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Development of an Assessment Framework for Quality Checking of Catalogs in the College Libraries of Assam, India, Based on Zeng's System

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ABSTRACT

Cataloging is a critical element in offering quality services in libraries. Quality cataloging influences retrieval efficiency, decision-making, time, and cost-effectiveness of different types of work. A small number of studies are available on the quality assessment of cataloging, and tools for evaluating catalogs are also limited. Researchers suggest local-level quality assessment of catalogs. In this study, the drawbacks of Zeng's categorization system of error in evaluating catalogs in the context of the college libraries of Assam are discussed, and an assessment framework for quality assessment in the college libraries of Assam, India is developed. This tool was developed by modifying Zeng's categorization system of errors based on the survey results among the study area's local users and frequent mistakes made by the local catalogers that were traced during the pilot study. This newly designed framework can also be used for local-level assessment with slight modifications in other areas. The results of this study can help assessment agencies, such as India's National Accreditation and Assessment Council and National Institutional Ranking Framework, explore this aspect while assessing the qualities of higher education institutes.

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Introduction

Cataloging is a fundamental concept of library activities. Straightforward, specific, and accurate information about a work in the catalog record helps achieve the objective of a quality catalog by bringing the user and the work face to face.¹ A quality catalog in a library increases a resource's visibility and retrieval efficiency. The technical details of the bibliographic record, such as the accuracy of the data, error rates, the inclusion or exclusion of fields, and adherence to international standards, are the two most important factors that determine the quality of a library catalog.²

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In libraries, cataloging is generally performed by human resources. Libraries spend a lot of effort, time, and money on cataloging, and the quality maintained by a library influences its decision-making process and is cost-effective through direct and indirect means. Assessment of the library catalog helps to support sustainability, improve the existing practice, and prevent mistakes in the future. Studies suggested local-level assessment of the library catalogs.³ In this era of information explosion where libraries have diverse collections of resources, the types of errors also varies. The assessors must address this fact with care while assessing library catalogs. The completeness accuracy in cataloging, i.e., maintenance of content and format standards, help to develop quality catalogs that enhance retrieval. The quality of cataloging is a very important factor in accessing information, and more studies to investigate adherence to content and format standards are needed.⁴

Lei Zeng in 1993 attempted to assess the quality of the catalogs based on the errors available in the catalog records. She categorized the errors into three categories, and catalogs were analyzed with these errors.⁵ This system is popularly known as Zeng's categorization system of errors.

More than 90% of the colleges in Assam are also partially or fully automated and maintain their catalogs by integrated library management software.⁶ This study intends to develop or propose a customized version of Zeng's categorization system of errors to assess the catalog records of the college libraries of Assam based on the results of the survey among the local users of the study area and frequent mistakes that are made by the local catalogers, which are traced during the pilot study. This is an extension of the research article entitled "Consistency, Extent, and Validation of the Utilization of the MARC 21 Bibliographic Standard in the College Libraries of Assam in India" published in *Cataloging & Classification Quarterly* in 2023.

Zeng's categorization system of errors

During the execution of the work supported by the OCLC Library and Information Science Research Grant in 1991 and 1992, Lei Zeng, then Assistant Professor at the School of Library and Information Science at Kent State University, evaluated the quality of Chinese-language records in the OCLC Online Union Catalog (OLUC) database. During this evaluation, Zeng found at least one error in 72.5% of the records. Errors in punctuation marks and spaces and other errors caused by these were extremely common. General distribution of types and positions of error occurrence was found in the whole sample, and the specific appearance of various types of errors in each field.⁷

For this research, Zeng (1993) grouped the errors into three categories, i.e.,

1. *Format errors*, which consist of inadequate use of tag(s), indicator(s), subfield code(s), incorrect punctuation and space(s) as required by ISBD;
2. *Content errors*, which consist of missing field(s) and subfield(s), inconsistency between fields and/or attributes, and incorrect content; and
3. *Editing and inputting errors*, which consist of inadequate spacing (other than ISBD space errors), incorrect spelling, incorrect upper and lower case, etc.

After collecting the required data, each record was checked by the researcher and listed according to the category.

Errors were weighted according to their types. A format error was given a score of three, a content error a score of two, and an editing and inputting error a score of one. There were two reasons for weighting the errors. First, the three types of errors had a different influence on the quality of a record. For instance, most format errors and some content errors directly influence access and the representation of the description of an item. Second, format and content errors were generally counted according to the type of errors; for example, missing an added entry was counted as only one error. Whereas editing and inputting errors were counted as the number of places that needed correction. Therefore a field where three typographical errors had occurred was counted as three errors, though actually, they would not have as much influence on the quality of the record as a missed added entry.⁸

From this setup, the results are analyzed from different angles. This is Zeng's categorization system of errors (Zeng's system).

Example:

For the title-

A text-book of mineralogy

Subtitle-

with an extended treatise on crystallography and physical mineralogy

Remainder of the title page transcription/statement of responsibility

by Edward Salisbury Dana

The description in the tag 245 should be as in Column A (Table 1).

Table 1. Example of correct and incorrect cataloging for a book title using MARC 21 tag 245.

Column A- Correct entries for tag 245 and its subfields	Column B- Actual entries (containing errors) for tag 245 and its subfields
12\$a A text-book of mineralogy \$b with an extended treatise on crystallography and physical mineralogy \$c by Edward Salisbury Dana	11\$a text book of mineralogy \$c Dana \$h Textual Documents

Table 2. Different errors from column B (Table 1).

Format error	Content error	Editing and inputting error
1 error. <i>Error in the Indicator</i> 11\$a text book of mineralogy	2 errors \$b Subfield missing Content error in \$c (\$c Dana)	2 editing and inputting error \$a textbook of mineralogy

In column B (Table 1),

According to Zeng's system of categorization of errors, there is one format error, two content errors, and two editing and inputting errors as displayed in Table 2.

$$\begin{aligned}\text{Error score} &= (1 * 3 + 2 * 2 + 2 * 1) \\ &= 3 + 4 + 2 \\ &= 9\end{aligned}$$

The list of errors described by Zeng's categorization system of errors are-

Format errors

1. Incorrect or missing punctuation and space (as required by ISBD)
2. Incorrect or missing subfield code, incorrect sequence of subfields
3. Incorrect indicator
4. Incorrect field tag

Content errors

5. Missing the corresponding Chinese content
6. Missing a whole field, or containing an extra field
7. Inconsistency between Romanized and vernacular data
8. Inconsistency between corresponding fields or values
9. Incorrect content – whole field
10. Missing a part of the entry such as a subfield
11. Other content errors
12. Incorrect content – subfield

Editing and Inputting Errors

13. Punctuation used CJK-mode
14. Space used CJK-mode
15. Extra space in vernacular field caused by inadequate input method
16. Space in context inadequate
17. Misspelling of Romanized entry
18. Upper-lowercase incorrect
19. Other editing and inputting errors⁹

This theory for assessing the quality of library catalogs was referred to and used by many researchers in their studies, a few customized approaches are also made to investigate the quality of the available catalogs.

Literature review

Once a document is added to the library's catalog in proper MARC 21 format, its visibility increases.¹⁰ The correctness of the entries, adherence to professional and technical standards of cataloging for the users, such as the findability and accessibility of bibliographic records, and timeliness are often discussed as the prime keys of a quality catalog.¹¹ The quality control process is a fusion of the examination of the MARC fields of bibliographic records as well as the physical processing of physical items for circulation.¹² In 2003, Paiste discussed the quality of cataloging in academic libraries by reviewing various literatures where particular attention was paid to customer focus and continuous improvement. Copy cataloging without revision, increased use of nonprofessional staff, and more liberal acceptance of non-LC copy are some reasons for the backlog in the quality of cataloging.¹³ Skilled library professionals with a library and information science background, sound knowledge of international standards like AACR2 and MARC 21, and a clear idea of MARC 21 tags to be used are essential to maintaining quality catalogs in Koha Integrated Library Management System. Shah et al. published a table of 26 tags and subfield codes that were found important for the librarians in their study; however, the researchers also declared that it was customizable and that its implementation fully relied on the preferences of the libraries.¹⁴

Chapman & Massey concentrate on the accuracy of bibliographic records and the presence of 'dirty data' to assess the quality of the catalog in the libraries. Errors have been divided into (a) fields containing incorrect information and (b) omitted fields, rather than distinguishing misspellings, MARC coding errors, and deviations from cataloging rules.¹⁵ Akidi & Omekwu assessed the cataloging and classification practices of the National Library of Nigeria in the digital age from a bibliographic control

perspective.¹⁶ Responding to the local users' information needs is important for the catalogers and the uses of specific MARC tags can be significantly different locality-wise than in an aggregate database like WorldCat.¹⁷

Chandrappa, Vasantha Raju, and Harinarayana studied the importance of the MARC 21 control field and its effective implementation in university library OPACs in Karnataka.¹⁸ O'Neill, Rogers, and Oskins analyzed the duplicate records in the OCLC's Online Union Catalog based on 13 bibliographic elements and found that general record entry patterns, such as variations in title transcription and form of name, typographical errors, misplacement of tagged fields, subfield codes, and omissions, make it extremely difficult for catalogers to retrieve existing bibliographic records and thus avoid creating duplicate records.¹⁹ Serra, Schneider, and Segundo studied how libraries can include person identifiers in the MARC 21 format.²⁰ Only a small subset of the MARC 21 fields are utilized in WorldCat and there is a lack of consistency in the use of tags and subfield codes in the catalogs whereas it is important to be consistent in implementing MARC 21 to maintain a good catalog.²¹ Cataloging and classification competencies, available cataloging tools, and the problems encountered were evaluated by Bamise, Oluwaniyi, and Igbeneghu.²² The library web OPACs under study gave scant attention to control fields; 001 and 003 were the two tag numbers that had been extensively used.²³ Missing fields and subfields and non-adherence to AACR2 and MARC formats in the academic libraries of Turkey are notable common errors in their catalogs.²⁴

In the paper "Methodological Approach to Assessing the Library Catalogs," researchers suggested grouping errors occurring in the sample records in "error category lists" according to Zeng's categorization of errors.²⁵ The quality of catalog records of university libraries in Karnataka was assessed by Chandrappa and Harinarayana through a customized adaptation of Zeng's (1992, 1993) categorization system of errors in catalog records.²⁶ Simpson explored the quality of Chinese monographic records by checking critical errors in the catalogs that affect retrieval and by comparing error rates among cataloging records from various sources like the Library of Congress (LC), LC-adapted records done by other institutions (LC copy), OCLC member institutions (member), etc.²⁷ Studies also mentioned Zeng's categorization of errors to describe the quality of catalogs.²⁸ Inspired by Zeng's categories, some research attempted to assess catalogs with new categories but a lack of proper justification for the same was observed.²⁹

The review of existing literature brings to light the fact that in this area, i.e., quality assessment of catalogs, there are not many studies, particularly for India, where there are only a few studies, and for Assam it is almost nil. The lack of an established framework to assess local-level

catalogs is also traced in some literature. The quality of the Malaysian catalog was evaluated manually by examining the access points and using a checklist for adherence to AACR2R and MARC 21. Records were gathered in a Microsoft Excel file to ease the screening process.³⁰ Though a few studies adopted Zeng's categorization system of errors for analysis, most of the existing studies did not follow any specific kind of test to assess the quality. It is also observed from the review of literature that researchers studied the errors from different angles, emphasizing the errors, which are also different for each study. Locality-wise variety or priority in the preferences from a catalog is also clearly seen in the literature.

This study is intended to set up a standard framework for quality assessment of college catalogs in the state of Assam based on the preferences of the users as well as the technical specifications used in the area.

Objectives

1. To discuss the drawbacks of Zeng's categorization system of error for evaluating catalogs in the context of the college Libraries of Assam.
2. To design a new framework or a modified version of Zeng's categorization of errors to assess the quality of the catalogs in Assam.

Methodology

To execute this qualitative research, descriptive methodology is applied in this study. Literature available on related topics is reviewed. A survey among the users of randomly selected college libraries is conducted. The survey aims to gather an idea about the users' preferences and the techniques that are used by the users to search for a document in the OPAC (Addendum).

The catalogs of randomly selected colleges C-1, C-2, C-3, C-4, and C-5 have total records as mentioned below:

Total records of C-1 = 12,255

Total records of C-2 = 11,122

Total records of C-3 = 9601

Total records of C-4 = 11,515

Total records of C-5 = 16,918

Total records = 61,411

On these 61,411 records, the Taro Yamane formula for sample calculation is applied.

Thus, to study the catalog records,

$$n = N / (1 + N(e)^2).$$

The variables in this formula are:

n = the sample size

N = the population of the study

e = the margin error in the calculation

Thus,

$$n = 61411 / (1 + 61411 * 0.05^2) \\ = 397$$

Hence, the sample size is 397.

For the convenience of the study, the sample size was increased to 500 from the minimum required sample size of 397. Stratified random sampling is used for sampling, and hence 100 records from each college catalog have been taken and assessed manually. From this manual assessment, some frequent errors made by the catalogers are traced and listed accordingly.

Zeng's categorization system of errors is also thoroughly reviewed, and errors are compared with the local-level errors traced during the manual assessment. The errors traced locally are subdivided into three categories: high-impact errors, medium-impact errors, and low-impact errors.

The divisions of the errors are made based on five criteria:

- a. Absence of highly preferred tags/subfield codes by local users
- b. Errors that affect retrieval efficiency
- c. Errors that violated international standards or errors of non-adherence to the standard.
- d. Errors that affect library administration, i.e., in document arrangement, decision-making activities, etc.
- e. Errors that reduce document visibility

Based on all the factors that are observed during the whole process, a new quality-checking framework is developed for the assessment of library catalogs in Assam.

Analysis and discussion

Library catalogs: From the user's point of view

While creating the framework for catalog assessment, it is important to know the impact of the errors on retrieval, and for that, it is necessary to know the user's awareness of OPAC, techniques of information search, and required bibliographic information on a catalog. Two hundred and twenty-eight library users are interviewed during the research, and their

opinions are recorded in a Google Form. From the discussions with the library users, it is seen that they are mostly unaware of AACR2, or the cataloging standards. They use the library OPAC as demonstrated by the library professionals during the library orientation program in their libraries. Figure 1 shows that though the OPAC facility is available in 98.2% of colleges, only 67.1% of the total respondents use the library OPAC regularly.

The following are the bibliographic criteria in descending order in accordance with the preferences of the users (Table 3).

- a. Author
- b. Chapters, i.e., formatted contents
- c. Title
- d. Subject
- e. Sub-title
- f. Publisher details

From the respondents' opinions, it can be said that the users use bibliographic information to search for their required documents in the OPAC, and the minimal information they want to gather is about the availability and the location of the book, preferably the shelving location.

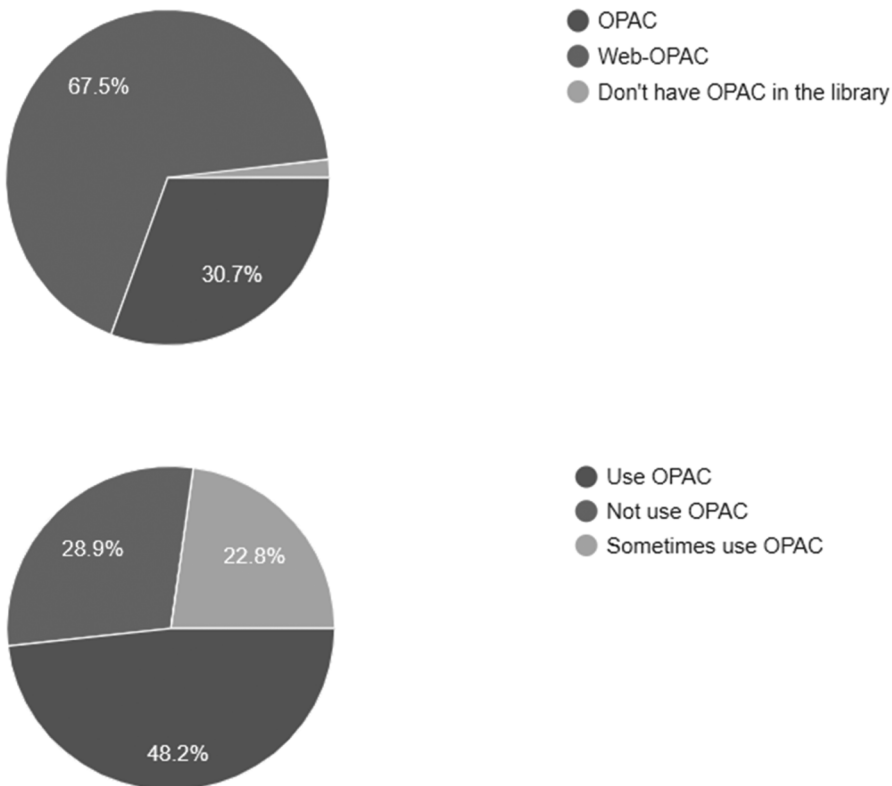


Figure 1. Availability and use of OPACs in college libraries.

Table 3. Different bibliographic information with considerable preferences of the users.

Sr. No.	Types of bibliographic information	Preferred by users (in%)
1	Title	89%
2	Author	92.5%
3	Subtitle	82%
4	Subject	85.8%
5	Publisher	64.9%
6	Chapter names within the book.	92.1%

Thus, MARC 21 tags 100, 245, 505, 650, 260, and 852\$c emerged as the most important tags from the users' perspective. However, arranging the documents systematically and avoiding duplication of entries 020\$a and 082 MARC 21 tags is also important, as it has a direct impact on fulfilling the users' needs. For example, users do not search for the classification number, but to give the document a systematic and distinct location on the shelf, the cataloger needs to classify the document properly.³¹

Common errors traced in the college library catalogs

To develop a local-level assessment framework, it is very important to know about the frequent, probable, and impactful errors that are present in the catalogs. For this purpose, 100 catalog records from each library are assessed manually, and the following errors are traced in the catalogs.

000 -LEADER		
fixed length control field	00603ca0 a2200233ua 4500	
005 - DATE & TIME		
control field	20180503181219.0	
008 - FIXED-LENGTH DATA ELEMENTS--GENERAL INFORMATION		
fixed length control field	080915s1977 g b000 u asm u	
020 ## - ISBN		
Price	Rs.10/-	
040 ## - CATALOGING SOURCE		
Original cataloging agency	issai Lib.	
041 1# - Language		
Language	Assamese	
042 14 - DDC NUMBER		
Classification number	891	
Book Number	BHA	
100 1# - MAIN ENTRY--PERSONAL NAME		
Personal name	Bhattacharya, Tarini Kanta.	
245 10 - TITLE STATEMENT		
Title	Shakespeare /	
Statement of responsibility, etc.	Tarini Kanta Bhattacharya.	
250 ## - EDITION STATEMENT		
Edition statement	1st /	
260 ## - PUBLICATION, DISTRIBUTION, ETC. (IMPRINT)		
Place of publication, distribution, etc.	Jorhat:	
Name of publisher, distributor, etc.	Asam Sahitya Sabha,	
Date of publication, distribution, etc.	1977.	
300 ## - PHYSICAL DESCRIPTION		
Pages	207:	
Dimension	NULL	
650 #0 - Subject		
Subject	Assamese	
942 ## - ADDED ENTRY ELEMENTS (KOHA)		
Koha item type	Books	
100 1# - MAIN ENTRY--PERSONAL NAME		
Author	Author	
250 ## - EDITION STATEMENT		
365 ## -		
	Rs.10/-	
504 ## -		
	NULL	
541 ## -		
	COHD48	
	Rs.10/-	
541 ## -		
	COH250	

Figure 2. Example of catalog records with an absence of a required field/subfield.

In Figure 2, some required fields such as 505, 852\$c, etc. are not present.

000 -LEADER	fixed length control field	00428cam a2200169ua 4500
008 - FIXED-LENGTH DATA ELEMENTS--GENERAL INFORMATION	fixed length control field	151015n ii gr Z eng
040 ## - CATALOGING SOURCE	Original cataloging agency	
082 ## - DEWEY DECIMAL CLASSIFICATION NUMBER	Classification number	808.93592
100 ## - MAIN ENTRY--PERSONAL NAME	Personal name	Dasgupta,D.
245 1# - TITLE STATEMENT	Title	Satabdir Surjya:Albert Einstein
	Statement of responsibility, etc.	By,Debabrat Dasgupta
250 ## - EDITION STATEMENT	Edition statement	2nd.
260 ## - PUBLICATION, DISTRIBUTION, ETC.	Place of publication, distribution, etc.	Guwahati:
	Name of publisher, distributor, etc.	Jyoti Prakashan.
300 ## - PHYSICAL DESCRIPTION	Extent	326p.
650 ## - SUBJECT ADDED ENTRY--TOPICAL TERM	Topical term or geographic name entry element	Rhetoric & collections of literature
942 ## - ADDED ENTRY ELEMENTS (KOHA)	Koha item type	Books

Figure 3. Example of catalog records with incorrect fields and subfields.

In [Figure 3](#), subfields 245\$a and 245\$b were not properly recorded.

a. Absence of the required field or subfield

In the above discussion, some tags are identified as required fields based on the user's feedback and technical requirements. During the manual assessment, it was revealed that some required fields are totally absent in the catalogs, and some tags are not used constantly, though the information is available in the books. We named this error "absence of required tags." Under this type of error, "absence of shelving location," "subject heading not assigned," "class number not assigned," "book number not assigned," etc. are noticed.

b. Incorrect field and subfield

Most of the college libraries in Assam use MARC 21 bibliographic format standard to catalog their records. In MARC 21, proper utilization of tags and subfields plays a vital role in information retrieval. The use of incorrect fields and subfields was also traced during our assessment.

c. Incorrect and missing indicators

Indicators play an important role in the MARC 21 bibliographic standard. It helps in proper indexing, the creation of added entries, and the placement of entries in a systematic record. Incorrect and missing indicators are frequently observed in the records during the study.

In [Figure 3](#), incorrect indicators are seen in 245, and indicators are also missing from 082, 100, and 650.

d. Incorrect subject and subject heading not assigned

Assigning the correct subject to the correct book is very important in cataloging. It is observed in the study that in some records the subject heading is incorrectly assigned, and in some places, it is not assigned. In [Figure 3](#), an incorrect subject heading can be seen.

e. Incorrect class number and partial classification

A detailed and correct class number helps in arranging and shelving a document in its proper place. Incorrect class numbers and partial classification, i.e., half classification, are noticed in the catalog records of the libraries under study. In [Figure 2](#), a partial classification is seen.

f. Incorrect book number and absence of book number

Incorrect book numbers and the absence of book numbers are frequently observed in catalog records. In [Figure 3](#), the absence of a book number is traced.

g. Incomplete content

Proper and complete records enhance document visibility in a catalog, but in the assessment process, it is observed that there are incomplete records in the college library catalogs. In [Figure 3](#), this type of error is traced. That is the year of publication is not entered in tag 260. At the time of research, this field is used for recording publication statements in the libraries.

h. Wrong content

Some incorrectly entered values are also traced in the library catalogs. Incorrect entries can mislead users, and are also a waste of effort, time, money, and digital space.

i. Spelling mistakes

Spelling mistakes were mainly typographical errors that were made by the cataloger during the time of cataloging. Spelling mistakes are frequently observed in the catalog records.

j. Inconsistencies in ISBN entry

To maintain a standard catalog, it is preferred to record the ISBN so that it can help reduce record duplication, enhance data retrieval, facilitate the interoperability of records between libraries, and carry out scientific analysis. It was observed that libraries are not practicing ISBN entries properly, and in some entries, they are putting the value “-,” which should not be there.

k. Inconsistency in transliteration

The college libraries of Assam usually have large collections of books in vernacular languages but a lack of standard transliterated forms was found in the cataloging of these regional language books and documents. So, for the same entry, different transliterated forms are observed between the colleges and within the same catalog. This adversely affects document visibility as well as retrieval.

- l. **Error in using space and punctuation marks**
Inappropriate uses of space, punctuation marks, etc., and in some cases, the absence of these characters in required fields is traced in the catalogs during the manual assessment.
- m. **Incorrect upper/lower case.**
Incorrect upper or lower case is a frequent typographic error that is noticed during our observation of the records.
- n. **Linkage of entry is not practiced.**
This type of error means vernacular records are not cataloged as prescribed by MARC 21. The meaning is that “Alternate Graphic Representation (R)” is not attempted to be utilized according to the MARC 21 standard.³² This is also a frequent error that is observed in the catalogs.

Limitations of Zeng’s categorization system for errors in the assessment of local records of Assam

Zeng’s categorization system of errors and the college library catalogs are the two basic foundations of this research. We scrutinized the library catalogs and reviewed Zeng’s categorization system for errors to find out the limitations of the earlier system in assessing the local records. As the earlier system primarily focuses on the assessment of Chinese, Japanese, and Korean (CJK) records, there are some factors irrelevant to Assam and some required factors not considered in the earlier system. The previous system was developed almost 30 years ago, and from 1992 to 2023, there were many technological and technical changes in the field of cataloging. So, the system needs some modifications or upgrades to cope with the recent developments.

Findings

The major limitations of Zeng’s categorization system of errors in assessing local records of Assam are

- i. All types of errors mentioned in the system are not relevant for records other than CJK records, e.g., punctuation used in CJK mode, missing the corresponding Chinese contents, space used in CJK mode, etc.
- ii. Some errors that are frequently traced in the catalogs of Assam are not covered in the existing system, such as the absence of required fields or subfields, incorrect subjects and subject heading not assigned, incorrect class numbers and partial classifications, inconsistencies in ISBN entries, linkage of entries not practiced, etc.
- iii. The existing system analyzed the incorrect and missing punctuation and space based on ISBD, but the college libraries in Assam cataloged resources in different integrated library management systems using MARC 21.

- iv. Though the existing system categorized the errors as formatted, content, and edit-input errors, and gave error scores of 3, 2, and 1, respectively, considering their effect on the catalog, the research found that the impact or effect is not similar for the errors in Assam. For example, missing a whole field is a content error with an error score of 2 in the existing system, but in MARC 21, there are more than 900 main fields or tags in total; though data for a tag is present, it is not possible for the catalogers to record all fields. Identifying locally preferred tags is a crucial task for the library authority. In the local level assessment, the absence of a required field (similar to some extent to missing a whole field) has a major impact and can be considered a high-impact error.
- v. All formatted contents are not high-impact errors; similarly, all the errors under content and input and editing errors are not low-impact errors. Some formatted errors may have low impact, and some editing errors might have the high impact on the retrieval, visibility, or quality of a catalog.
- vi. Some MARC 21-related errors were not covered in the previous error system.

These limitations of the existing system advocated for the development of a new system of errors created by modifying the existing system to assess or evaluate the local-level catalog records of Assam.

Development of an assessment framework for quality checking in the college libraries of Assam based on Zeng's system

Cataloging not only helps us in the systematic arrangement of available documents, but it is also very important for document visibility, retrieval, and library administration. With the introduction of computer systems to cataloging and library management, some standards, like AACR2, etc., are also developed and adopted by the library community to maintain uniformity of work, reduce the cost of time and money by making the tasks interoperable, and make the catalogs user friendly.³³

It is expected that a quality catalog fulfills the users' requirement for a bibliographic description to find a document, and adheres to the existing international standards resulting in higher retrieval efficiency. The catalogs should be prepared in such a way that they can enhance document visibility, and help the administrators in the work of library management with tasks such as decision-making, report writing, systematic arrangement, etc. An assessment framework is developed to evaluate the catalog of the college libraries in Assam. This development is based on the basic concept of Zeng's theory and modifications are made by considering the five criteria.

From [Table 4](#), it is visible that different errors have different impacts on the quality of cataloging. From the records displayed in [Figure 4](#), it is seen that there are errors in the records whose impact can be categorized according to the criteria described in [Table 4](#). The errors not only degrade

the quality of cataloging but also affect the quality of a collection. For example, Record No. 9555 in Figure 4, has inconsistency in transliteration as one of the errors. Here, if someone wants to search the same book as *Nil akasar sima bisari* instead of *Neel Akashar seema Bisari* he or she will get a negative result. Again, Record No. 8587 in the same figure does not have the subject entry. If anyone searches the book by its subject, he or she will also get a negative result. In both cases, books are on the shelves, but in the OPAC they are not. In such a situation, these errors practically reduce the quality of the collection of the library along with the catalog quality.

Table 4. Types of errors that belong to the criteria.

Types of Errors	Criteria 1 (absence of highly preferred tags or subfield codes)	Criteria 2 (Affect retrieval efficiency)	Criteria 3 (Non-adherence to the standard)	Criteria 4 (Affect library administration)	Criteria 5 (Reduce document visibility.)
i. Absence of required field/subfield	✓	✓	✓	✓	✓
ii. Incorrect use of field (tag)	–	–	✓	✓	✓
iii. Incorrect use of subfield	–	–	✓	✓	✓
iv. Incorrect indicator	–	–	✓	–	✓
v. Missing indicator	–	–	✓	–	✓
vi. Incorrect subject heading	–	✓	✓	✓	✓
vii. Subject heading not assigned	✓	✓	✓	✓	✓
viii. Incorrect Class Number	–	✓	✓	✓	✓
ix. partial classification	–	✓	–	✓	✓
x. Incorrect book number	–	✓	–	✓	–
xi. Book number not assigned	–	✓	✓	✓	–
xii. Incomplete content	–	✓	✓	✓	✓
xiii. Wrong content	–	✓	✓	✓	✓
xiv. Spelling mistakes	–	✓	–	✓	✓
xv. Mistake in ISBN entry	–	✓	✓	✓	–
xvi. Inconsistency in transliteration	–	✓	–	✓	✓
xvii. Error in using punctuation mark	–	–	✓	–	–
xviii. Incorrect Upper/lower case.	–	–	✓	–	–
xix. Linkage of entry is not practiced	–	–	–	–	✓
xx. Currency symbol not available	–	–	✓	–	–
xxi. Absence of shelving location	✓	✓	–	✓	✓
xxii. Class number not assigned	–	✓	–	✓	✓

Based on the impact of the errors, the errors are divided into three broad categories:

1. **High-impact errors:**

- a. Absence of the required field or subfield
- b. Incorrect subject heading
- c. Subject heading not assigned
- d. Incomplete content
- e. Wrong content
- f. Incorrect class number
- g. Inconsistency in transliteration
- h. Absence of shelving location

2. **Medium-impact errors:**

- a. Incorrect book number
- b. Book number not assigned
- c. Partial classification
- d. Misplaced content
- e. Incorrect use of fields
- f. Incorrect use of subfield
- g. Incorrect indicator
- h. Missing indicator
- i. Class number not assigned
- j. Spelling mistakes

3. **Errors with less impact:**

- a. Error in using punctuation marks
- b. Incorrect upper/lower case.
- c. Linkage of entry is not practiced.
- d. The currency symbol is not available.

High-impact errors have the highest effect on quality, followed by medium-impact errors and low-impact errors. To present these effects statistically an error score of 3 is assigned to high-impact error and error scores of 2 and 1 are assigned to medium and low-impact error respectively. The overall error score of a catalog can statistically represent the quality of the catalog. Thus, the error score is inversely proportional to the quality of the catalog i.e., the higher the error score lower will be the quality, and vice versa.

The overall error calculation can be made for catalogs by using [Table 5](#). It is the tool for analysis of this proposed framework.

Normal view		MARC view		ISBD view	
Neel Akashar Seema Bisari (Record no. 9555)					
[view plain]					
000 - LEADER					
fixed length control field				00413cam	a2200169ua 4500
008 - FIXED-LENGTH DATA ELEMENTS--GENERAL INFORMATION					
fixed length control field				150822n ii	gr Z eng
040 ## - CATALOGING SOURCE					
Original cataloging agency					
082 ## - DEWEY DECIMAL CLASSIFICATION NUMBER					
Classification number				891.451	
100 ## - MAIN ENTRY--PERSONAL NAME					
Personal name				Dutta, D.	
245 1# - TITLE STATEMENT					
Title				Neel Akashar Seema Bisari	
Statement of responsibility, etc.				By,Deeptri Dutta	
250 ## - EDITION STATEMENT					
Edition statement				1st.	
260 ## - PUBLICATION, DISTRIBUTION, ETC.					
Place of publication, distribution, etc.				Guwahati	
Name of publisher, distributor, etc.				Purbanchal Prakash	
300 ## - PHYSICAL DESCRIPTION					
Extent				144p.	
650 ## - SUBJECT ADDED ENTRY--TOPICAL TERM					
Topical term or geographic name entry element				East Indo-European & Celtic literatures	
942 ## - ADDED ENTRY ELEMENTS (KOHA)					
Koha item type				Books	

Critical Approaches to Literature (Record no. 8587)					
[view plain]					
000 - LEADER					
fixed length control field				00361cam	a2200157ua 4500
008 - FIXED-LENGTH DATA ELEMENTS--GENERAL INFORMATION					
fixed length control field				150706n ii	gr Z eng
040 ## - CATALOGING SOURCE					
Original cataloging agency					
082 ## - DEWEY DECIMAL CLASSIFICATION NUMBER					
Classification number				820	
100 ## - MAIN ENTRY--PERSONAL NAME					
Personal name				Daiches, D.	
245 1# - TITLE STATEMENT					
Title				Critical Approaches to Literature	
Statement of responsibility, etc.				By,David Daiches	
250 ## - EDITION STATEMENT					
Edition statement				2nd.	
260 ## - PUBLICATION, DISTRIBUTION, ETC.					
Place of publication, distribution, etc.				Hyderabad	
Name of publisher, distributor, etc.				Orient Longman	
300 ## - PHYSICAL DESCRIPTION					
Extent				408p.	
942 ## - ADDED ENTRY ELEMENTS (KOHA)					
Koha item type				Books	

Figure 4. The errors not only degrade the quality of cataloging but also affect the quality of a collection.

Practical implication

This study is a key to the local-level assessment of catalogs. The results of the local users' preferences can help the catalogers develop standard catalogs to fulfill the users' needs. Catalogers and librarians can be more careful in preventing the common errors traced in the college library catalogs. The new assessment framework addressed the limitations and drawbacks of Zeng's categorization system of error. It can be used for quality evaluation of the library catalogs in Assam. Using this framework, the ranking of the catalogs can also be compared, ranked, and published.

Conclusion

Libraries should maintain quality catalogs to save the time of readers, to help the users to find their required resources as well as to provide quality services. Evaluation of the current activities is a tool for continuous improvement. The evaluation of the individual MARC records helps to initiate precautionary measures and to correct and update the records resulting in the improvement in the quality of the catalog. This study explored the major and frequent errors made by the catalogers and also designed a framework to assess the quality of the catalog records of the colleges in Assam. It fulfilled the need for a local-level assessment tool for the catalog records of Assam. Perceptions of issues related to cataloging quality vary among catalogers. Quality maintenance is a culture and needs to be instilled through rigorous training.³⁴ An overall assessment framework in general can help the community establish a uniform benchmark and also develop and maintain quality in the catalogs of the college libraries in Assam. Using the framework prescribed in this study, an automatic assessor for the catalogs can also be developed. The framework can also be used in other areas for local-level assessment with slight modifications or added development. Information delivery, document visibility, proper indexing, information retrieval, etc. are the core concepts of information services. Qualities of catalogs should be considered an important matrix during the assessment and accreditation of the colleges. This study can help assessment agencies such as India's National Accreditation and Assessment Council and National Institutional Ranking Framework explore a new aspect. To conclude, the standard framework developed in this study to assess the library catalog can help take precautionary measures for the frequent errors identified during the assessment process. Further, this paper leaves it open for researchers to explore a specific roadmap to prevent the errors that degrade the quality of the records.

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Addendum

Library catalog-related questionnaire

This is a simple questionnaire to the library users of the colleges of Assam. The basic aim of this survey is to know which entities are mostly used by the users to search for information in the libraries using OPAC. It is expected that this survey will help the researcher in providing weightage to the MARC 21 tags while assessing the library catalogs.

Hope for your kind cooperation. I will be very grateful to you if you can fill out this questionnaire.

Regards

Bidyut Bikash Baruah

1. **Name**

2. **Designation/Occupation**

UG Student/PG Student/ Research Scholar/ Asst. Prof/ Associate Prof. / Library Professional/ Other

3. **College**

4. **What type of OPAC do you have in your library?**
OPAC/ Web-OPAC/No OPAC available

5. **While searching a document in the library did you use OPAC or not?**
Use OPAC/Not use OPAC.

6. **While searching documents/books/information, your preferences –**
 - a. **“Title of the book/doc/info” -**
Always/ Often/ Sometimes/Never

 - b. **Sub-title of the book/doc/info’ -**
Always/ Often/ Sometimes/Never

 - c. **Name of the author -**
Always/ Often/ Sometimes/Never

 - d. **Subject of the document**
Always/ Often/ Sometimes/Never

 - e. **Publisher details**
Always/ Often/ Sometimes/Never

 - f. **Classification No.**
Always/ Often/ Sometimes/Never

 - g. **Chapter names**
Always/ Often/ Sometimes/Never

 - h. **ISBN**
Always/ Often/ Sometimes/Never

7. **Do you prefer any other entities to search for books? If yes please specify (for example subject, publication date, etc.)**

8. **Do you think it would be more helpful for the libraries if they could add the chapter details to the catalog?**
