Centre for Internet & Society

Envisioning the Role of Open Knowledge in the Implementation of the National Education Policy 2020

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Preface

The National Education Policy 2020 brings a significant change in India's educational landscape, representing a comprehensive overhaul to address the evolving developmental imperatives of the country. This short study delves into the potential role of 'Open Knowledge' players within the framework of the NEP 2020, aiming to provide insights and recommendations for effective implementation. This study focuses on Wikimedia ‘open knowledge’ platforms and their potential role in facilitating educational processes

Wikipedia and various Wikimedia projects have been used earlier as a part of higher education courses in various educational institutions. Some of these institutions include Christ University, Bangalore, Punyashlok Ahilyadevi Holkar Solapur University, Goa University, Andhra Loyola College, Vijayawada and St Aloysius College, Mangalore. Following are the details of these initiatives -

- 2013- 2019- Christ University, Bangalore

  A certificate course (equivalent to 2 academic credits, or 45 hr of teaching- each batch had 30 to 45 students) was offered to students of the university. The course objective was to enable students to useWikipedia. The course introduced students to the concept of Wikipedia, how to edit and publish articles, followed by a discussion on Wikipedia's reliability and social significance. More than 1600 students participated in this endeavor. The programme used video tutorials (Hindi and Kannada) as a teaching aid for faculty, facilitator and students. Later the university also facilitated internships for students studying Modern Indian Languages (Hindi, Kannada, Tamil, Urdu, Sanskrit)

- 2020-21- Punyashlok Ahilyadevi Holkar Solapur University

  MA (Mass Communication) part I- paper 3 included writing 5 articles on Wikipedia as a term work. B.Voc (Journalism and mass communication) semester I, II, III- included writing articles on Wikipedia as term work. (Sem I- 2 Articles, Sem II- 3 articles, Sem III- 3 articles on developmental issues)

- 2022-23- Goa University

  M. A. Marathi offered an elective course titled ‘Professional Marathi’ for Semester III students. Under this course students were introduced to digital media. Wikipedia was one of the media that was introduced to the students along with Blog/ Vlog/ Flip=E books and PPT.

These are very encouraging examples that demonstrate the potential of using Wikipedia and Wikimedia projects as tools for higher education. It has helped students learn to write research based articles using contemporary technical skills.

NEP2020 provides an opportunity to formalize such initiatives on a larger scale. This report explores this possibility by giving an overview of the opportunity and challenges and moves on to discuss ideas for its implementation.

Summary

The NEP 2020 seeks to revamp the entire education structure, aligning it with the 21st-century aspirational goals and leveraging India's rich traditions and values. Emphasizing the development of individual creative potential, the policy underscores the need for a holistic education system encompassing cognitive, social, ethical, and emotional capacities. This study explores the intersections between NEP and digital skills, open knowledge, multilingual content creation, and cognitive abilities.

NEP2020 has set ambitious yet well-articulated goals. A table in Annex gives expected learning outcomes in the chosen subject as well as generic learning outcomes.

Participating in the development of the ‘Open knowledge’ system, especially Wikipedia and other Wikimedia projects like Wikisource, Wikidata, Wikimedia Commons etc certainly has the potential to complement classroom teaching to achieve these envisaged outcomes. Moreover, these platforms can be used as per the needs of the student and requirements of the subject. For example, Editing in a Wikipedia page demands-

1. Comprehensive - Inclusion of major facts about the chosen topic
2. Well written - Easy to understand, grammatically correct writing, structuring the contents
3. Researched - Writing should withstand scrutiny, all claims to be verifiable against sources of highest quality and reliability, up-to-date knowledge of the chosen topic.
4. Neutral point of view - Bias free writing, reporting of facts and not opinions
5. Well organized - Writing is to be organized as – lead section and remaining writing with appropriate section-headings.

Editing on Wiki Source, especially in Modern Indian Languages demands,

1. Basic knowledge of the chosen language
2. Computer skills for typing, editing etc.
3. Perseverance, consistency, self-discipline etc.

Besides, all Wikimedia related initiatives can be planned as a group activity with all participants contributing towards completing a common objective/ theme. Such group activities help students develop soft skills, Leadership readiness/qualities, and demonstrate ‘Learning how to learn skills’ . The students will be introduced to relevant Digital and technological skills.

Focus Areas

This section gives a quick overview of NEP2020 and the relevance of the Wikimedia platform within the framework of NEP2020.

NEP 2020 guides the entire formal educational structure, from preschool to postgraduate levels. It recommends a 4+3+3+4 formula for school education and 4-year degree programs. Each of these development stages has its own importance and needs. This report explores possibilities of synergies between 'open knowledge' systems and the implementation of NEP2020.

'Open knowledge' broadly refers to 'knowledge that is free to use, reuse and redistribute without legal, social or technological restrictions.' With the spread of personal computers and internet technology it became easier to share information across the world. Wikipedia, founded in 2001, is a platform providing information which could be edited and modified to improve its quality. Wikipedia facilitates the participation of millions of people to interact and contribute to developing knowledge repositories for open consumption.

Clearly, a higher level of education (beyond basic reading, writing and arithmetic skills) is needed to contribute to the 'open knowledge' platform effectively and to contribute towards its improvement. It will therefore be pertinent to look closely at NEP2020 on the UG/ PG level, to explore possible synergies. For other levels of education, (preschool to high school) these platforms can function as a repository of information for educators. This aspect of the 'open knowledge' system is not within the scope of this report

NEP 2020 has reimagined the existing UG and PG level education moving away from rote learning to more creative, interdisciplinary and value enhancing education. Following are some of the key features of the policy-

- Multi-disciplinary approach

  The policy advocates blending of conventional branches of education viz. Humanities, STEM (Science- Technology- Engineering- Mathematics), Physical education, and extracurricular activities. A student is encouraged to explore as many branches of education as possible, with an aim to identify a suitable vocation pertaining to the strength, liking and talent of an individual student. In other words, the policy encourages teaching 'how to learn' over digested delivery of information and knowledge.

- Flexibility

  NEP 2020 promotes flexibility in learning. Accordingly, entry, exit and assessment criteria for formal education have been modified. A student has flexibility in the selection of subjects suitable to an individual's requirements. Also, a student has the flexibility to choose entry and exit from the system. A credit-based assessment system allows students to exit with a certificate/ diploma/ degree/ degree with honors.

- Equal promotion

The policy emphasizes equal promotion of all branches of education- Humanities, STEM, Physical-education, and extracurricular activities. An in-depth knowledge of a chosen subject is to be complemented with equal emphasis in all other branches . For example a student of Chemistry is encouraged to explore subjects from other disciplines like painting or business studies.

- ❖ Concept learning over rote learning

  The policy encourages teaching methods and assessments pertaining to imparting concepts, thinking abilities over conventional rote learning.

- ❖ Cultivation of life skills

  The policy supports development of much needed cultivation of life skills. This is essential for ensuring employability of students beyond formal education. These include among others, inculcating values like cooperation, teamwork, empathy, resilience and leadership. The course structure gives opportunities to students to learn such abilities.

- ❖ Language skills

  The policy gives great emphasis on learning languages so as to have better communication skills. It encourages learning multiple languages.

- ❖ Contemporary skills

  The policy expects students to learn contemporary developments including various digital skills, AI-ML (Artificial Intelligence- Machine Learning), data analytics, design thinking etc. with an aim of imbibing more analytical abilities.

- ❖ Real world experience

  The policy encourages students to hone their skills with real life experiences including community engagement as well as internships.

Clearly, the policy is a giant leap from the conventional system of UG/ PG education and challenges it at multiple levels. Following are some of the main concerns raised in implementing NEP 2020-

- Mindset change- The policy demands radical change in the mindset of educators, educational institutions, students, parents, employers, and government administration. This 'shaking up' of the entire system will take time and will also pose multiple challenges.
- Current skill sets of teachers- clearly, successful implementation of the policy requires additional skill sets amongst educators. Skill enhancement and hand-holding support is therefore needed for educators.
- Inadequate numbers of motivated teachers- unfortunately it is perceived that the current system does not attract enough numbers of talented and motivated teachers. There are multiple reasons for this, including the remuneration offered to the teachers. The NEP challenges the status quo. The educators are expected to evolve

and inculcate this change. This requires path breakers, risk takers, support and guidance.
- Existing assessment system- implementation of the policy challenges the existing assessment system. It encourages formative assessments over summative assessments. This will need different monitoring and assessment tools that would ensure objectivity and rationality.

Along with these main problems, there are multiple doubts about the policy and its implementation. Some of these are –

- Flexibility in higher education systems- will this lead to 'certificates of no value' instead of 'dropouts'? Can we unlink certificates from jobs?
- Sheer size - AISHE (All India Survey of Higher Education) 2021-22 report estimated following scale of the formal education system in India. Implementation of the policy at this scale is undoubtedly challenging.
    - Higher education- 4.33 crore students in nearly 1,168 universities, 45,473 colleges, and 12,002 stand-alone institutions.
- Diversity- Diversity in our education system is multi-fold and multi-faceted - languages, resources, physical accessibility, digital accessibility etc. All this leads to multiple stakeholders and therefore, multiple concerns that need to be addressed.
- Funding- India's education system is perceived as grossly underfunded and this poses additional challenges in mobilizing human resources as well as physical infrastructure needed for effective implementation of the policy.
- Highly bureaucratized system- India's education system is highly bureaucratized and this poses challenges in implementing creative or radical changes. Can such a system encourage and lead much needed attitudinal changes amongst all stakeholders?
- Co-operation between center and state- The policy is promoted by the central government and state governments are the forerunners in its implementation. Successful implementation of the policy demands co-operation between the two governments. Tamil Nadu has decided not to implement NEP2020.
- Role of private sector- 70 percent of higher education institutions (colleges and universities) are run by the private sector. Significantly, roughly 65-70 percent of students are currently enrolled in private higher education institutions. The ability and willingness of these private institutions will significantly affect implementation of the policy. On the other hand, private institutions infuse much needed funding in the sector along with flexibility needed for the implementation NEP2020

Clearly there are many challenges in the effective implementation of NEP2020. However, the change is much needed, and its implementation has started. It is likely that some of the elements of the structure envisaged in the new policy, such as flexibility in choice of subjects, multiple exits, multidisciplinary curriculum, credit-based assessment etc. will be implemented soon. However, a lot of effort is needed to implement the 'spirit' of the policy beyond just the letters.

It appears that some of the changes needed for implementation of the 'spirit' of the policy will be small and incremental. New structures are emerging. Institutions and educators are experimenting and churning up creative ideas. The system seems to be willing to experiment

and is open to new thoughts/initiatives. This is a great opportunity to put forward relevant ideas suitable for implementation of the policy.

Open knowledge systems can help in addressing some of these challenges. Most of the institutions offering UG/PG courses have access to computers and reliable internet connection. Moreover, penetration of smartphones amongst UG/PG students is quite significant.

In the light of this, interaction with educators and institutions revealed the following strengths of the internet based open knowledge system; in general and for 'Wikimedia' platform in particular. The list is indicative and not exhaustive-

1. It can effectively address the issue related to 'scale' and 'diversity', especially linguistic diversity.
2. The platform is flexible, and activities can be planned to impart 'soft skills' such as teamwork, leadership, sharing of responsibilities, completion of tasks etc. Students can be encouraged to identify, plan and execute relevant 'projects' using this platform.
3. It is a powerful platform and can provide 'cost effective' solutions to multiple challenges. Many activities can be planned to use already existing infrastructure (computers and internet connection).
4. It is easy to keep track of contributions of individual students and hence can effectively contribute towards ease of assessment.
5. The same platform can be used by students pursuing different subjects. An educator can initiate different 'projects' (define tasks) relevant to his/ her subject and according to the needs of the students.
6. The 'open knowledge' system is computer based and therefore, contemporary. It will encourage students to learn skills and ethics necessary to make effective use of technology and modern media.
7. It is a tool that complements classroom teaching. It gives the opportunity to learn 'real work' experience to students.
8. The platform can be used for multiple Modern Indian Languages (MIL) and to learn to effectively communicate using MIL along with English.
9. Activities can be planned to impart research skills and academic writing. As the platform encourages dissemination of 'knowledge' in an impartial and rational way.
10. Innovative 'internships' can be planned around contribution to the knowledge base of this platform.
11. The 'open knowledge' platform can be easily viewed by others to look at 'best practices', 'innovations'- ease of exchange of ideas.
12. Contribution to 'open knowledge' can introduce students to inculcate the spirit of social service.

It will now be appropriate to closely look at the framework of implementation NEP for UG/PG courses. This will help in identifying the possible contribution of open knowledge systems in effective implementation of NEP2020.

Concrete Linkages

To establish linkages between NEP2020 and the 'open knowledge' system, it is necessary to understand the structure of courses advocated by NEP2020. Such an understanding will help identify the niche for open knowledge systems. It also gives insights into the way in which open knowledge systems need to be oriented so as to be compatible with NEP2020.

Following paragraphs describe course structure and identify such possible niches for open knowledge systems.

UGC has issued guidelines for 'Curriculum and credit framework for UG courses'. The following table summarizes the broad structure of the courses, credit system and features relevant to the 'open knowledge' system.

Please note that

- The table does not list all the features of each of the courses. It lists only features where an 'open knowledge' system can contribute effectively. For more details, please refer to the Guidelines published by UGC.
- The guidelines are flexible to some extent, in terms of credits. Weightage of credits may slightly vary for each state/ institution/ university.

Table: Categories of UG course and relevant features for use of 'open knowledge' system.

	Categories of courses	**Credit for 3 yr**	**Credit for 4 yr**	**Relevant feature of the course for use of 'open knowledge' system**
1	Core- Major	60	80	Project work
2	Minor	24	32	Vocational education and training

3	Interdisciplinary courses (MDC- Multi Disciplinary Courses)	9	9	3 introductory level courses- including conventional subjects included under STEM and humanities, but can include subjects like astronomy, astrophysics, Library/ information/ media (to understand recent developments in information and media science)
4	Ability enhancement courses (language) (AEC)	8	8	Modern Indian Languages (MIL)- Acquire and demonstrate linguistic skills including critical reading, and expository and academic writing skills. Acquaint themselves with the cultural and intellectual heritage of MIL and English. Emphasis on development and enhancement of skills
5	Skill Enhancement courses (SEC)	9	9	Imparting practical skills, hand-on training, soft skills. The institutions may design courses as per students' needs and available institutional resources
6	Common Value added courses	6 or 8	6 or 8	Understanding India, Environment science/ education, Digital and Technological solutions, (Health/ Wellness)
7	Summer internship/ Field based minor project/ Community engagement	2 or 4	2 or 4	Internship- other institutions, Field based project- Exposure to development related issues in rural and urban contexts. CES- Exposure to socio-economic issues, generate solution to real life problems
8	Research project Dissertation		12	

	Total	120	160	

It is clear from the table that there is ample scope for use of ‘open knowledge’ platform in implementation of NEP2020.

Educational institutions are developing a ‘basket’ of courses for each category and students can choose subjects from each of the baskets.

It will be appropriate at this point to note the following-

- One semester is generally equivalent to 90 working days or 15 weeks
- Courses can be
    - ➔ Lecture only.
    - ➔ Lecture + tutorial.
    - ➔ Lecture + tutorial + practical.
    - ➔ Practical only

Following are the guidelines for

- ➢ 1 credit = 15 one-hour lecture (a 3 credit course will have 45 one hr. lecture, or 3 lectures per week)
- ➢ 1 credit = 15 one hr. tutorial
- ➢ 1 credit = 30 one hr. practical/ community engagement (2 hr. per week);
- ➢ A 2-credit course will have 60 hrs of practical (4 hr per week) or can have a combination of 15 one hr. lecture and 30 one hr. practical.

Institutions might have flexibility in terms of time-spread; For example, an institution can plan a one week long full day workshop covering requisite number of hours for a particular course; in place of weekly lectures/ practicals

Brainstorming on Ideas

This section brainstorms ideas on how open knowledge digital platforms can play a pivotal role in achieving the objectives outlined in NEP 2020. It explores innovative strategies for leveraging digital platforms to enhance learning experiences, promote multilingualism, and foster cognitive development.

In most of the courses 'open knowledge' platforms can be used as complementary to classroom teaching. For example, in study of-

Major and minor/ interdisciplinary subjects

Students are expected to undertake 'project work'. The main purpose of this component is to impart skills that will enhance the employability of students.

Students can use the 'Open knowledge' platform to undertake certain predefined tasks. For example, creating a page on a pre identified, subject relevant topic on Wikipedia. This will impart research and communication skills to students. Or undertaking translation of select pages in MIL. This will impart translation skills to students along with introduction to academic, research backed writing. Or undertaking a predefined project on Wikimedia on a topic relevant to the chosen subject major.

The opportunities are endless, however, there is a need to design and demonstrate modules equivalent to 2 credits. An educator can choose multiple such modules depending on the course requirement.

Interdisciplinary course

Students are expected to undertake 3 introductory level courses in subjects other than the major subject. The purpose is to broaden the intellectual experience.

In the context of technology based 'open knowledge' systems; where use of computers and internet is promoted for knowledge generation; students with a major in humanities can learn use of technology for knowledge generation/ communication in today's contemporary world. On the other hand, STEM students can use these platforms to collect, analyze, and present data/ information to the general population (Wikidata, background technical support).

Further, a stand-alone course on 'modern media' (3 credits) can be designed; where citizen science/ open knowledge systems can be a part.

Introductory course in astronomy/ astrophysics along with use of platforms like the 'million galaxies' project of IUCAA (Inter University Center for Astronomy and Astrophysics).

Introductory course in botany with use of platforms like ‘Oneflora’ or relevant wikimedia projects.

Ability Enhancement Courses (AEC)

This course is aimed at achieving language competency in Modern Indian Languages (MIL) and English. Students are expected to demonstrate linguistic skills including critical reading, and expository and academic writing skills. Acquaint themselves with the cultural and intellectual heritage of MIL and English. The course is expected to emphasize development and enhancement of skills.

Open knowledge platform can contribute effectively to achieve this. Wikisource, Wikiquotes, Wiktionary, Wikimedia Commons (audiobooks) and Wikipedia platforms can be used extensively for this.

Skill enhancement courses (SEC)

Courses are aimed at imparting practical skills, hands-on training, and soft skills to enhance employability of students.

Wikimedia platform can be used to impart skills needed for developing and imparting knowledge for wider consumption- use of computers, scanning, translation, writing research-based articles.

Soft skill development - group activities based on ‘open knowledge’ system can be planned giving opportunities to students to develop skills for planning, distribution of work, taking responsibility, completion of work etc. eg. Preparing an ebook using Wikisource, listing missing articles on Wikipedia and filling up gaps. Etc.

Value Added Courses

Common to all students- this includes Indian knowledge systems, Environment science, Digital and technological solutions, Health and wellness (physical education).

There is little scope for using an open knowledge platform for this course.

Summer internship/ Field based minor project/ Community engagement:

❖ Summer internship: The purpose is to increase employability of students. CIS-A2K or Wikimedia affiliate organisations can facilitate internships for students with affiliated organizations. (Duration of internship may vary depending on the institutions preferences- as per the guidelines- 2 credit = 60 hr, 4 credit = 120 hr)

❖ Community engagement and service: The purpose is to expose students to socio-economic issues of society and generate solutions to real life problems. A course can

be designed around the idea that generating knowledge for wider consumption is a current social need. Contributing to open knowledge systems is the best way to achieve this.

❖ Field based project: The purpose is to expose students to various development related issues in rural and urban contexts. Wikimedia platforms can be used to portray their exploratory work. Or Wikidata can be used for relevant secondary data analysis.

Concerns and risks

It is clear from the above discussion that use of Wikimedia complements implementation of NEP2020 and there is a scope to introduce the 'open knowledge' system within the curriculum of UG/ PG courses. However, following are the concerns/ risks that need to be addressed

1. Introduction of the wikimedia platform as a part of curriculum will be more of 'outreach' exercise. Many students and teachers will be effectively 'introduced' to the wikimedia platform, however, the number of participants that will continue to participate beyond the coursework, will be substantially less.

2. Assuming that most of the students will engage with the wikimedia platform for a short duration; can lead to increased number of unfinished/incomplete projects. Continuity of projects/ initiatives will depend on the initiative of the educators.

3. The scale will demand larger mobilization of 'support' to participant institutions in the form of handholding/ teaching- at least in the beginning of this initiative. Thereafter support in the form of videos need to be developed for dissemination of instructions.

4. Substantial amount of contributions to the wikimedia platform can be expected given the scale of the system. This will demand intensive involvement of editors and other volunteers of the wikimedia platform, to ensure quality of the contributions.

5. The programme intends to involve UG/PG students- a young population- there is therefore a larger risk of vandalism and action against vandalism. This will put extra demands on the Wikimedia editors and other volunteers.

Mapping Stakeholders

Stakeholders can be grouped as follows

1. **Educational institutions**

   Autonomous as well as state supported institutions offering UG/PG courses. To accept and induce credit linked courses using Wikimedia platform.

- Need to understand the procedural and regulatory requirements of individual institutions. This may include permissions from their board of studies, MOU with recognized institutions- that can impart such a course or hand holding support.
- Minimum number of students that need to enroll, so as to offer such an initiative
- Mobilization of resources towards use of computers, internet etc and remuneration of support staff
- Annex II suggests time allocation for a 2 credit course for UG/PG students. Such elaborate planning will be needed prior to introduction of such a course.

2. **Wikimedia volunteers**

- Educational institutions offering such a course will need to train their teachers to undertake such an endeavor. Besides some external support from active volunteers will be needed at least during the initial period.
- Editors and other office bearers will have to be aware of their roles and responsibilities in the implementation of such an initiative. More editors might be needed in case of larger enrollment of students.

3. **Other institutions** that are willing to participate in offering internship to students

- Such an institution needs to host students within their premises and provide them with computers/ internet access. Work of the interns need to be supervised and a certificate needs to be issued upon completion of the internship.

- Some of the types of institutions that can offer internship are as follows

  ➔ Libraries that are currently digitizing their books or those having digitized books that are out of copyright.
  ➔ Institutes that are focussed on a particular subject/ expertise and want to increase presence of the subject of their interest on Wikimedia platform.

Recommendations

Based on the above discussion it is evident that CIS should undertake the following-

1. **Development of teaching courses (multiple 2 credit modules)**, generic as well as demand based, in collaboration with educators. Such a course should include-

   Part A :

- Overview of Wikimedia platform, How to use various wikimedia projects- to be explained with illustrative examples
- Organizational structure of Wiki-volunteers and broad responsibility distribution, for Wikipedia and all Wikimedia projects
- Ethics and Principles of Wikimedia platform- Do'es and Don'ts of working with WIkimedia community.
- Mechanisms for curtailing vandalism
- Mechanisms for dispute resolution.
- Privacy and data protection.

   Part B :

- Clear instructions to use Wikipedia or any other WIkimedia project for a particular group of students for 2 or more credits. This needs to be pre decided in consultation with concerned faculty members.
- Expected time investment by faculty and students- (please refer to Annex II). Mechanisms to monitor this commitment.
- Expected output (quantifiable variables like number of articles edited on Wikipedia or number of pages edited on Wikisource etc)
- Expected Outcomes (non quantifiable, subjective indicators- skills learnt, participation in group activities, leadership, planning, completion of task, quality of research etc.)
- Assessment matrix.

2. **Capacity building of support volunteers who can and are willing to take teaching responsibility.**

- Introductory meeting with volunteers to explain salient features of this initiative.
- Expected role and responsibilities.
- Logistical clarity- identification of college, number of expected students, introduction with concerned faculty
- Participation in similar activities prior to take up independent responsibility

3. Capacity building of editors and other support/ monitoring staff

- Introductory meeting to explain salient features of this initiative.
- Expected role and responsibilities
- Generating necessary reports needed for monitoring and assessment
- Quality monitoring and feedback to contributor volunteers

4. Liaison with educational institutions and educators

- Identification and communication with potential educational institutions.
- Identification of interested faculty and defining features of credit course
- Followup for necessary regulatory approvals if needed- May need approval of Board of Studies of the educational institution or there might be certain guidelines for institutions that can offer such a complementary credit course

5. Capacity building of educational institutions and educators

- Identification of needs and suggestions for fulfilling these needs using WIkimedia platform
- Community building across institutions- a common brainstorming meeting of all Principals of interested institutions or a common meeting of department heads of particular disciplines. Such a session will help identifying appropriate use of Wikimedia platform and design of a specific or generic course
- Inclusion of other 'citizen science' initiatives will be useful

6. Liaison with institutions that can offer relevant internships to students and facilitate internships- identifying projects.

- This may include libraries with repository of old books- to identify books/ authors that are out of copyright regulations
- Government agencies and NGOs dedicated to a particular body of work. Such organizations will help in developing knowledge about their area of interest.
- Philanthropic institutions that can support open knowledge based educational initiatives

7. Development of series of videos/visual aids for larger dissemination of such engagement

- In order to reach a large number of institutions offering UG/PG courses such support in multiple languages will be necessary.
- List of such aids can be developed after a pilot exercise
- Test effectiveness of such tools prior to its large scale deployment

8. **Engage with institutions approved by educational institutions for running of courses**

- Educational institutions might have certain requirements for engaging external institutions. There is a need to understand these requirements and accordingly comply with this requirement. For example, a course designed/ offered by an IIT or IISER might have ready acceptance. In such cases, there might be a need to liaison with such institutions. (IIT Bombay has developed a course involving 'Field work' for UG/PG students, there is a scope for learning from this course for designing of a course involving 'citizen science' or 'open knowledge')

9. **Pilot such courses in selected institutions to finalize details.**

- Prior to role out of the plan it will be appropriate to undertake few pilot initiatives with carefully chosen institutions. Purpose of such a pilot will be to understand and test ideas discussed in this report, get first hand experience of potentials and risks discussed earlier and to build capacities of the volunteers participating in such an initiative. Such a pilot will also demonstrate examples that can be scaled up by other educational institutions.
- Such a pilot should aspire to include multiple challenges. For example,
    - challenges in working with different kinds of institutions- autonomous institutions, government run institutions, university departments etc
    - Challenges in working with different major subjects- history, political sciences, botany, computer science etc
    - Challenges in working with other institutions offering internships/ support
- The pilot should aim at documenting and fine tuning-
    - 'time requirement' from various stakeholders as envisaged in annexure II. This is critical for further scaling up of the initiative.
    - Assessment methods/ report structures etc

Reference Literature and Website Links

Concluding the study, this section provides references to relevant literature, research papers, and website links that serve as valuable resources for further exploration and in-depth understanding.

1. Christ University, Banglore, Wikimedia Outreach programme; https://outreach.wikimedia.org/wiki/Education/Countries/India/Christ_University

2. NEP 2020: Implementation challenges; DR. BINNYBEN MEHTA; Assistant Professor, Shri Mahavir Vidyamandir Trust B.Ed. College, Pandesara, Surat, https://www.raijmr.com/ijrsml/wp-content/uploads/2022/03/IJRSML_2022_vol10_issue_01_Eng_08.pdf

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4. Study of NEP 2020: Issues, Approaches, Challenges, Opportunities and Criticism- Anamika Tiwari*, Shubhda Pandey, in Journal of Advances and Scholarly Researches in Allied Education | Multidisciplinary Academic Research, Year: Apr, 2021, Volume: 18 / Issue: 3, Pages: 566 - 570 (5), Publisher: Ignited Minds Journals, Published URL: https://ignited.in/I/a/305793, Published On: Apr, 2021

5. A STUDY ON ISSUES AND CHALLENGES OF NEP 2020 IN HIGHER EDUCATION"; MOHAMED SAIF- Mini project by a student of MBA- Bangalore central university, AL-AMEEN INSTITUTE OF MANAGEMENT STUDIES, HOSUR ROAD, BANGALORE-27, (2021-2022), https://alameenedu.co.in/pdf/spw/MB206220-MOHAMED%20SAIF.pdf

6. Problems, Obstacles, and Suggestions for Improving the Quality of Higher Education Institutions in NEP; Dr. V. Vijaya Lakshmi (Principal Government Degree College), Dr. T. Ugandhar (Head Department of Botany, GDC, Mahabubabad), May 2023; International Journal of Multidisciplinary Research Review 5(3):1-9, DOI:10.36948/ijfmr.2023.v05i03.3203, https://www.researchgate.net/publication/370948081_Problems_Obstacles_and_Suggestions_for_Improving_the_Quality_of_Higher_Education_Institutions_in_NEP

7. https://www.youtube.com/playlist?list=PL-9TVQSY4dMxdXezIQ1N-B7LxklSFHtbd, 'आपले प्रश्न आपले विज्ञान' alias Aapale Prashna Aaple Vidnyan (APAV) is an initiative of UMA-IITB

team which uses the case study approach to provide societal experience to students, and develop suitable interdisciplinary understanding and skills of fieldwork, systematic documentation and analysis. The course consists of eight recorded sessions, explaining key steps of the case study and guidelines for execution of the same.

8. https://en.wikipedia.org/wiki/Open_knowledge#:~:text=Open%20knowledge%20(or%20free%20knowledge,%2C%20social%2C%20or%20technological%20restriction.

9. 4 Best Practices for Writing Great Content for a Wikipedia Page. https://themathergroupllc.com/4-best-practices-for-writing-great-content-for-a-wikipedia-page/

10. Simple Ways to Write a Wikipedia Article- The beginner's guide to publishing your first Wikipedia article. Written by Darlene Antonelli, MA. https://www.wikihow.com/Write-a-Wikipedia-Article

11. Writing better articles https://en.wikipedia.org/wiki/Wikipedia:Writing_better_articles

Annexure 1: Graduate attributes

Type of Learning outcomes	The learning outcome descriptors
	Graduates should be able to demonstrate acquisition of:
Learning outcomes that are specific to disciplinary/ interdisciplinary areas of learning	Comprehensive knowledge and coherent understanding of the chosen disciplinary/interdisciplinary areas of study in a broad multidisciplinary context, their different learning areas, their linkages with related fields of study, and current and emerging developments associated with the chosen disciplinary/interdisciplinary areas of learning.
	Practical, professional, and procedural knowledge required for carrying out professional or highly skilled work/tasks related to the chosen field(s) of learning, including knowledge required for undertaking self-employment initiatives, and knowledge and mindset required for entrepreneurship involving enterprise creation, improved product development, or a new mode of organization.
	skills in areas related to specialization in the chosen disciplinary/interdisciplinary area(s) of learning in a broad multidisciplinary context, including wide-ranging practical skills, involving variable routine and non-routine contexts relating to the chosen field(s) of learning.
	capacity to extrapolate from what has been learned, translate concepts to real-life situations and apply acquired competencies in new/unfamiliar contexts, rather than merely replicate curriculum content knowledge, to generate solutions to specific problems.
Generic learning outcomes	Complex problem-solving: The graduates should be able to demonstrate the capability to: • solve different kinds of problems in familiar and unfamiliar contexts and apply the learning to real-life situations.

	Critical thinking: The graduates should be able to demonstrate the capability to: • apply analytic thought to a body of knowledge, including the analysis and evaluation of policies, and practices, as well as evidence, arguments, claims, beliefs, and the reliability and relevance of evidence, • identify relevant assumptions or implications; and formulate coherent arguments, • identify logical flaws and holes in the arguments of others,

	• analyze and synthesize data from a variety of sources and draw valid conclusions and support them with evidence and examples.
	Creativity: The graduates should be able to demonstrate the ability to: • create, perform, or think in different and diverse ways about the same objects or scenarios, • deal with problems and situations that do not have simple solutions, • innovate and perform tasks in a better manner, • view a problem or a situation from multiple perspectives, • think 'out of the box' and generate solutions to complex problems in unfamiliar contexts, • adopt innovative, imaginative, lateral thinking, interpersonal skills and emotional intelligence.
	Communication Skills: The graduates should be able to demonstrate the skills that enable them to: • listen carefully, read texts and research papers analytically and present complex information in a clear and concise manner to different groups/audiences, • express thoughts and ideas effectively in writing and orally and communicate with others using appropriate media, • confidently share views and express herself/himself, • construct logical arguments using correct technical language related to a field of learning, work/vocation, or an area of professional practice, and convey ideas, thoughts, and arguments using language that is respectful and sensitive to gender and other minority groups.

	• Research-related skills: The graduates should be able to demonstrate: • a keen sense of observation, inquiry, and capability for asking relevant/ appropriate questions, • the ability to problematize, synthesize, and articulate issues and design research proposals, • the ability to define problems, formulate appropriate and relevant research questions, formulate hypotheses, test hypotheses using quantitative and qualitative data, establish hypotheses, make inferences based on the analysis and interpretation of data, and predict cause-and-effect relationships, • the capacity to develop appropriate methodology and tools for data collection, • the appropriate use of statistical and other analytical tools and techniques, • the ability to plan, execute and report the results of an experiment or investigation, the ability to acquire the understanding of basic research ethics and skills in practicing/doing ethics in the field/ in personal research work, regardless of the funding authority or field of study.
	Coordinating/collaborating with others: The graduates should be able to demonstrate the ability to: • work effectively and respectfully with diverse teams, • facilitate cooperative or coordinated effort on the part of a group, • act together as a group or a team in the interests of a common cause and work efficiently as a member of a team.
	Leadership readiness/qualities: The graduates should be able to demonstrate the capability for: • mapping out the tasks of a team or an organization and setting direction. • formulating an inspiring vision and building a team that can help achieve the vision, motivating and inspiring team members to engage with that vision. • using management skills to guide people to the right destination.

	‘Learning how to learn skills: The graduates should be able to demonstrate the ability to: • acquire new knowledge and skills, including ‘learning how to learn skills, that are necessary for pursuing learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social, and cultural objectives, and adapting to changing trades and demands of the workplace, including adapting to the changes in work processes in the context of the fourth industrial revolution, through knowledge/ skill development/reskilling, • work independently, identify appropriate resources required for further learning, • acquire organizational skills and time management to set self-defined goals and targets with timelines. • inculcate a healthy attitude to be a lifelong learner,
	Digital and technological skills: The graduates should be able to demonstrate the capability to: • use ICT in a variety of learning and work situations, • access, evaluate, and use a variety of relevant information sources, and use appropriate software for analysis of data.
	Multicultural competence and inclusive spirit: The graduates should be able to demonstrate: • the acquisition of knowledge of the values and beliefs of multiple cultures and a global perspective to honour diversity, • capability to effectively engage in a multicultural group/society and interact respectfully with diverse groups, • capability to lead a diverse team to accomplish common group tasks and goals. • gender sensitivity and adopting a gender-neutral approach, as also empathy for the less advantaged and the differently-abled including those with learning disabilities.

	Value inculcation: The graduates should be able to demonstrate the acquisition of knowledge and attitude that are required to: • embrace and practice constitutional, humanistic, ethical, and moral values in life, including universal human values of truth, righteous conduct, peace, love, nonviolence, scientific temper, citizenship values, • practice responsible global citizenship required for responding to contemporary global challenges, enabling learners to become aware of and understand global issues and to become active promoters of more peaceful, tolerant, inclusive, secure, and sustainable societies, • formulate a position/argument about an ethical issue from multiple perspectives • identify ethical issues related to work, and follow ethical practices, including avoiding unethical behaviour such as fabrication, falsification or misrepresentation of data, or committing plagiarism, and adhering to intellectual property rights, • recognize environmental and sustainability issues, and participate in actions to promote sustainable development. • adopt an objective, unbiased, and truthful actions in all aspects of work, • instill integrity and identify ethical issues related to work, and follow ethical practices.
	Autonomy, responsibility, and accountability: The graduates should be able to demonstrate the ability to: • apply knowledge, understanding, and/or skills with an appropriate degree of independence relevant to the level of the qualification, • work independently, identify appropriate resources required for a project, and manage a project through to completion, • exercise responsibility and demonstrate accountability in applying knowledge and/or skills in work and/or learning contexts appropriate for the level of the qualification, including ensuring safety and security at workplaces.

	Environmental awareness and action: The graduates should be able to demonstrate the acquisition of and ability to apply the knowledge, skills, attitudes, and values required to take appropriate actions for: • mitigating the effects of environmental degradation, climate change, and pollution, • effective waste management, conservation of biological diversity, management of biological resources and biodiversity, forest and wildlife conservation, and sustainable development and living.
	Community engagement and service: The graduates should be able to demonstrate the capability to participate in community-engaged services/ activities for promoting the well-being of society.
	Empathy: The graduates should be able to demonstrate the ability to identify with or understand the perspective, experiences, or points of view of another individual or group, and to identify and understand other people's emotions.

Annexure II: Typical time allocation for 2 credit course

Following table suggests a time allocation matrix for students, educators and support. Please note that additional time may be required for faculty for assessment.

Steps for - Wikipedia	(Assuming 30 students)

	Classroom instruction	Faculty (hr) (instruction+handholding+review)	Support (hr) (handholding+ feedback)	Student (hr)	Spread over
Introduction to Wikipedia	1	1(1+0+0)	1(1+0+0)	1	
Identification of topic	1	9(1+0+8)	9(1+0+8)	4	1 week
Research/ data collection for selected topic	1	11(1+5+5)	11(1+5+5)	20	4 weeks
Rough draft (Google docs)- with standard template	1	6(1+0+5)	6(1+0+5)	20	4 weeks
Final draft and uploading it on Wikipedia	1	6(1+5+0)	6(1+5+0)	15	3 weeks
Total (hr)	5	33	32	60	

Contribution to Wikisource	(Assuming 30 students)				
	Classroom instruction	Faculty (hr) (instruction+handholding+review)	Support (hr) (handholding+feedback)	Student (hr)	Spread over
Introduction to Wikisource	1	1	1	1	1st week
Learning instructions and trial	1	1	1	1	
Identification of book for editing	1	1	1	1	

Editing		1	1	40 (200 pages)	8 weeks
Verification		1		20 (200 pages)	4 weeks
Total (hr)		5	4	63	