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Open Source Software Based Learning: A Step Ahead Toward Meeting Global Standards of Education

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ABSTRACT

Current Global Education Standards has emphasized inclusion of open source soft wares in teaching learning and assessment process as the emergence of digital technologies and the emerging importance of leveraging technology for teaching-learning at all levels from school to higher education is the requirement of present time. Digital learning platforms produce learning experiences that enable students to participate and explore educational content actively. Digital tools transform education by connecting teachers and students to content, resources, and platforms to improve instruction and personalize learning. It is crucial to understand how they affect teaching. Digital technology also makes processes and classroom routines more flexible,accessible, collaborative, efficient, and effective. Understanding the usage and the ways that online tools support key learning and improvement efforts will help you determine the best way to achieve your goals. Free and Open source softwares enhance other essential skill sets, including communication, creativity, critical thinking, problem-solving, digital and financial literacy, entrepreneurship, and global awareness.

INTRODUCTION

The need of inclusion of free and open source tools in teaching learning and assessment process as the emergence of educational technologies and the emerging importance of leveraging technology for teaching-learning at all levels of education from school to higher education is the requirement of present time. So different effective models of blended learning are identified by experts of education for appropriate replication for different subjects. The way the world is moving toward a new phase of technological advancement, it has become the requisite of the school education system that education should be imparted through the new modes of digital resources. For every education professional, it is lucrative and motivational, to find a way to perform with a new capacity and a new tool. In today's experiential classroom programs, the active use of digital game based tools for learning is a tempting option that can play a lead role in realizing the goals of actual digitalisation of classroom processes.

Educational institutions have rushed to put their academic resources and services online, bringing the global community onto a common platform and awakening the interest of investors. Despite continuing technical challenges, technology based education shows great promise. Open source software offers one approach to addressing the technical problems in providing optimal delivery of online learning.

Many software and platforms support communication, collaboration, engagement, and curriculum creation for learners in any context. Social media, online games, multimedia are tools that both students and teachers can use to interact. Programs for editing digital materials and platforms support collaboration and resource sharing. Free and Open Sources provide a way to implement text, images, audio, and video for an immersive experience.

Open Source Softwares

Theses software refers to both the concept and practice of making program source code openly available to all. Users and developers have freedom and access to the core designing functionalities that help them to modify or add features to the source code and redistribute it. Extensive collaboration and circulation are precisely central to the open source movement.

Many features distinguish open source software from closed or proprietary software. The Open Source Initiative (OSI) has set a standard—the "open source definition"—by which software qualifies for an open source license.1 The software must meet the following criteria:

- *Hindrance Free Distribution.* Users can distribute or sell the software without paying royalties.
- *Source code distribution.* The source code of the entire open source product must be easily modifiable. In the absence of the source code, the product must cite a low-cost resource where users can obtain it.

- *Improvements and modifications.* The license allows modifications, and its terms remain unchanged for distribution of improved versions.
- *Creator's source code integrity.* If the license allows patch file distribution along with the original source code, a user cannot modify the code and distribute it2 except by giving the new version a new name.
- *No individual discrimination.* No person or group shall be discriminated against during open source product distribution.
- *No restriction on the fields of application.* Open source software can be used in any field and for any purpose.
- *Distribution of Liscence.* The privileges attached to the original program extend to all who receive the program, so recipients do not need to apply for a separate license.
- *License and product General Vs Specific.* The rights associated with a license extend to products extracted from a larger software aggregate.
- *No restriction on other software.* No restrictions are allowed on distribution of open source products bundled with products developed on other software platforms.
- *Neutral Technologies.* Licenses should not be issued on the basis of the specific technology involved.

Adaptable Features of Open Source Software in the field of Education

Cost-effectiveness

Although not all open source software is free, most of it is cheaper than proprietary software. What's more important is that educational institutions, as well as other users, can try out the open source software for free to test it and see how it fits in their system. After, they can scale and implement the software institution-wide. By doing that, they are making sure that the solution at hand will work for them in the long run.Also, there is less fear of vendor lock-in with open source software.

Flexibility

Educational institutions, especially universities, have complex IT infrastructure that requires flexible solutions. While proprietary software is rarely made to be easily customizable without extra charges, open source software is highly flexible and allows its users to adapt the code to suit their needs.

Security

One of the main advantages of open source software is security. The open source community that keeps proposing improvements to the code makes sure of that. Moreover, the security of open source software stems from frequent updates.

This is a vital aspect of why universities choose open source software. Namely, with more digitalization in education come increased worries about maintaining data privacy and security. Cyberattacks on universities are increasing, and they are becoming more costly.

Below is list of some software that may be used to gear up the technological advancement in Education:

Moodle: Moodle is a course management system written in PHP. It's probably the most widely applied LMS in the world, with around 3000 universities currently using it.

Dokeos: Dokeos provides e-Learning solutions to educational institutions as well as to businesses. Some of their features include double-blind evaluation and easy progress tracking. Of course, this open source software also includes advanced security features.

Claroline: Claroline is a collaborative eLearning and eWorking program that's available in more than 100 countries and in over 35 languages. It's been in use since the late 1990s so we can safely say that they were one of the pioneers in developing open source software for educational purposes.

OLAT: Online Learning And Training (OLAT) is a free learning management system that operates under Apache license 2.0. It also features eTesting, and is widely used across German-speaking countries.

Chamilo: Chamilo open source software is backed by Chamilo Association whose goal is to promote the accessibility of learning through the platform. It is also used in NGOs and public administration. In total, over 2000 organizations worldwide use it.

Open SIS: Open SIS brands itself as the world's most popular student information system, school management system, and education management information system. They support integrations with Moodle and Blackboard, thus enabling schools and universities to cover all their needs with open source solutions.

Open Admin: Open Admin is web. Based school administration software that offers features such as demographics, discipline, report card system, online gradebook, and attendance. It is primarily meant for elementary, K-12, and high schools.

Gibbon: In addition to being an open-source, Gibbon is also a free software. This flexible and web-based school management system allows seamless planning, teaching, and assessment.

It allows teachers, school administrators and students to perform a variety of functions and have all the administrative work done in one central place.

Using technology for education provokes students' curiosity, boosts their engagement, and leads to better learning and comprehension. These factors are a priority for every effective teacher and today they can be easily achieved by using digital tools in classroom. We've selected 20 innovative digital tools for classroom which foster responsibility, relationships, and respect, and can be used by educators and students.

Open Source and Its Impact on Learning
As educational administrators strive to strike a balance between various resources and requirements, so open source e-learning software has emerged as a viable solution. Many universities now a days have opted for open source learning management systems, in particular. Advantages that have tipped the balance toward open source include the following:

- *No license fee.* Most universities annually pay large sums to software companies to use their products, but open source licenses are free.
- *Customisation.* Open source products are customizable and can involve third parties. New features and tools can be imported from the open source community.
- *Open Source Support System.* The huge collaborative network of the open source community minimizes, although it does not eliminate, the risk of discontinued service. Volunteer help is available through open source support systems such as forums.
- *Improvement on regular basis* . Extensive collaboration ensures that software products keep improving. Programmers from different institutions and organizations, along with volunteers, contribute freely to projects.
- *Benefit of Texes.* Governments of many countries have implemented tax-exemption policies to boost open source projects, although the governmental role in promoting open source software is controversial.6

The main potential drawback of open source projects for education becomes evident during their implementation. Using the these software to its full capacity may be felt challenging for beginners, and the availability of the source code is irrelevant for end users if they do not find the product useful. Also, open source products are not always compatible with existing software components.

Open source developmentshas other potential disadvantages. There provide no guarantees that a project will reach completion and deliver the desired results, for example. Progress depends on the interest and time of the collective interest and collaborative workforce, and lack of resources orany funding can derail a project. Most commercial open source products, however, are self-sufficient.

Intellectual property rights can make it hard to ascertain whether a particular software solution has been patented. If a process used in an open source project has already been patented, the group can be charged with patent infringement. Although the availability of source code makes it difficult for patent holders to prove infringement, these issues often cloud development of open source software.

Perhaps the most alarming factor to consider is possible loss of support. Typical users are not interested in the availability of source code; they are more concerned with the software's usability. This is one reason proprietary software companies commit resources to product documentation and customer support. The lack of commercial incentives in many open source projects undoubtedly reduces some contributors' enthusiasm. If the support system disappears, educational institutions will have trouble improving and customizing their open source products in the absence of governmental grants or advocacy policies (which are controversial in themselves).

Considering the Options

Educational institutions must consider multiple issues before making a choice among software options. Many nonprofit organizations provide information about open source products and their applicability. OSS Watch, an advisory committee funded by the Joint Information Systems Committee (JISC), provides comprehensive analyses of the legal, technical, and economic aspects of open source software implementation in the higher education sector,8 and workshops and conferences are organized to help gauge the impact of open source products within educational institutions.

Open educational resources (OERs) are online resources that provide free applications and learning materials for academic institutions. The term, which was coined in a forum on the impact of open coursework for higher education in developing countries, refers to free learning resources including complete course materials, modules, journals, reference materials, and tools that enable users to create online learning management systems and design and publish materials. These resources can be modified and redistributed.

A similar endeavour called open source curriculum (OSC) that particularly follows the open source philosophy of making source material accessible to students, instructors, teachers, teacher educators, administrators, parents, and governing bodies. Specific instructional goals are set, and designers, content experts, and technical advisors work together to create a complete curriculum. All users can therefore contribute. An open exchange of ideas in this way has enabled these online open source curricula to reach world-class standards.

Open source resources are available from the following initiatives:

- *Curriki*, the Global Education and Learning Community, is a non-profit body dedicated to the creation of free, open source curricula for all users and one of the most popular OSC online resources.10 Curriki provides course materials for primary and secondary education, primarily focusing on the creation of complete curricula for courses distributed and used globally.
- *Connexions* is a pioneering venture11 set apart from other open-education resources by its scope. The site provides instructional material for primary, secondary, and postsecondary levels, as well as the industrial sector. Contributions are invited from all segments of society. The materials are available in different languages, and users from all over the world can download, customize, and reload them. Authors get credit for their contributions.
- *MIT Open Courseware* makes undergraduate and graduate course materials from MIT available on the Internet.12 This initiative has not damaged the university's reputation but instead has encouraged other institutions to publish their courses online as well.

CONCLUSION

Technology is a friend of education system and there is no reason to fight this trend. Right on the contrary, by incorporating free or cheaper open source softwaresin the classroom, you become an effective school leader who fosters innovation. Companies have developed learning software and applications to support students inside the classroom. Technology based learning platforms hence produce constructive learning experiences that help students to participate and explore various educational content actively. Open source soft wares transform education by connecting teachers and students to content, resources, and platforms to improve instruction and personalize learning. It is crucial but important to understand how they affect teaching and learning of students. Information communication technology also makes processes and classroom routines more experiential accessible, collaborative, efficient, and effective. Understanding the usage and the ways that open source soft wares support key learning and improvement efforts will help you determine the best way to achieve your goals.

In the past decade, the use of technology in the education sector has tripled. ICT tools improve collaboration by linking teachers to students and by turning the classroom into an online community. Web-based discussion platforms (e.g., social media) change how students involve themselves in assignments. Online courses make project-based lessons easier to develop and deliver. This online environment creates a step-by-step exchange of ideas and allows teachers and students to ask questions freely.

Information Communication Technology improves research by providing students with tools to analyse and understand large amounts of complex disciplines and media, including data and photographs. Digital tools create an open environment where engagement in the form of inquiry and response can be asynchronous, allowing students time to prepare answers, promoting the exchange of diverse views and collaboration.

Teachers use classroom technology to streamline the assessment process. Equipping teachers and students with the ability to give and receive real-time feedback through online digital tools provide a powerful incentive for all kind of learners to take charge of their classroom outcomes.

Students can choose the best software for their learning styles and improve their skill sets to improve engagement, authenticity, specific requirements and more value in the learning process. Open Source Softwares enhance other essential skill sets, including communication, creativity, critical thinking, problem-solving, digital and financial literacy, entrepreneurship, and global awareness.

To best utilize the online setting, schools must use social media and open source softwares for active and engaged learning as part of a rigorous program. Knowing which digital tools to use creates a compelling and challenging digital leadership environment where students can learn and develop.

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