological listing of HQOER sites after a thorough evaluation of the quality of their content. The future of teaching-learning process bodes well for hybrid education that includes HQOER as a built-in standard.

### **Keywords**

High Quality OER, Harnessing OER, University of Delhi, FYUP

### **INTRODUCTION**

The role of Open Educational Resources (OERs) in teaching-learning process has been a subject of study for quite some time [Zhu Jiang, 2007] with special attention being focused on development of cognitive skills in college going students' vis-à-vis mentoring approaches adopted [Arthur D. Anastopoulos et al, 2014]. With OERs acting as the new form of media [Carina Bossu et al, 2011] on the learning horizon, it has influenced development of dynamic learning, teaching and assessment strategies [Karen Strickland et al, 2011]. The emerging OER based approaches are envisaged to support engaging, easy, effective and collaborative learning techniques. Keeping the aforementioned in mind, University of Delhi (DU) has introduced a new four year based undergraduate programme (FYUP) shifting from a three year based one, [University of Delhi, 2013] since July 2013. This FYUP entails training students to possess greater flexibility and wide ranging choices while combining knowledge with practical skills at the same point of time. This exemplar shift in curriculum coupled with augmented tenure of study is expected to better equip the students to get employment, pursue entrepreneurship or go for high-end research based studies. With a view to impart and hone advanced language, communication, IT, data analysis and science & life skills in a gentle user-friendly yet feasible manner, the pioneering effort includes DU providing all newly admitted undergraduate students with laptops for classroom learning process. The laptop computers are powered exclusively with Ubuntu OS (12.04 LTS) and other freeware including Open Office, Firefox, VLC and Rythmbox. DU's approach is laudable as it one of the first Government funded universities in India to implement this novel initiative on such a gigantic scale (> 50,000 students). The notion of introducing Free and Open Source Software (FOSS) was mainly to seek release from the stranglehold of a particular company's copyrighted products and is expected to go a long way in furthering the cause of Open

Education wherein the need to pay licence fees or royalties can be circumvented. This endeavour of DU not only envisages an upgradation in the course curriculum content but also seeks to initiate students towards the use of Open Educational Resources (OER) with a pre-incorporated licence for reuse and/or adaptation sans copyright holder's permission. As a matter of policy implementation, the university envisions making available multimedia applications, streaming videos, podcasts, textbooks or any other media used for teaching-learning process, free for dissemination. For effective OER implementation DU has taken initiatives to pioneer changes in human resource policy while linking it to policies on clarity regarding IPR and copyright issues.

The present investigation seeks to analyze the pedagogical impact of the twin effects of a) students utilizing internet enabled laptop computers during real-time classroom teaching and b) using OER content linked with resource based learning so as to leverage both most effectively.

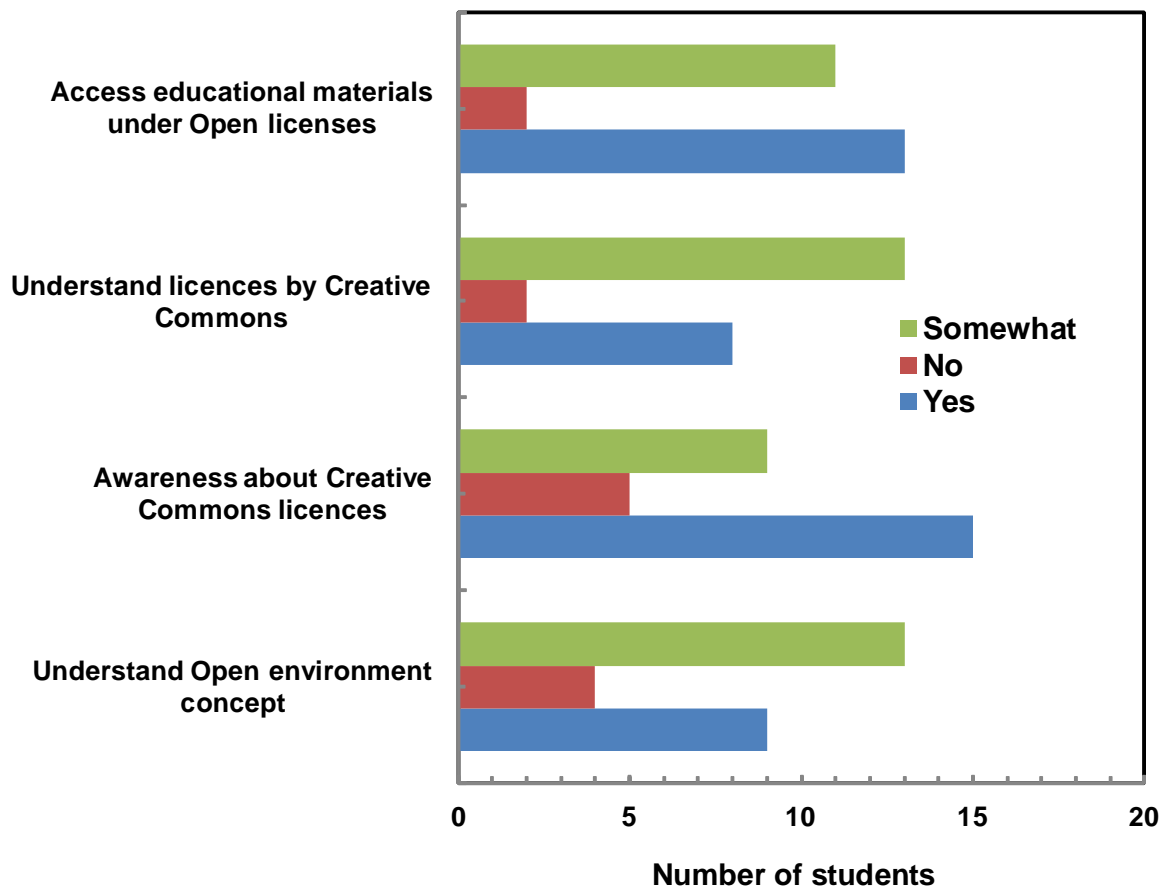
## **METHODOLOGY**

A test group of 52 students in a class was taken up for the case study wherein all of them had similar loaded content and FOSS enabled laptops however just 26 students were specially introduced to the concept of OER. It was noted that introduction to usage of OER to the select batch of students (26 in number) had them motivated to access open learning to augment their existing conventional studying patterns involving copyrighted textbooks and literature available in/through the library. Ready availability of the internet enabled laptops coupled with fast 40 mbps internet connection has allowed students to become aware about the various licences available through Creative Commons especially while reusing, remixing and revising content available on the web. A paradigm shift in the students' approach to education could be easily discernible pre- and post-completion of even a single semester, wherein students introduced to the concept of OER were observed to be preferentially using more materials under open licences for assignments. Their penchant for submitting peer-scrutinized coursework with improved quality could be seen to bolster DU's primary goal of harnessing OER for achieving superior education. The deliberate open environment provided by DU could be seen to empower the students to access openly licenced educational materials even at home and was perceived to be a practical solution addressing the issue of non-availability/restricted access of costly educational resources post-college hours. The student could therefore get empowered as an autonomous learner so much so that she/he can not only access but also create high quality OER (HQOER). Further, post-development of HQOER material and selection of an appropriate open licence the student can store the same in DU's online repository for access by others. The HQOER developer also has the freedom to choose either the DU's repository or open repositories including OER Commons etc. or even social networks as a means for providing support to their peers.

## **RESULTS and OBSERVATIONS**

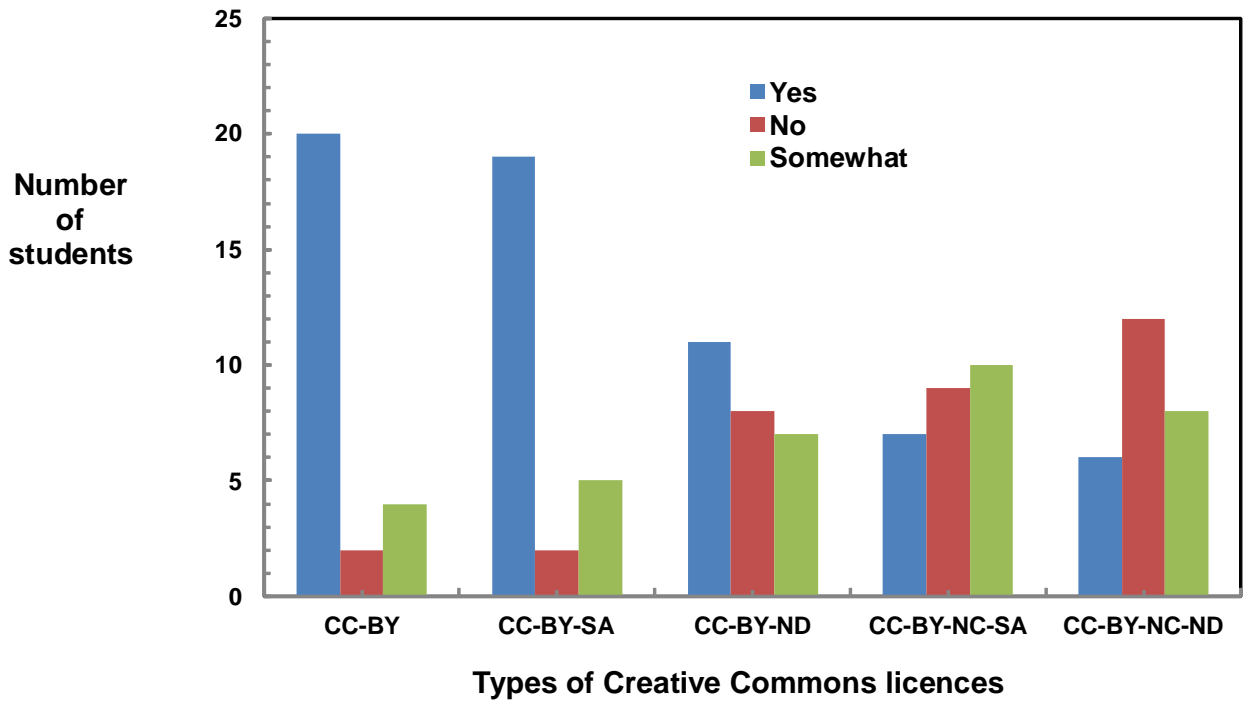
The undergoing study turned up some very interesting results that besides allowing a real insight delving into the psyche of students pursuing FYUP also helped identify the influence of OER in the course of engaging undergraduate education. It was interesting to note that the teaching-learning process under the new framework was typically dependent on the availability of information and material content, however students with HQOER introduction could be observed to possess a different take within the existing framework. Figure 1 underscores importance of the investigation related to students' access to Open educational materials on the internet, licences associated with them, awareness of Creative Commons

network. An analysis of the showcased results indicated that introduction to HQOER substantially affects their pedagogic approach.



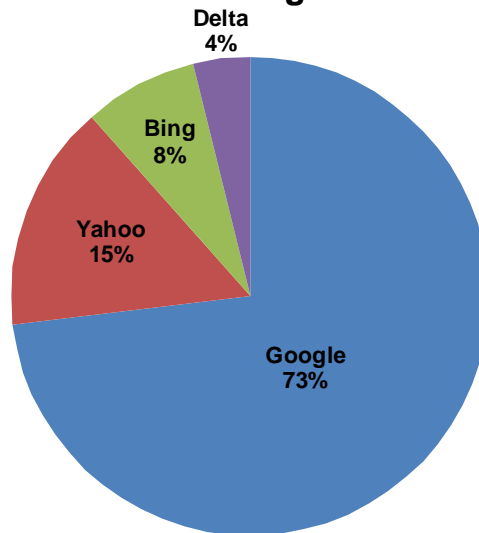
**Figure 1:** Investigation of access, licences, awareness and understanding of Open education materials

**Figure 2** indicates that introducing students to even the basic tenets of HQOER makes them gain a valuable insight into the finer nuances and appreciate subtle differences in the different types of licences proffered by Creative Commons. Students are seen to become aware about the usage of various licensed HQOER materials during the course of preparation of their assignments & presentations while citing appropriate sources as deemed necessary. During access to course materials from world's top sites / universities a fine balance is seen to emerge about usage of copyrighted and OER materials.



**Figure 2:** Investigation of awareness about various licences of Creative Commons

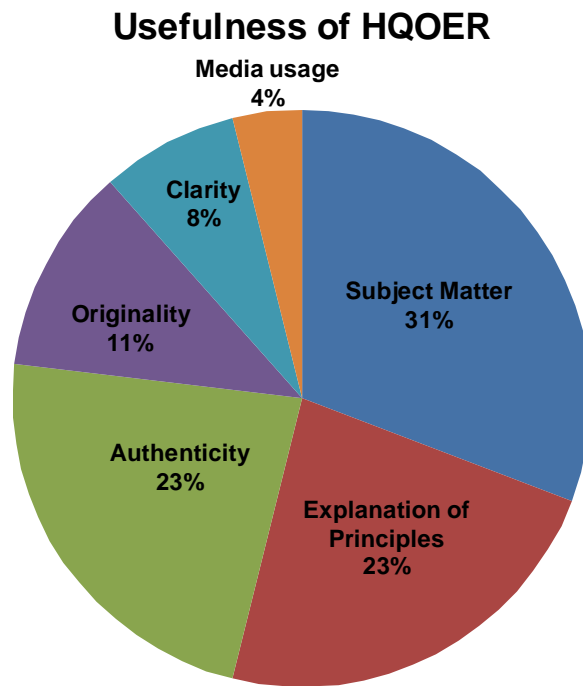
### Preferred Search engine for HQOER



**Figure 3:** Choice of web-search engine preferred by students for HQOER

For assignments that require HQOER based materials, students in general reported usage of their preferred search engines (**Figure 3**) including Google, Yahoo, Bing, Delta etc. Collected data indicates that Google is the most preferred search engine for a whopping 73% of the students amongst the ones involved in the investigative study. However, an in-depth

investigation indicated that even the enigmatic Google search engine was not able to address the requirements of the students for HQOER based content at all times. Typically Google was noted to short-list results according to the choice of keywords besides primarily promoting its own affiliates including but not limited to Wikipedia etc. For the students specifically, subject matter, explanation of principles, authenticity, originality, clarity and media usage occurred high-up the pecking order while rating the usefulness and usage of any HQOER and the results are enumerated in **Figure 4**.

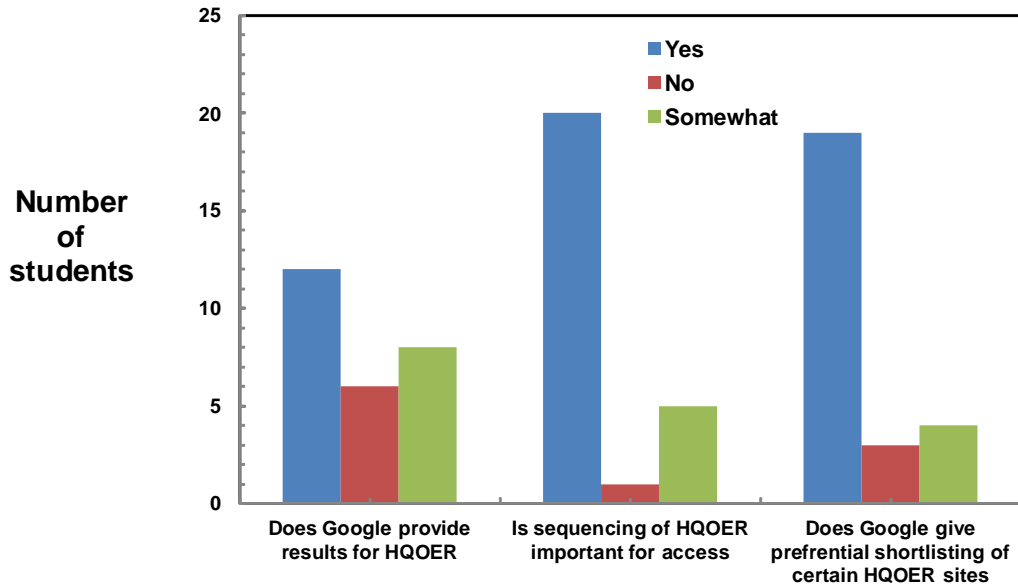


**Figure 4:** Parameters governing choice of particular HQOER material by students

During the course of investigations it was noted that one of the major factors affecting the perceived paradigm shift in methodology as well as conceptual ideas of students was sequencing of the OER listing by the search engine used for collation of HQOER materials from the web.

This in turn was seen to be observed to be dependent on the choice of keywords besides preference of a particular search engine. Typically, a website maybe hosting exclusive HQOER material but is relegated deep down the short-listed results due to mismatch with Google search algorithm. Its occurrence therefore happens after the first few pages. This coupled with a paucity of time and natural reluctance to skim through all search results leads it to not being accessed by anyone. This HQOER is inherently never accessed by a student who reports non-availability and makes do with whatever selected content is available in the first few pages thus not harnessing it. Authenticity of the OER material besides topic specificity was found to be the key for development of productive work by the students. The results of the investigative study on the students' preferences are enumerated in **Figure 5**. It is interesting to note from the figure that although students preferentially use Google as the search engine, however they feel that sequencing of the search results is very important as far as choice of accessing a particular HQOER site is concerned. Also the students felt that

Google search results had a penchant for preferentially short-listing certain sites at the top of the list specially those belonging to its own conglomerate.



**Figure 5:** Effect of listing sequence and preferential listing of HQOER by Google

Overall the study indicates that there is an acute need for a common forum that allows for discussion of a relevant topic with an available moderator who controls the discussion in the relevant and dedicated peer group. It was also noticed that though the internet was replete with HQOER material, however a dedicated search engine that, given the keywords returned results for only those websites that support HQOER is conspicuous by its absence. The HQOER specific search engine is also expected to list the HQOER sites in a chronological order with the highest rated and most-accessed site being the topmost. Requirement of an independent universal rating body possessing the requisite technical, programme, course & material design, monitoring and evaluation expertise, dedicated to furthering the cause of HQOER is necessitated due to ease of internet access and availability of “content” of monstrous proportions throughout the internet. Further, OER rating body during evaluation of HQOER hosted at a website also ought to include, the “popularity” of the same site as indicated by the number of people accessing and downloading HQOER material from it.

## CONCLUSION

The above investigation indicates that for the educational puzzle to be cracked and disseminated amongst the local populace, there is a requirement for a low cost internet that allows access to HQOER material listed in a lucid language and involving lots of multimedia inserts. The topic specific OER ought to be available preferentially through a dedicated search engine for HQOER and listed chronologically based on the recommendations of an independent OER regulatory body whose jurisdiction is accepted worldwide. The future of teaching-learning process bodes well for hybrid education that includes HQOER as a built-in standard.

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