

# Application for Assessment of Quality of Textbook/ Reference Books/E-Books

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## I. ABSTRACT

The project is aimed at the creation of an online system that checks and ensures the quality of e and textbooks. books prior to publication. It is primarily aimed at verifying that. all educational materials are subject to a number of pre-determined. the standards are to be made available to the learners before being available. educators. The site allows writers to post their. manuscripts or books to be evaluated. A team of qualified then the reviewers evaluate every submission on a number of. purposefulness, accuracy of content, relevance of the subject, visualization, and general legibility. This structured review process assists in establishing gaps or outdated. data prior to the release of the material in the market. By with the aim of introducing this quality verification system, the platform. deterrents distribution of substandard or out of date. educational materials. It guarantees students and teachers. accept only reliable, properly structured and current. learning content. This initiative is beneficial in the long run. improves educational performance, increases publication of academics. criteria, and encourages quality in the learning. community.

## II. INTRODUCTION

Book is one of the most effective learning instruments. and growth. Whether they are traditional printed. textbooks, elaborate reference books or contemporary digital e. books, they are very crucial in the teaching and learning experience. Still, in the modern age of transformation, it is possible to find this. it has grown to be more and more knowledgeable and technological. significant to make sure that all education materials applied. by the students and the educators is kept at the highest standards. of truth, plainness, and topicality. The quality of these materials is a factor that has direct bearing on the effectiveness of knowledge. delivered and understood. This application is aimed at the creation of a systematic purpose. and open system of evaluating the quality of. Before they are, textbooks, reference books, and e-books are consulted. granted academic permission of use or publication. This assessment is present as a quality control measure to ensure that the

content is. factually accurate, well-organized and abreast with the times. institutional and academic requirements. Through this institutions and reviewers are hoping to make sure that. The educational objectives and learning materials go hand in hand. ethical guidelines. Quality measurement is also known to encourage responsibility between. draft publishers and makes sure that the finished product is a mirror of. academic values and academic honesty. It supports the intention of creating knowledgeable students, educated teachers, and a scholar-abounding faculty. environment. Furthermore, in case of evaluation process, which is when done correctly, it would form a culture of improvement. advancement and change in teaching publications.

## III. LITERATURE REVIEW

Textbooks, reference books and e- books have been long. considered to be the foundation of formal education. They play a guiding, central part of the process of forming the understanding of students. teaching techniques of the teachers, and aiding the general. learning environment. The researchers and others have over the years conducted studies to determine the relationship between sex and other factors such as health and happiness. Educationists have stressed that the quality of those is important. resources has a direct impact on learning, teaching. efficiency, and academic development. Therefore, assessing the educational material quality has become one of the primary fields of. is the centre of contemporary educational systems. A number of learning scholars and organizations have. stated the significance of creating a systematic. textbook assessment rubric. According to reports by UNESCO, global bodies that guarantee quality of. equality and encouragement of equality depends on learning materials. excellence in education. They emphasize that all textbooks are the same. must be factual, culture aware, inclusive, and was in line with the curriculum. When such standards are failing to meet, the students are at risk of exposure to misinformation or biased views, are able to adversely affect their. learning experience and worldview. Research has conducted over the years has

revealed that textbooks are not only instruments of imparting knowledge but also tools that influence critical thinking, creativity, of learners. and moral understanding. The pioneer works in this area emphasized. the way textbooks affect the practice of teaching and curriculum. development. Subsequent studies have also been concerned with making. textbooks more involving, student-focused, and pedagogically sound. The historical development of education since the conversion of the traditional print media into the digital platforms has further increased the area of quality evaluation. As technology in education is quickly adopted, e the books have become an important element of contemporary. learning. The e-books have advantages as opposed to printed books. interfacial capabilities like hyperlinks, multimedia material, etc. self-evaluation questionnaires, and access technology. However, these benefits also include new dilemmas with regards to upholding cyberspace quality standards. Scholars have underlined the idea that e-books must not be only able to offer something right. information and also guarantee ease of navigation, visual understanding, interoperability, and accessibility to students. with diverse learning needs. Therefore, the assessment e-books have now criteria that also include academic and technical criteria. dimensions. Educational colleges like the National Council of. The and Educational Research and Training (NCERT). UGC have also proposed to the universities. india guidelines on the quality of textbooks evaluation. These principles concentrate on diverse factors including relevance. to the education, language lucidity, ratio, representation of culture and the application of current references. Peer review, expert is also stressed by them. publication, and constant validation in the publication process. These elaborate assessment systems facilitate the assurance. that academic, ethical, and other classroom materials are in the classroom, the materials are satisfactory. and cultural standards. It has also been noted that quality assessment was another problem of interest to researchers. must not only be concerned with the correctness of the content, but also how. effectively the content is learning-friendly. Well-designed textbooks and e-books should be able to involve learners, motivate. thinking, and make complicated things easy. The readability, structure, layout, and use of illustrations also. improve the general standard of the learning resource. A clear and properly structured presentation assists students to understand. knows how to do it much more efficiently and makes them motivated to do it. learn. The past couple of years have seen the increased use of digital tools and artificial. intelligence has enabled the quality of to be evaluated. learning content in a more systematic way. Automated grammar, readability and systems can now be analyzed. conceptual coverage, wherein reviewers can find. weaknesses quickly. Nevertheless, human judgment is still there. necessary, because professionals can give information about the situation, technology and cultural appropriateness that technology? cannot fully replicate. Fusing the human knowledge with the knowledge. digital innovation provides the most profitable and efficient. method of quality measurement. In general, the literature also lends much weight to the fact

that quality evaluation is an on-going and dynamic process. As education is made more active and technological, criteria of assessment of textbooks, reference books and e-books must also adapt. This assessment is not aimed at the purpose of. but to see that there are mistakes or failures but to make certain that each learning resource is added value to the. intelligent and personal growth of student. A well evaluated learning content does not just inform, but also inspires – leading students to learning, sympathetic, and perpetual interest.

#### IV. BACKGROUND

It is important to use textbooks, reference books, and e-books. in the development of the quality of learning and outcomes. They are the main sources of knowledge to the students, teachers, and scholars in every stage of learning. But as printed and became more and more available the availability of printed grew. digital learning materials, making the quality, relevance, and reliability of such resources has been a major concern. educational institution challenge. The current state of an Application of Assessment of The Quality of Textbooks /Reference Books / E-Books covers. these issues by offering a framework of system to. Assess learning materials according to various standards like. as precision, readability, display, accessibility, and pedagogical effectiveness. Through the combination of automated tools. and uniform measures, the application guarantees. fairness and equality during the assessment. This program does not only assist the educators and institutions. chooses quality learning resources but also facilitates. publishers and authors in the promotion of the general level. educational content. The point is eventually to improve the. learning and teaching experience via the availability of. reliable, organized, and quality education. resources.

#### V. METHODOLOGY

The measurement of the quality of text books, reference books and e- books will be provided by the following methodology that will provide system and clarity in the process. It ensures that the entire materials are read critically and without prejudice to determine the accuracy, topicality and practicality in aiding the teaching and learning. This will be followed by the overall promotion of integrity in academics, encouragement of coherence, and aid in the unceasing improvement of the resources of learning.

##### A. Selection of Study Materials

The first part of the assessment process will be determining the materials that will be looked at. The selection of textbooks, reference books, and e-books is based on their relevancy to the curriculum of the institution, their importance and availability. Emphasis is placed on those materials that were published in the last two years so that the learners can access up to date information. All the chosen resources are catalogued using the necessary bibliographic information (title, author, publisher, edition, publication date, etc.).

## *B. Constitution of Review Committee*

An evaluation process is put together in the form of a review committee. The committee usually consists of the senior faculty, content experts and those with experience in content development or educational publishing. They are supposed to discuss materials impartially and make informed decisions. Responsibilities are allocated to each member so that every aspect of the material can be taken into consideration in details and without any bias.

## *C. Developing Evaluation Criteria*

Regularity and equality are maintained through the development of certain evaluation standards prior to the onset of the evaluation procedure. These standards are a guideline to the reviewers and concentrate on important aspects of quality. Key evaluation parameters include: leftmargin=\*

- **Content Accuracy:** Ensure that the information is factual, current and sources used are credible. Correspondence with the set syllabus and learner-focus.
- **Coherence and Linguistic Quality:** Determine language in terms of clarity, conciseness and correctness
- **Pedagogical Effectiveness:** Identify the presence of interesting content that underpins interactive learning by case studies, exercises and examples.
- **Organization and Presentation:** Assess the coherence of the topics, format, visualization and consistency of the formatting.
- **Inclusivity and Ethics:** Make sure that materials are gender equal, culturally sensitive and have no biases.
- **Digital Usability (for E-Books):** Make sure that the online version is not only available but also user-friendly and can be used by general devices and assistive technology.

## *D. Process of Review and Assessment*

All the chosen materials are adhered to with a combination of qualitative and quantitative analysis. Independent reviewers read the material and make observations based on the parameters of evaluation. In the case of e-books, the interaction, navigation, and accessibility capabilities are also tested to ensure that the performance is digital. The consistency in reviewers is achieved by using structured assessment forms and scoring rubrics.

## *E. Data Collection and Data Analysis*

Results are then pooled and analyzed after the reviews are completed. Numerical scores and verbal assessments are put together to create a vivid image of the strong and the weak. Analysis assists in determining issues presented in the common ground (e.g., old-fashioned information, ambiguity, lack of inclusiveness). The result will give an informed balance assessment report of every resource.

## *F. Validation and Peer Review*

In order to have objectivity, preliminary findings are subjected to secondary validation by carrying out peer reviews by other subject specialists. This is an action to confirm precision as well as impartiality of results, presence of personal bias as well as reinforcement of credibility. Any conflict between them is resolved through discussions which end up in the consensus.

## *G. Reporting and Recommendations*

After its review and validation, an assessment report is drawn in detail. The report involves a description of the review process, major observations, strengths and weaknesses and recommendations on improvement. There are resources divided (e.g. approved, approved with revisions, or rejected with suggestions). The end report is presented to the academic council or the authority in question to approve of it.

## *H. Ongoing Assessment and Evaluation*

The process of quality assessment is continuous. Textbooks, reference books and e-books are also regularly re-examined in order to be up-to-date and relevant. Feedback on the same is regularly taken by teachers, students and users and analyzed to understand where one has to make changes or revise. Constant observation will provide that the educational material changes as the academic standards and technology changes.

## *I. Requirement Analysis*

The non-functional and functional requirements of the system are determined in this step. Its core needs are collecting candidate information based on structured assessments, providing the processing of the responses, analyzing the areas of skills, and determining a general competency score. Tools, technologies and evaluation parameters are completed in order to make the system in line with user expectations and organizational objectives.

## *J. System Design*

The system architecture is created to provide the interaction between different components. The design includes:

- **Frontend Interface:** : An easy to use web interface where the candidates will be able to add responses, assessment and see their competency reports.
- **Backend Processing:** : A logic layer providing data storage, computation and scoring algorithms.
- **Database:** Retained to keep information of candidates, test results, weight of skills, and computed scores.

Data movement and interrelationship among various modules are represented by the use of entity-relationship (ER) and data flow diagrams (DFDs).

## *K. Data Collection and Evaluation Criteria*

Competency data is collected based on predefined parameters such as technical knowledge, communication skills, logical reasoning, and behavioral traits. Each criterion is assigned a weightage depending on its importance. The responses or test results are processed to determine the score for each competency domain.

## L. Algorithm Design and Score Calculation

An algorithm of scoring is applied in order to calculate the Candidate Profile Score (CPS). The algorithm computes the weighted average of all the competencies and normalizes the result in order to be consistent. The formula provides that every skill has an equal contribution towards the final score which is a balance on how the overall ability of the candidate is assessed.

## M. Implementation

The system is deployed on appropriate programming languages and frameworks. Frontend may be developed in HTML, CSS, and JavaScript, the backend may be developed in Node.js, Firebase or Python-based processing and storage frameworks. The system is a combination of dynamically driven components to process user input, calculations and reports.

## N. Testing and Validation

Unit, integration, and user acceptance testing guarantee that the scoring mechanism is accurate and results are reliable. Confirmation is made of unbiased and fair competency scores.

## O. Result Generation and Reporting

The system generates a comprehensive report that gives the total profile score and competency breakdown and improvement recommendations in order to bring out strengths and development points.

## VI. SYSTEM ARCHITECTURE

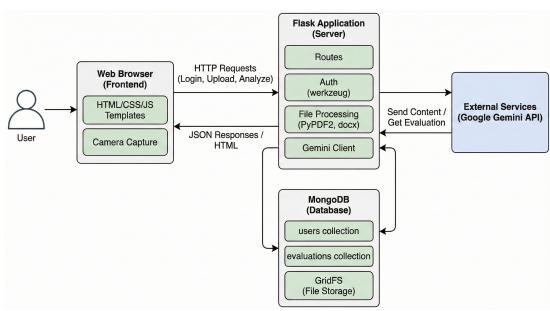


Fig. 1. Flowchart for the Assessment and Quality Evaluation Process of Textbooks, Reference Books, and E-Books

The persistence section of the application uses MongoDB, an open source that provides three different functionalities in the architecture. To begin with, it takes care of user identity by storing passwords using cryptographic hashes in a specialized collection which makes it secure to manage the session using Flask. Second, it uses MongoDB's GridFS specification to store and retrieve big binary files, including uploaded textbooks or images, in smaller pieces instead of loading them into memory and loading them all at the same time. Third, it also keeps a system of all evaluations of the past, connecting users with their individual files and the scores generated by AI and

enables the usage of historical data by accessing it immediately without re-scanning original documents.

The intelligence layer is an API gateway which bridges the local application with the Google Gemini service. As a user uploads a document or captures an image, the backend uses different logic first to prepare the content by first executing specific processing logic, such as libraries such as PyPDF2 to process document content or raw-byte streaming-based processing logic to process image content. This ready data is given to the Gemini API together with a rigorous system prompt imposing a JSON schema on the output. This architecture choice compels the AI to provide back structured information with particular numerical values of accuracy, readability, and consistency, as opposed to unstructured data. This formalized reaction is instantly processed by the backend, stored to be referred to later in the database and presented dynamically to the consumer and in effect a loop is completed by converting raw educational data to measurable quality data. ] This project is a monolithic web-based project that is self-sufficient to analyze educational materials through combining a Python-based back-end with artificial intelligence services. Fundamentally, the system applies the Flask framework to coordinate the entire application lifecycle, and essentially, this is the controller that handles the web traffic, user authentication, and communication with APIs. The design is based on a Model-View-Controller design paradigm with the frontend interface being generated on the server using HTML templates, and with the interaction on the client-side being driven by JavaScript to facilitate dynamic interactions such as live camera recording and asynchronous data retrieval to keep the user interface responsive throughout the processing.

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## VII. SYSTEM INTERFACE

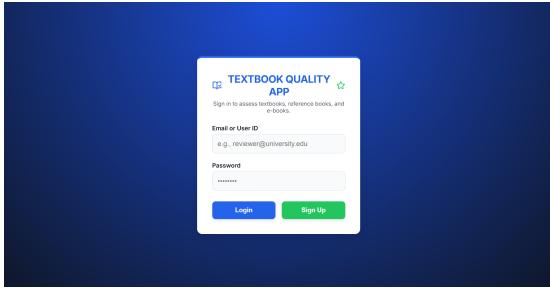


Fig. 2. . The login page of the Textbook Quality App.

A. The following screen depicts the log-in page of the Textbook Quality App on which the reviewers are able to access the platform safely. Users are able to log in with their email or their user ID to review textbooks, reference books and e-books.

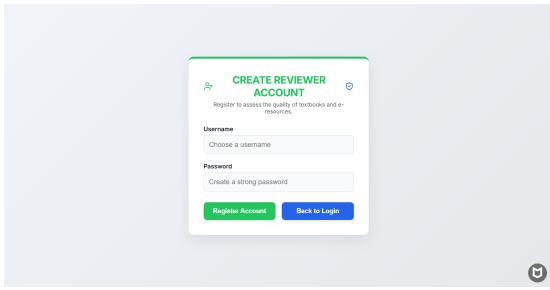


Fig. 3. Sign up page where first-time visitors can subscribe to the site by entering a user name and password.

B. The figure depicts the account creation page of Textbook Quality App. New users can create the account by filling in the username and the password. The interface is user-friendly to onboard the textbook evaluation system.

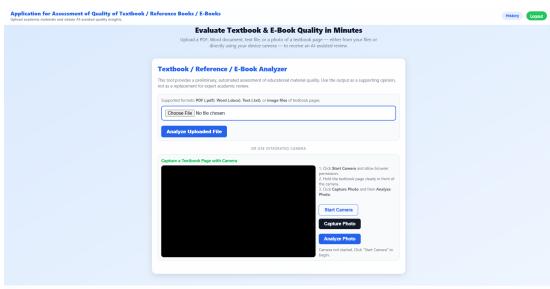


Fig. 4. Dashboard textbook evaluation.

C. shows the primary analysis platform of the Textbook Quality App where one is able to upload files or scan pages of textbooks to be analyzed. It is compatible with PDF, DOCX, TXT, and image formats, which means it can be used to analyse academic materials. The users have an option to save a document or use the inbuilt camera to capture in real-time. There is also a step-by-step process of using the camera feature, which is given in the section. It is the interface that will be the starting point of AI based textbook quality evaluation.



Fig. 5. Evaluation summary of the uploaded textbook content generated and evaluated by AI.

D. The AI-driven assessment of the uploaded textbook or reference material is the results of the AI evaluation, as shown in Figure 5. It shows important quality measures, such as accuracy, readability and consistency and each is provided with brief explanatory feedback. The overall rating is displayed on the top giving a summary of the education quality of the content. The strengths and weaknesses of the material are mentioned by a detailed summary section. The interface focuses on the point that analysis is an initial AI-based assessment that will aid review of academic content.

## VIII. RESULT

The Application for Assessment of was implemented. Goodness of Textbooks / Reference Books / E-Books manufactured. highly promising results. The system developed was able to succeed. assessed different learning resources according to important. parameters, e.g. content accuracy, relevance, readability, clarity of presentation, and readability. It provided an organized and detached gaze of considering the printed and online. learning resources. The evaluators were through the assessment framework. capable of producing stable quality ratings and descriptive. feedback reports, which assisted in determining areas that needed. improvement. The findings indicated that the application efficiently minimized paper work and subjectivity. in assessment, to provide a more dependable and data-driven. process. Further, the system was flexible in that it showed flexibility. modifying its assessment standards to various subjects and formats, such as e-books and reference material. The reviewers also considered the interface to be easy to navigate. It can create automated reports and features of navigation that. enhanced efficiency. All in all, the findings verified that the proposed applications are good in the way of keeping and enhancing. the level of educational materials. It ensures transparency, supports the idea of the continuous improvement of the content, and encourages it. institutions in maintenance of high academic standards in all of them. forms of learning material.

## IX. FUTURE WORK

Evaluation of textbooks, reference books and e. books is a process that is not only continuous but evolving and therefore has to change. to the new tendencies in education and technology. As learning technologies make environments more digital and interactive, the necessity to improve the evaluation system is increasing. more modern, more criteria, more intelligent. technologies. The existing framework is a powerful one. establishing groundwork on quality assurance, but the future can develop more. expand its scope and impact. Other partnerships that can be planned in the future include collaboration with. research organizations, educational boards, and universities. to nurture standard national or global quality. benchmarks. This would result in uniformity through such collaborations. in evaluation procedures and hold a consistency of norm in the practices of evaluation. university high performance. Finally, the research in the future should be able to assess the impact. of quality assured learning materials on student. performance and engagement. By analyzing how well learning is affected by assessed e-books and texts. outcomes, the institutions are able to make informed decisions concerning. curriculum design and instructional strategies.

## X. CONCLUSION

Evaluation of textbooks, reference books and e. books is an important part of sustaining quality, reliability. and efficacy of means of education. In an era where learning is quickly changing-informed by technology, digital. access, and updated knowledge-ascertaining that all. teaching resources have high academic and ethical. standards has gained significance than ever before. This application offers a methodical process of assessing. learning materials that are determined by parameters like accuracy, relevance, readability, inclusivity and usability. By means of a systematic review which includes selection. validation, and feedback, the framework makes sure that no single one of them is left out. The textbook and e-book applied in the academic environment supports the. values of good education. The involvement of expert standardized evaluation criteria and reviewers is beneficial. be fair, transparent and objective in the assessment process. In the case of digital learning materials, there is extra. checks concerning accessibility, interactivity and technical. performance also increase the accuracy of the assessment. system. In conclusion, the development and adoption of a systematic quality evaluation system. in case of textbooks, reference books and e-books, they are essential. measures to excellence in education. By adopting technology-based approaches to modern evaluation. institutions can develop by encouraging revisions that are driven by feedback. a green system that ensures the learners are armed with. reliable, modern and quality education. resources. The aim is to eventually develop a learning. climate that empowers learners, favors teachers, and improves the general quality of learning in a fast. changing world.

## XI. ACKNOWLEDGMENTS

We would like to say our heartfelt thanks to all people. who helped us make our team successful. project whose name is Application for Assessment of Quality of Textbooks / Reference Books / E-Books. We also owe to our deepest gratitude our classmates and other teams that were constructive with ideas. and support at the different levels of the project. Their and cooperation rendered this journey more interesting, intercourse, and fulfilling. This is the collective work of this project. devotion, and co-operation of all, and we are. indeed indebted to everyone who helped us to bring it to. completion successfully.

## REFERENCES

- [1] Q. Zhou, L. Wang, and Y. Chen, The article called A Combined Approach to Measure the Impact of Books Using Reviews, Ratings, and Citations,' 2024. (The current research proposed a combined model which is a model of integrating various sources of evaluation to gauge the overall impact of educational books.)
- [2] P. Sun, X. Liu, and M. Zhang, O Practical Framework Assessment of the quality of textbooks in local universities. 2024. (The authors suggested a localized method to measure the usefulness and the quality of textbooks depending on the needs of the students and institutions.)
- [3] B. K. Roberts, E. R. Clark and J. Adams, University-Based Textbook Evaluation System: A Real-World Institutional Approach. 2021. (This was done to come up with a real-life assessment model of textbooks in the university level.)
- [4] J. Smith, T. Johnson, and P. Evans, Relationship between textbook Use and Student Performance, Analysis. 2020. (The authors investigated the influence of the number of times textbooks are used on academic performance of students in different courses.)
- [5] R. L. Taylor and M. D. Wilson, and H. Green, Multi-Stakeholder Framework of Educational Text Evaluation. 2019. (The method proposed in this paper involves involving teachers, students and other stakeholder to make sure that the textbooks were evaluated in a balanced way.)
- [6] M. A. Al-Emran, S. Hassan and R. Ahmed, Higher Education Textbook Evaluation System based on Artificial Intelligence. 2019. (The authors suggested an AI-based system to automatically determine the quality of higher education textbooks and their relevance.)
- [7] J. R. Harper, S. E. Brown and D. Nelson, A Review-Based Framework to Evaluate Educational Content, 2016. (In this study, emphasis was placed on the review-based indicators to evaluate the level of clarity, structure, and usefulness in educational materials.)
- [8] I. Devetak and J. Vogrine, Critical Analysis Method of Science Textbook Evaluation. 2014. (This paper was a critical analysis model that aimed to evaluate the conceptual understanding promotion of science textbooks.)
- [9] Timothy M. Connolly and Edward A. Stansfield, Web based Learning resources evaluation system, 2014. (The authors of the study suggested a web-based framework to evaluate learning content and education resources by using e-learning.)
- [10] L. Okeeffe, P. Byrne, and D. Kelly, A Systematic Method of Textbook Assessment in terms of Readability and Teaching Effectiveness, 2013. (The paper has provided a systematic procedure used to scale textbook readability, content organization and teaching efficiency.)