

Academic Resource Type and Academic Level Analysis of Resources Available in the UP Higher Education Digital Library: A Content Analysis

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ABSTRACT

The UP Higher Education Digital Library (UPHEDL) is a major digital initiative taken by UP Higher Education Department aimed at providing open access to educational resources for diverse learner groups. Understanding the nature of its content is essential for improving its pedagogical effectiveness and usability. The present study undertakes a systematic content analysis of learning resources available in the UPHEDL with specific reference to (a) academic level orientation and (b) format distribution. Using a descriptive content analysis design, a representative sample of resources was coded into predefined categories such as text, video and academic levels including undergraduate, postgraduate, research, technical, medical and teacher education. The findings indicate a pronounced dominance of text-based materials and a strong concentration of content at the undergraduate and postgraduate levels, primarily within STEM and professionally oriented disciplines. State universities emerge as the major contributors, reflecting alignment with state-led digital education initiatives. In contrast, research-level resources, multimedia-rich formats, and several vocational, health-related, and culturally rooted disciplines remain underrepresented. The study

highlights an uneven academic and pedagogical distribution of digital content within UPHEDL, suggesting limited utilization of digital affordances for interactive and inclusive learning. The findings offer empirical insights to inform strategic content diversification, pedagogical enrichment, and policy-level interventions aimed at strengthening UPHEDL as an effective and inclusive higher education digital support platform aligned with NEP 2020 objectives.

Keywords: UP Higher Education Digital Library, content analysis, digital learning resources, academic level mapping,

INTRODUCTION

In today's digital era where our day-to-day activities are becoming electronic and gadget based, teaching learning has also changed its traditional nature and now it seems impossible to keep the "Generation Z", or Gen Z (Thomas, 2011) learners away from digital tools and electronic methods of seeking, accessing information and learning to sustain in digital life-space. In this digital environment libraries are also changing its traditional nature of physical storage and manual access, to digital libraries using information technology to store vast volumes of resources that can be accessed anytime and anywhere. Now we are

witnessing a number of digital libraries coming up and providing its services 24 X 7 to tech friendly learners. A digital library is a curated collection of digital objects—such as texts, images, audio, video, and other multimedia formats—organized for easy access, retrieval, and distribution via electronic means and internet. India is also making efforts in expanding the digital knowledge infrastructure under the Digital India and *National Mission on Education through ICT (NMEICT)* programs by enabling learners to access quality contents via digital repositories such as *the National Digital Library of India (NDLI)*, *Shodhganga*, *e-PG Pathshala* and *e-Gyankosh* and these have democratised knowledge by providing open access and overcoming geographical and socioeconomic barriers. These digital programs received significant focus during COVID-19, which disrupted the conventional teaching and learning atmosphere. Significant efforts were undertaken quickly to address the disruptions in education systems. This Pandemic taught us to take advantage of the chance to discover innovative methods to tackle the learning crisis and introduce solutions that were once seen as challenging or unfeasible to execute. The Higher Education Department of the Uttar Pradesh Government has also devised solutions to ensure access to quality e-content that supports higher academic levels for researchers, undergraduates, and postgraduate students across various disciplines. This portal was launched on 5th September 2020 on the occasion of Teacher's Day. UP Higher Education Digital Library (UPHEDL) serves as a digital archive for educational materials, functioning not only as a searchable repository but also as a provider of various services for the higher education sector. This platform offers articles, videos, audio, PPT, and various educational resources, granting free access to learning materials in multiple languages. To gather quality e-content from various professionals working

in the higher education department of UP State, a request named “Vidyadaan” was issued to contribute their e-content to enhance the digital library. The teachers from different universities and colleges responded to this request and contributed their e contents, presently the portal is having 88202 quality e-content contributed by 49361 teachers in 128 subjects of 23 streams from 30 different universities of Uttar Pradesh.

LITERATURE REVIEW

After reviewing related literature, it was found that a number of studies have tried to analyse digital library initiatives such as the national digital library of India (NDLI) and institutional repositories across south India, and have catered to the analysis of broad parameters like overall content growth, subject distribution, and website usability of Premier Institutions Including IITS, IIMS, and Central Universities (Kumar *et.al.* 2009; Devi And Verma 2018; Mangurkar And Choudhary, 2018; Shajitha and Abdul, 2018, 2021; Wani, 2021). The Library Websites of Madhya Pradesh have been analysed for number of resources available, the ease of access to these resources, and the quality of information provided on the websites (Gaur and Dubey,2022). The UPHEDL portal has also received preliminary scholarly attention, mainly in relation to its general features and accessibility (Gangwar and Verma, 2022). however, a systematic evaluation of its academic resource composition and learner-level orientation remains largely unexplored. availability of resources alone does not ensure educational usefulness; rather, the academic value of a digital library depends on whether its resource types—such as textbooks, reference materials, examination resources, research-oriented content, and enrichment materials—are appropriately aligned with the needs of undergraduate students, postgraduate learners, research scholars, and competitive examination aspirants. in this context, a focused content analysis of the

UPHEDL with reference to academic resource types and academic levels becomes essential. The present study is therefore justified in seeking to generate evidence-based insights into the academic orientation of UPHEDL, identify structural strengths and gaps, and provide a scholarly basis for enhancing its effectiveness as a higher education digital support system.

MATERIALS & METHODS

The present study was undertaken to fulfill the following objectives:

1. To analyze the academic level orientation of resources available in the UPHEDL.
2. To identify and classify the academic resource types available in the UPHEDL.
3. To identify dominant trends and existing gaps in the academic composition of UPHEDL.
4. To suggest academic and strategic implications for strengthening the effectiveness of the UPHEDL as a higher education digital support platform.

The study adopted a descriptive quantitative content analysis design to examine the structural composition of learning resources available in the UP Higher Education Digital Library (UPHEDL). Data were accessed directly from the UPHEDL portal between November 2025 and January 2026, during which the repository comprised 88,202 digital resources across multiple academic disciplines, academic levels, and media formats. Each individual digital resource served as the unit of analysis and was treated as a single analytical unit for classification and frequency analysis. Repository-wide filtering was conducted using built-in metadata and categorical tools, enabling systematic extraction of variables related to academic level, academic stream, content type, and content media. Frequency data were compiled from portal-generated statistics and validated through manual cross-verification to ensure accuracy. Data were subsequently coded

and tabulated in Microsoft Excel for descriptive statistical analysis, with category-wise totals verified against overall repository counts. A structured coding framework with clearly defined operational definitions was employed, relying primarily on standardized metadata labels. In cases of ambiguous or incomplete metadata, resource descriptions were reviewed to ensure accurate categorization. Repeated verification procedures ensured internal consistency, while the metadata-driven, repository-level nature of the analysis minimized inter-coder variability.

RESULT AND DISCUSSION

This section presents the results of the quantitative content analysis of resources available in the UPHEDL. The results are interpreted to highlight prevailing distribution patterns, dominant resource categories, and structural gaps, followed by a discussion of their implications for repository development and higher education digital policy.

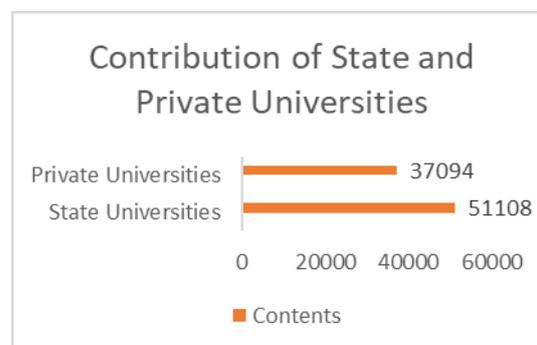


Figure 1: Resources Uploaded on Uttar Pradesh Higher Education Digital Library

Figure 1 is depicting the analysis of institutional contribution to the UPHEDL and clearly revealing a dominance of State Universities, which contributed 51,108 resources, compared to 37,094 resources contributed by Private Universities. This indicates that state-funded institutions account for a substantially larger share of the repository's total resources. The higher contribution from State Universities may be attributed to stronger policy alignment with

state-led digital education initiatives, greater institutional participation mandates.

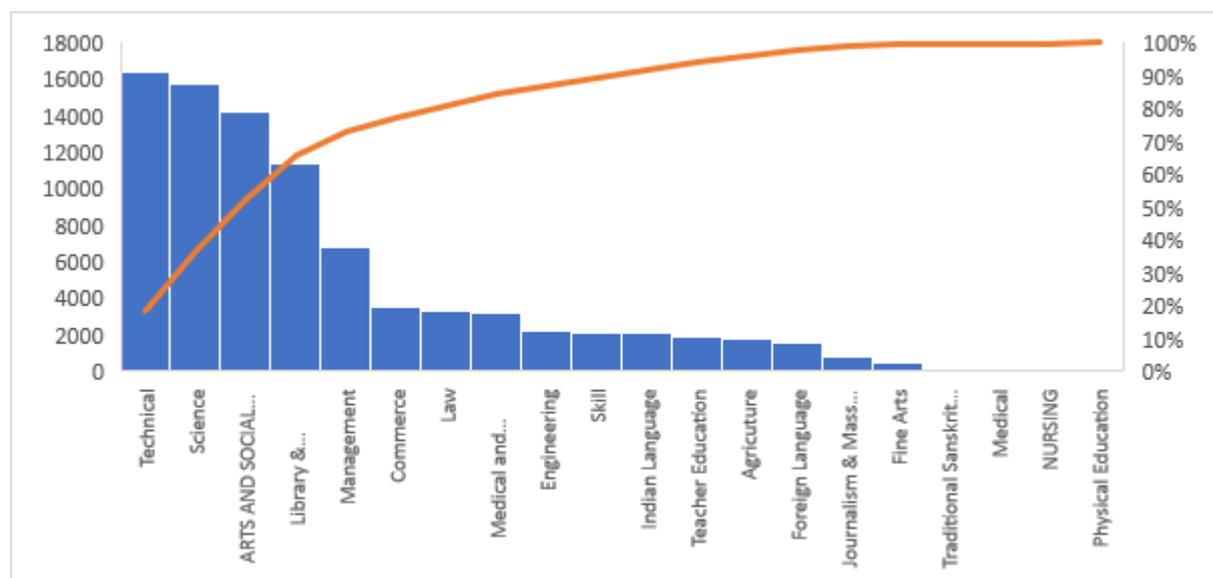


Figure 2: Stream-wise distribution and Pareto Analysis of resources of UPHEDL.

Figure 2 is showing the Pareto analysis of content uploaded on UPHEDL. A strong concentration of resources in on STEM-oriented domains is found within the UPHEDL. Technical, Science, Arts and Social Science, Library and Information Science, and Management together account for approximately 75–80% of the total content, with Technical (16,352) and Science (15,794) emerging as the most dominant categories. In contrast, disciplines such as Physical Education, Nursing, Medical, Traditional Sanskrit Subjects, and Fine Arts occupy the long tail of the distribution, indicating relative underrepresentation. This concentration pattern highlights a skewed allocation of digital resources toward select academic streams, reflecting prevailing priorities in content curation. The findings also reveal notable gaps in vocational, health-related, language, and culturally rooted disciplines, offering empirical evidence to inform targeted content diversification strategies and policy-level interventions. Overall, the Pareto analysis demonstrates that while the UP Digital Library is quantitatively robust, its content distribution remains uneven.

Strengthening underrepresented disciplines could significantly enhance the repository’s inclusivity, disciplinary balance, and academic breadth.

Figure 3 illustrates the stacked bar chart showing the distribution of UPHEDL resources across academic streams and levels (Diploma, Bachelors, Masters, Multi, Research, and Unclassified). The results indicate that Bachelors and Masters level resources dominate across most streams, particularly in Science, Technical, Arts & Social Science, Management, and Library & Information Science. Diploma-level resources are largely confined to the Technical and Medical & Paramedical streams, with negligible or no presence in Science, Arts & Social Science, Commerce, and allied humanities streams. Research-level resources constitute a relatively small proportion across all disciplines, with comparatively higher representation only in Science and Arts & Social Science. Overall, the figure highlights substantial variation in academic-level distribution across streams, with a clear predominance of UG and PG level content.

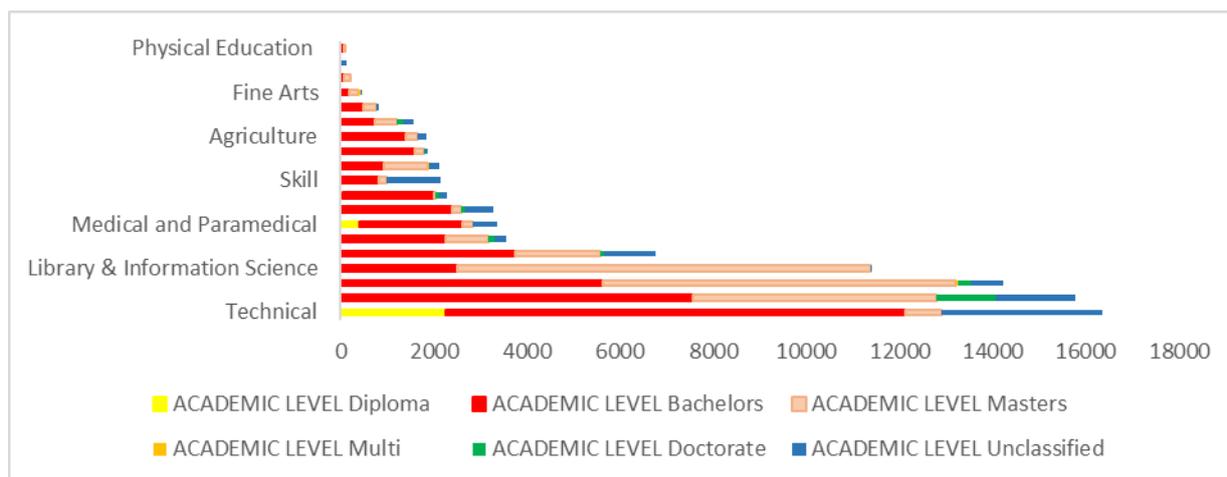


Figure 3: Stream wise Academic Level Orientation of Resources

Table 1: Heat Map showing Academic Orientation of Resources on UPHEDL

STREAM	ACADEMIC LEVEL					
	Diploma	Bachelors	Masters	Multi	Doctorate	Unclassified
Technical	2247	9886	779	0	0	3440
Science	0	7568	5222	0	1274	1730
Arts and Social Science	0	5625	7588	61	277	688
Library & Information Science	0	2502	8884	0	4	19
Management	0	3762	1804	0	105	1098
Commerce	0	2255	915	6	125	244
Medical and Paramedical	406	2218	210	0	0	517
Law	0	2406	173	12	76	603
Engineering	35	1966	46	0	80	157
Skill	0	823	158	0	0	1161
Indian Language	0	920	961	9	18	199
Teacher Education	0	1583	205	4	10	75
Agriculture	0	1414	236	0	0	195
Foreign Language	0	727	485	0	141	211
Journalism & Mass Communication	0	482	288	0	2	43
Fine Arts	0	197	188	43	0	16
Traditional Sanskrit subjects	0	87	123	0	0	0
Nursing	0	0	0	0	0	126
Physical Education	0	71	23	0	0	0

Table 1 presents a heat map depicting the intensity of stream-wise academic level distribution in UPHEDL. Higher content concentrations are evident at the Bachelor and Master levels, particularly within Science, Technical, Arts & Social Science, and Library & Information Science, as reflected by darker intensity zones. Diploma-level intensity is restricted to Technical and Medical & Paramedical streams, while most other disciplines show minimal or no representation at this level. The Research category exhibits consistently lighter intensities across streams, indicating limited availability of research-oriented

resources. The concentration of Diploma-level resources within the Technical and Medical & Paramedical streams reflects the discipline-specific and vocational nature of diploma programmes, which typically function outside the conventional UG-PG academic progression. Consequently, the absence of diploma-level content in Science, Arts & Social Science, Commerce, and related streams appears to be structural rather than indicative of repository inadequacy. The dominance of Bachelor- and Master-level resources across streams suggests that UPHEDL is primarily oriented toward supporting formal university-level

instruction. However, despite the reforms introduced under the National Education Policy (NEP) 2020—including flexible entry–exit provisions and revised undergraduate degree structures—such changes are not prominently reflected in the repository’s academic-level classifications. This may be attributed to the fact that a significant proportion of resources were developed and uploaded prior to NEP 2020 and continue to follow earlier academic categorizations. The consistently low

representation of Research-level resources across disciplines further indicates limited emphasis on advanced scholarly content. While UPHEDL effectively addresses instructional needs at the UG and PG levels, its potential as a comprehensive research-support repository remains underutilized. Periodic metadata revision, reclassification of legacy content, and targeted inclusion of research-oriented materials may enhance the repository’s alignment with evolving higher education policies and research imperatives.

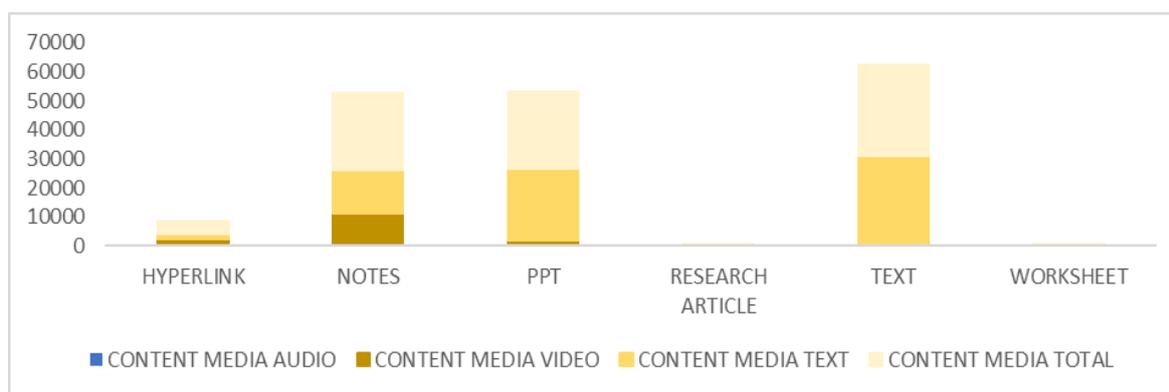


Figure 4: Content Media of different Content type on UPHEDL

Figure 4 is showing the analysis of UPHEDL resources by content type and media format and reveals a pronounced dominance of text-based materials across all categories. Text media constitutes the largest share within Notes (15,161), PPTs (24,406), and Text resources (30,236), with the Text category recording the highest overall volume (31,166 resources). This pattern indicates a strong reliance on document-centric instructional materials within the repository. Video content is moderately integrated, particularly within Notes (11,003 videos), followed by Hyperlink-based resources (2,411) and PPTs (2,053). While this suggests a gradual shift toward multimedia-supported instruction, video remains supplementary rather than integral to content design. Audio-based resources are marginal across all content types, with minimal representation in Notes (125), Text (64), and Hyperlinks (30), highlighting limited adoption of this format. Several content types exhibit minimal media diversity.

Research Articles are exclusively text-based (10 resources), consistent with traditional scholarly dissemination practices, while Worksheets are negligibly represented, comprising only three text-based items with no multimedia support.

Overall, UPDL demonstrates effective support for content transmission but limited media diversification. The overwhelming emphasis on textual formats, coupled with moderate video use and negligible audio integration, suggests under-utilization of digital affordances. Expanding multimedia formats—particularly audio and interactive resources—could enhance accessibility, learner engagement, and alignment with inclusive digital education and NEP 2020 objectives.

CONCLUSION

Based on the analysis of institutional contribution, disciplinary distribution, academic levels, and media formats within UPHEDL, several academic and strategic suggestions emerge to enhance its

effectiveness as a higher education digital support platform. Firstly, there is a need for systematic content diversification across academic disciplines. While the repository demonstrates strong coverage in STEM-oriented and professionally aligned streams, targeted efforts should be undertaken to strengthen underrepresented areas such as health sciences, vocational studies, languages, Physical Education, Fine Arts, and traditional knowledge systems. Such diversification would promote disciplinary balance and align UPHEDL more closely with the multidisciplinary vision of NEP 2020. Secondly, institutional participation should be broadened, particularly by encouraging greater contributions from Private Universities and research-intensive institutions. Policy-level incentives, recognition mechanisms, or contribution mandates could help enhance both the volume and academic quality of uploaded resources, especially at the postgraduate and research levels. Thirdly, greater emphasis on research-oriented and practice-based resources is recommended. Expanding Research-level content, worksheets, and applied learning materials would strengthen UPHEDL's capacity to support advanced scholarship, skill development, and formative assessment within higher education. Fourthly, pedagogical enrichment through multimedia integration should be prioritized. The overwhelming reliance on text-based formats indicates underutilization of digital affordances. Increasing the integration of audio resources, interactive materials, and high-quality video content would improve learner engagement, accessibility, and support diverse learning needs, including inclusive and flexible learning contexts. Finally, strategic alignment of content curation with learner needs and curriculum requirements is essential. Regular audits of content distribution by discipline, academic level, and media format can inform evidence-based planning and ensure sustained relevance, inclusivity, and pedagogical effectiveness of the UPHEDL.

Declaration by Authors

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