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DESIGNING OPEN EDUCATIONAL RESOURCES (OERs) FOR SOCIAL SCIENCES WITH A FOCUS ON GEOGRAPHY AND ECONOMICS

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Designing Open Educational Resources (OERs) for Social Sciences with a Focus on Geography and Economics

Sonia Sawhney [*] and Sourya Banerjee [**, ***]

Abstract

Technology-mediated learning has the potential to support students' engagement with content and enrich learning experiences. Recognising this potential, a collaborative project between the Government of Telangana and the Tata Institute of Social Sciences (TISS) was initiated to develop an Interactive Flat Panel (IFP)-compatible Open Educational Resources (OER) repository for secondary government schools in the state. Using a constructionist lens, the authors reflect on their experiences to present a systematic and reflective assessment of the OER curation process. The analysis draws on data in the form of meeting minutes, recordings of online discussions and individual reflective journals maintained by the authors. The paper identifies key pedagogical, curricular and infrastructural challenges encountered during the curation process and outlines strategies for developing an ecosystem of OERs customised to the requirements of the state board. It proposes contextualised capacity-building initiatives to support teachers in using accessible technologies such as H5P to create their own instructional resources. Together with a unified platform on which teachers can share resources and collaborate on lesson design, such efforts may contribute to the development of a sustainable national repository of Open Educational Resources.

Keywords: Educational Technology, Interactive Flat Panels (IFPs), Open Educational Resources (OERs), Simulations, Pedagogy, Geography, Economics

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Context

Technology-mediated learning enhances student engagement with content and provides opportunities to improve learning outcomes and experiences. There is a global shift towards technology-enhanced interactive learning.[1] Interactive Flat Panels (IFPs) represent a significant advancement in educational technology. These large, touch-enabled smartboards, when integrated with high-quality Open Educational Resources (OERs), promote active, hands-on learning, especially in lessons that require practical and visual engagement from learners. In 2023, the Department of Education, Government of Telangana, collaborated with the Tata Institute of Social Sciences (TISS) to curate Open Educational Resources (OERs) for use with Interactive Flat Panels (IFPs) in government secondary schools across the state. The curation undertaken during the first phase covered selected topics from the Telangana SCERT textbooks for Grades VIII–X across seven subjects. The primary objective of the collaboration was to strengthen teaching–learning processes while promoting the inclusion of diverse learners within these processes. The government acknowledged the capacity of these technologies to support the development of higher-order thinking and critical and creative competencies among learners.

There is an increasing focus on integrating digital technologies into school education. However, there is a paucity of empirical literature addressing the complexities involved in curating and implementing OERs for social science subjects in exam-oriented, low-connectivity government schools. This paper addresses this gap by offering a reflective, practice-based analysis of OER curation in government schools, highlighting the conflicts among pedagogical objectives, curricular requirements and infrastructural realities.

A Relevance, Affordance and Pedagogical (RAP) rubric was developed to assess the pedagogical potential of Open Educational Resources (OERs) for use on Interactive Flat Panel (IFP) devices in schools.[2] The rubric consists of three parameters and 15 indicators. It was developed through collaborative discussions among TISS faculty, Research Assistants and representatives of the State Council of Educational Research and Training (SCERT), drawing on the TISS team's previous work on OER quality, pedagogical alignment and classroom usability. The rubric was applied iteratively across subjects and chapters, with indicator definitions refined through discussions and

[1] Andrea Gauthier et al., "Manipulating Interface Design Features Affects Children's Stop-and-Think Behaviours in a Counterintuitive-Problem Game", *ACM Transactions on Computer-Human Interaction* 29, no. 2 (2022): 1–22.

[2] Centre of Excellence in Teacher Education (CETE), *RAP Curation Rubric to Assess the Pedagogical Potential of Open Educational Resources for Use on Interactive Flat Panel Devices in Schools*, version 1 (Mumbai: Tata Institute of Social Sciences, 15 January 2023), https://tiss.ac.in/uploads/files/PPPS_2-E_2.1_jan24.pdf

clarification of scoring discrepancies. These discussions helped establish a shared understanding of how relevance, accessibility and pedagogical soundness would be interpreted during the curation process. The RAP framework served as a practical tool for professional judgement, comparative assessment and collective decision-making rather than as a statistically validated measurement instrument.

Further subject-specific design principles were also developed to govern the entire process of resource curation and activity planning. The following design principles were identified for the social sciences:

1. **Principle of mapping and visualisation:** Enable students to *map out and visualise concepts*, establish *cause-and-effect relationships* between different phenomena and understand *concepts in local as well as global contexts*.

2. **Principle of enabling multiple perspectives:** Enrich a *holistic understanding* of different concepts and help students to *approach ideas and issues from different perspectives*.

3. **Principle of recognition and inclusion – local culture and knowledge:** This principle helps us to attain the objective of *representation and appreciation of local culture, knowledge and values*.

4. **Principle of a multidisciplinary approach:** Enable students to *understand the linkages between the different disciplines within social studies*, rather than studying them in isolation.

5. **Principle of analysis, reflection and application:** Help develop *critical thinking* and *problem-solving* among students with regard to different concepts.

6. **Principle of active citizenship and constitutional values:** Help develop *social consciousness*, *promote constitutional values* and *create responsible citizens* of tomorrow.

Curated OERs followed the RAP framework and adhered to the subject-specific design principles. A lesson plan template was created on the basis of the identified resources as part of the curation process. Subject teams included members from TISS and the state. The TISS team comprised a core group of faculty members specialising in Pedagogical Content Knowledge (PCK) and Research Assistants. The team from the state included teachers from government schools across the state and faculty members from SCERT. An external subject-matter expert was also brought on

board. Within the TISS core group, faculty guided the conceptualisation and review of the OERs, while Research Assistants were responsible for curating them. The social science core group was further organised into two pairs based on their disciplinary expertise. One pair concentrated on chapters on history and political science, whereas the other focused on geography and economics.

The authors of this paper examine their experiences of curating OERs for geography and economics through a constructionist perspective. Constructionism, as defined by Papert (1980),[3] emphasises learning through active engagement, design, experimentation and the creation of meaningful artefacts. This perspective guided our focus on interactivity, learner engagement with representations and the design of activities aimed at positioning students as active constructors of meaning rather than passive recipients of information. It also enables us to reflect on and interpret our experiences by contextualising them with our notes from the various iterations and meetings conducted throughout the project.

Methodological framework

This paper employs a reflective case-study approach grounded in the experience-report tradition. The analysis emphasises the processes, decision-making and negotiations involved in OER curation within a state-led education initiative, rather than focusing on outcomes and measuring impact. Data sources comprised minutes of project meetings, documented online discussions with subject teams and SCERT representatives, and individual reflective journals kept by the authors throughout the various curation cycles. These materials underwent iterative analysis to identify recurring challenges, decision rationales and design principles that influenced the final set of curated and created resources.

The constructionist perspective guided both the design of resources and the analytical approach taken in this paper, focusing on how interactivity, learner agency and artefact-based engagement were prioritised, constrained or modified in relation to systemic realities.

This paper does not seek to quantify learning outcomes or assess impact through statistical means. Rather, it provides process-oriented, practice-based insights into OER curation within constrained government school systems.

The curation process occurred in iterative cycles rather than following a linear selection approach.

[3] Seymour Papert, *Mindstorms: Children, Computers, and Powerful Ideas* (New York: Basic Books, 1980).

Each cycle included the identification of chapter-level concepts, a survey of available openly licensed resources, evaluation using the RAP rubric, negotiation of curricular alignment with SCERT representatives, and the refinement or elimination of resources based on classroom feasibility. Decisions were guided by pedagogical objectives as well as by practical limitations, including time constraints, examination pressures, licensing requirements and infrastructural conditions. Meeting minutes and review discussions indicate that numerous resources underwent multiple revision cycles before being accepted, significantly modified or excluded entirely.

The dearth of 'available' resources

The curation of resources presented several challenges, revealing early on the scarcity of materials that aligned with the project's requirements. Compared with history and political science, geography and economics have better availability of online resources, including interactive resources in the form of simulations, online data libraries and educational videos. Owing to its close interface with the natural sciences, geography has numerous readily available resources, particularly on topics such as continental drift, the Earth's movements and their effect on the seasons, the internal structure of the Earth, the greenhouse effect, and planetary wind and pressure systems. Themes that are not region-specific but focus on global phenomena frequently include simulations that facilitate the comprehension of abstract concepts. The challenge arose when we started working on topics specific to India, including its relief features, agriculture and climate. For these themes, we depended primarily on videos, which, while often informative and engaging, lacked interactivity. The unidirectional nature of such content, in which students serve largely as passive recipients of information, was inconsistent with the project's overarching aim and prompted the need for adaptation to better support participatory learning.

Economics, in contrast, had entirely different types of resources available. These included online data repositories such as Our World in Data.[4] The majority of available resources were videos, which, as observed earlier in the geography context, similarly lacked the interactivity required to enhance student engagement and the application of concepts. As a result, even in subjects with relatively better resources, it was necessary to modify and enhance the existing materials to increase interactivity and align them better with the project's objectives. Additionally, as discussed further below, creating our own resources became essential owing to the limited availability of existing re-

[4] Our World in Data, https://ourworldindata.org/.

sources, particularly when inclusion, contextual relevance and classroom feasibility were prioritised over mere content coverage, and owing to various other broader, practical challenges encountered on the ground.

In several instances, the decision to reject a resource was less about the quality of its content and more about its classroom implications. Resources that appeared engaging in isolation were often unsuitable when viewed through the lens of instructional time, students' attention spans and teacher workload. These decisions indicate a conscious prioritisation of classroom viability over idealised interactivity, a tension that persisted throughout the curation process.

Centrality of textbooks and examinations

The National Curriculum Framework for School Education (2023)[5] acknowledges the extensive nature of social science and classifies it as a multidisciplinary subject that requires an interdisciplinary approach. Teachers of social science must contextualise content and demonstrate its real-life relevance for learners.[6] Early in the project, these defining principles of social science and its pedagogy posed challenges in the curation process. The curriculum is extensive, but the available resources are significantly limited. Numerous instances arose where valuable and engaging resources were forfeited owing to licensing issues or inappropriate advertisements on the resource websites, as detailed in the subsequent sections. These challenges substantially limited resource options and required a shift towards creation, deviating from the original curation plan. Despite this shift to resource creation, our options remained limited by systemic challenges that constrained our flexibility.

The extensive domains of geography and economics, coupled with the centrality of textbooks and examinations in the Indian education system,[7] continue to shape classroom practices significantly. The structure of the social science curriculum presented a persistent challenge. The subject is content-heavy and deeply factual, and the exam-oriented approach to teaching and learning adds to this, making it difficult for teachers to find the time and flexibility required to implement interac-

[5] National Council of Educational Research and Training (NCERT), *National Curriculum Framework for School Education 2023* (New Delhi: NCERT, 2023).

[6] Jere Brophy and Janet Alleman, "Learning and Teaching about Cultural Universals in Primary-Grade Social Studies", *Elementary School Journal* 103, no. 2 (2002): 99–114.

[7] Krishna Kumar, "Origins of India's 'Textbook Culture' ", *Comparative Education Review* 32, no. 4 (1988): 452–64; Padma M. Sarangapani, "Knowledge, Curricula, and Teaching Methods: The Case of India", *Revue internationale d'éducation de Sèvres*, special issue 2 (2014), https://doi.org/10.4000/ries.3851.

tive, exploratory activities. Teachers are under constant pressure to cover a vast syllabus within the limited instructional time available. Most examinations test students on factual recall across a wide range of topics, which leaves little room for conceptual depth or creative engagement. Teachers often feel that spending additional time on one topic would compromise their ability to complete the rest of the syllabus, which is equally important from an examination point of view.[8]

Teachers' preference for resources that align with textbooks and are time-efficient indicates a rational adaptation to systemic accountability pressures rather than resistance to innovation. This textbook-driven and exam-oriented approach imposes significant constraints on the methods employed for lesson delivery and on the allocation of time for each lesson. We consistently had to balance textbook alignment, limited instructional time and the design of activities that promote analytical and critical thinking. The inflexibility of the curriculum and assessment frameworks led to resistance against even well-designed, interactive resources. The resource persons (RPs) consistently promoted the use of videos instead of other interactive materials, highlighting a lack of the skills and expertise required for effective technology-based instruction.[9]

From quite early on, many of the resources we curated or created faced resistance from the SCERT team owing to concerns about their alignment with the curriculum and their effectiveness in preparing students for examinations. There were distinct differences in priorities among the actors and institutions involved. Teachers focused on meeting the requirements of the curriculum and assessments. The TISS team focused on criticality and interactivity in its curation efforts. TISS, as an external academic institution, held pedagogical expertise but limited institutional authority, which required ongoing negotiation and compromise. Several iterations were necessary to reach a consensus, involving extensive discussions and negotiations to persuade the SCERT team of the value of certain resources. Yet many valuable resources had to be dropped.

Structural and infrastructural constraints in OER deployment

Building on the curricular and pedagogical constraints discussed earlier, the use of the already limited resources was further restricted by three major factors: (1) licensing restrictions, (2) reliance on internet connectivity and (3) lack of direct relevance to the textbook or syllabus.

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8 Padma M. Sarangapani et al., *No Teacher, No Class: State of the Education Report for India 2021* (New Delhi: UNESCO, 2021).

9 Punya Mishra and Matthew J. Koehler, "Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge", *Teachers College Record* 108, no. 6 (2006): 1017–54.

Licensing restrictions

Licensing restrictions emerged as a significant barrier. The preferred licences were Creative Commons (CC), Public Domain, GPL and MIT. We were permitted to use up to 20% of the resources per chapter as copyrighted content. Such content was to be listed separately so that its owners could be asked for permission to adapt it, or at least to redistribute it, for educational purposes. Owing to the difficulty of obtaining responses from the owners, many otherwise valuable resources, including those from Ology Earth, Google Earth, Javalab and various high-quality YouTube documentaries, were excluded because of copyright restrictions. The restrictions on redistributing or editing such content resulted in their exclusion, despite their pedagogical value and their availability for public viewing.

Case of Javalab. Javalab is a website that hosts a large number of resources on diverse subjects related to the sciences.[10] Notably, it also has resources on the Earth's atmosphere and geology, which align with some content of the geography curriculum. Javalab had resources on the relationship between altitude, air pressure and temperature, on land and sea breezes and on the Coriolis effect, which we could adapt to discuss cyclone-related topics. The simulations can facilitate visualisation of the concepts while promoting active student engagement and fostering a collaborative learning experience. We developed a lesson plan and organised the activities so as to facilitate group engagement with the resources. The resource was available at no cost; however, it required internet connectivity. This was not a significant issue, as negotiations resulted in permission to include the resources, given their value. Having addressed this issue, we thought we had succeeded in adding a valuable resource to our repository. However, a new concern emerged. The SCERT team noted the presence of advertisements on the resource website, emphasising that advertising directed at children is regulated by specific laws intended to safeguard them from potentially harmful advertising practices. The resources were therefore abandoned.

Internet dependency

Internet dependency was another critical factor. A significant requirement of the project was the offline availability of the resources, as it could not be assured that Interactive Flat Panels (IFPs) would have internet connectivity in all schools, particularly in remote areas where internet access may be lacking. This constraint raised important inclusion-related concerns, as digital innovations

[10] Javalab, https://javalab.org/en/.

risk reproducing existing rural–urban and infrastructural inequities when offline access is not prioritised. We were permitted only 20% of online resources that required internet connectivity. As a result, numerous otherwise viable resources had to be discarded. For example, MapChart allows users to generate custom thematic maps and download them at no cost.[11] The potential for students to engage in hands-on activities such as designing their own maps was not realised; our use of the tool was restricted to creating and downloading static images, thereby eliminating its interactive features.

Similarly, Our World in Data, an online platform providing interactive visualisations of development data, could not be used to its full extent. Although it is licensed under CC BY 4.0, it requires internet connectivity. Another example is TrueSize,[12] which allows users to compare the actual sizes of countries, debunking distortions caused by the Mercator projection. Despite its engaging and educational content, it was not used owing to copyright concerns and the advertisements on the website.

Case of Earth by Nullschool Technologies. Earth, developed by Nullschool Technologies, simulates planetary wind systems, ocean currents, temperature belts and other meteorological phenomena.[13] The website provides real-time data, simulating wind patterns and ocean currents on a globe. The parameters may be adjusted to superimpose temperature belts, ocean currents, wind currents and similar elements. The simulation was chosen for topics on temperature and ocean currents, and on pressure belts and planetary winds, from the Grade IX chapters on the hydrosphere and the atmosphere respectively. The simulation could serve as a valuable visual aid for teaching these topics in the classroom. The resource faced resistance owing to its copyrighted status and its availability only online, although it is accessible for public viewing. This highlights how the partial implementation of specific interventions can undermine the effectiveness of an otherwise promising innovation. First, the installation of IFPs in schools without prior assurance of internet connectivity restricts the IFPs' potential effectiveness. Second, it raises questions about the nature of copyright laws and our understanding of them, particularly the inability to disseminate copyrighted material that is already available to the public free of charge on the internet.

[11] MapChart, https://www.mapchart.net/.

[12] The True Size Of ..., https://thetruesize.com/.

[13] Earth: A Global Map of Wind, Weather, and Ocean Conditions, https://earth.nullschool.net/.

Direct relevance

Direct relevance was the next barrier. Our evaluation rubric emphasised "curricular alignment" as a key component under the broader category of "relevance". This criterion, while central to our selection process, lacked a clear definition within the framework, resulting in subjective interpretation by each subject group.

This divergence highlighted deeper tensions between pedagogical innovation and curricular compliance, as well as uneven understandings of the relationship between technology, pedagogy and content knowledge. In the social science team, we defined curricular alignment as the degree to which a resource encompasses the overarching concepts within a chapter while adhering closely to the textbook, allowing for supplementary and additional ideas. The SCERT team adopted a more stringent approach regarding compliance with the specified textbook topics. Their argument was that, although accepting deviations may be beneficial, the primary concern lies in the practical obligation to complete the syllabus within established timelines and adequately prepare students for examinations. This discrepancy frequently led to the rejection of resources that could have enriched classroom discussion but were considered insufficiently aligned with the prescribed textbook content. The reluctance appeared to originate from the RPs' insufficient understanding of the interrelationship among technology, pedagogy and content. Teaching with technology requires a flexible framework that explains how rapidly evolving, adaptable technologies may be effectively integrated with various pedagogical methods and subject areas.[14]

These cases demonstrate that curation decisions were shaped by intersecting concerns rather than a single criterion. Licensing, internet dependency and curricular relevance rarely operated independently; instead, they compounded one another, often forcing trade-offs between pedagogical richness and institutional acceptability. Documenting these cases allows us to foreground the often-invisible labour of negotiation and compromise that underpins large-scale OER initiatives in public education systems.

[14] Matthew J. Koehler and Punya Mishra, "Introducing TPCK", in *Handbook of Technological Pedagogical Content Knowledge (TPCK) for Educators*, ed. AACTE Committee on Innovation and Technology (New York: Routledge, 2008), 3–29.

Leveraging available resources

To mitigate the concerns listed above and to establish a structured process, each chapter was divided into two to three core concepts that the lesson intended to convey. This directed our search for appropriate, openly licensed digital resources. Each shortlisted resource was evaluated against three main criteria: its interactivity, its inclusiveness and its capacity to promote higher-order thinking.

Resources meeting all three criteria were rare; however, certain simulations fulfilled these requirements, though even these required careful modification for effective classroom use. For example, a simulation of the Earth's orbit and axial tilt was used to illustrate seasonal variation. The class was divided into two groups: one observed the northern hemisphere, focusing on the Tropic of Cancer, the Arctic Circle and the North Pole; the other observed the southern hemisphere, focusing on the Tropic of Capricorn, the Antarctic Circle and the South Pole. An activity was designed for students to analyse monthly changes in solar angles and deduce the corresponding temperature changes. This exercise was designed to conclude with a teacher-facilitated discussion aimed at reinforcing observations. The activity facilitated direct student engagement with the simulation and was designed to foster meaningful discussion, promoting observation and supporting active cognitive processes. We also ensured that the activities were flexible and efficient. The aim was to allow flexibility and teachers' agency to adapt the activity to suit their specific requirements.

In creating our own interactive resources, we began with discussions focusing on pedagogy, design principles and technical feasibility. Initially, we relied heavily on H5P. H5P (short for HTML5 Package) is a framework for creating interactive educational content.[15] H5P enabled us to create a wide range of materials, including interactive videos, presentations, quizzes, branching scenarios and interactive books. In economics, we embedded interactive dashboards from Our World in Data into H5P formats and added guided questions to direct student inquiry. For example, students explored trends in poverty, unemployment or GDP growth and answered built-in questions. We also created interactive videos using Creative Commons-licensed footage. Pop-up quizzes were added at intervals to test comprehension in real time. These interactive videos were supplemented with classroom activities, ensuring deeper engagement.

There were times when the required resources were entirely absent. In these instances, we created original content. We sourced openly licensed images and video clips and used AI tools to generate context-specific visuals, captions and voice-overs. These tools were especially valuable in supporting

[15] H5P, https://h5p.org/.

the creation of customised, curriculum-aligned resources in the absence of existing materials.

Later in the project, we explored more advanced tools such as the Godot engine. Godot is an open-source game engine released under the MIT licence.[16] Using Godot, we developed a game for a Grade VIII chapter on money and banking. The game illustrated the barter system of exchange and the concept of the double coincidence of wants, emphasising the advantages of money as a more convenient medium of exchange. The potential for using Godot to construct sophisticated simulations is immense and offers extensive opportunities for developing a diverse set of educational resources.

Reflecting on the curation and creation process

If we look back and reflect on the one tool that helped us adapt to the emerging situation and overcome the myriad challenges, we have to acknowledge H5P, which supported us in creating a substantial portion of our resources. It facilitated the adaptation of existing resources to our requirements and the creation of new ones. Although H5P was a crucial instrument in our arsenal, it was not the sole option, particularly in the creation of new resources. Generative AI proved essential for creating media files such as audio, pictures and auto-generated captions. Throughout the project, we created numerous resources by combining AI-generated images and voice-overs into videos, which were subsequently transformed into interactive videos using H5P. Finally, we devised activities to facilitate the delivery of specific lessons using these resources.

Over the course of the project, we realised that significant accomplishments can often be achieved through creativity and relatively simple technologies. One might think that creating educational resources requires a substantial team of animators and software developers, a notion we do not refute. Indeed, we felt that more could have been accomplished with animators and software engineers on our team; nonetheless, very straightforward tools are often sufficient for the tasks at hand. Through careful design, a collection of photographs can be integrated into an interactive format, as we did in the chapter on India's relief features. We created an interactive module featuring quizzes and an interactive map of India designed for map-pointing activities. The map prompted students to identify specific locations by clicking on the requested site, which was accompanied by interactive images that displayed informational pop-ups about each location. This was integrated into an interactive book using H5P, and an activity was designed to demonstrate its application in the

[16] Godot Engine, https://godotengine.org/.

classroom.

Godot was used in a similar manner; the game was created using visuals and sounds from open-source platforms or generated with AI. A script was developed and, with the use of basic animations, a narrative was conveyed with occasional decision-making prompts, information pop-ups and questions, alongside a planned activity on the game's application in the classroom.

These are simple tools that are user-friendly and frequently accessible at no cost. If they are integrated into teacher development programmes and teachers are motivated to use them, teachers may be able to create their own digital resources. Constructionist approaches to learning have well established that such facilitation can create opportunities for deeper understanding and enriched learning.[17] The challenge of insufficient digital interactives for social science can be swiftly addressed by establishing an ecosystem of national or state-level integrated portals for the organisation and dissemination of such content, making it publicly accessible for use and adaptation.

Way forward

Technological advances are emerging rapidly, and the education sector is witnessing novel pedagogical methods that incorporate these technologies to create more effective learning experiences for students. As emerging technologies advance and spread among the population, innovation becomes increasingly democratised, no longer confined to a select few. Javalab exemplifies the result of integrating technological, pedagogical and subject expertise. It is a digital repository of interactive resources established by a South Korean middle school teacher[18]. All resources on the website are available at no cost. This encapsulates the essence of the democratisation of invention. If educators were trained in these technologies, alongside their subject-matter and pedagogical expertise, they could actively participate in curriculum creation.[19]

We do not propose that teachers must possess extensive knowledge of coding and software development; rather, the technologies employed in our project were relatively straightforward, and anyone with minimal training could use them to produce their own materials. With minimal technological knowledge, anyone may begin developing interactive resources. For instance, using H5P requires

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[17] Seymour Papert and Idit Harel, "Situating Constructionism", in *Constructionism*, ed. Idit Harel and Seymour Papert (Norwood, NJ: Ablex, 1991), 1–11.

[18] Javalab, "What Is Javalab?", https://mully.net/en/about_en/.

[19] Matthew J. Koehler et al., *The Technological Pedagogical Content Knowledge Framework for Teachers and Teacher Educators* (New Delhi: Commonwealth Educational Media Centre for Asia, 2013), http://creativecommons.org/licenses/by-sa/3.0/.

minimal technological understanding. It is true that a greater degree of specialist knowledge is necessary to develop more sophisticated resources such as games and simulations with Godot or Java. However, even in these cases, training can be contextualised to suit pedagogical and content-related needs.[20] We propose contextualised, requirement-oriented training for teachers in basic technologies such as H5P, enabling them to create their own instructional resources. This, together with a unified platform for educators to exchange their work and collaborate in resource creation and lesson design, aims to establish a national repository of Open Educational Resources.

While the project involved classroom pilots and teacher feedback during review meetings, this paper does not report learner-level data or teacher adoption metrics, as these lay beyond the scope of the curation mandate and the ethics approval for the initiative.

Taken together, these reflections underscore that the challenges encountered were not merely technical but deeply pedagogical and systemic, shaped by curriculum structures, assessment regimes, infrastructural inequities and institutional power relations. The experience highlights that OER curation in government school systems is as much a process of negotiation and alignment as it is one of design and selection. By documenting these processes, this paper offers practice-based insights that may inform similar initiatives seeking to integrate technology meaningfully within constrained educational contexts.

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