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Feasibility of Implementing a Metadata Service for Cataloguing in Tamil

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Abstract

This study examined the feasibility of introducing a metadata service for cataloguing records in Tamil. The main objective was to determine the potential benefits and challenges associated with this service. To achieve this, a survey methodology was employed to collect data and assess the feasibility of the metadata service. The results of the study indicate that a metadata service would be a valuable tool for cataloguing records in Tamil. However, the study also highlights technical difficulties, such as internet connectivity issues, that may present significant challenges in implementing the service. The study also identifies the need for computer literacy programmes for librarians before implementing the metadata service. Furthermore, the study concludes that the introduction of a metadata service is unlikely to reduce cataloguing time or the need for human resources. The study specifically offers valuable insights into the potential benefits and challenges that arise from the introduction of a metadata service in public libraries located in the Jaffna district.

Keywords: Metadata Service, Cooperative Cataloguing, Bibliographic Control, Copy Cataloguing

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Introduction

Library catalogues play a vital role in facilitating the efficient finding and accessing of library resources. As stated by Shin (2003), ensuring the accuracy and currency of catalogues is crucial. The cataloguing of library resources is done through two primary methods: original cataloguing and copy cataloguing, as highlighted by Charbonneau (1986).

Original cataloguing involves creating descriptions of information resources by examining their content and physical format. This method is typically employed for unique or rare items that lack pre-existing catalogue information. On the other hand, copy cataloguing entails searching for and copying existing catalogue information from a metadata service platform to the library system. It is commonly used for readily available resources that have already been catalogued. Effective copy cataloguing relies on a metadata service platform capable of storing data in the MARC format and communicating through the z39.50 protocol (Watry & Watry, 2009).

The MARC (Machine-Readable Cataloguing) format is widely adopted for storing bibliographic data electronically, offering the necessary fields and codes for bibliographic descriptions, as stated by the Network Development and MARC Standards Office (2020).

The z39.50 protocol serves as a standard communication protocol used for searching and retrieving information from databases. This protocol enables interoperability between metadata service platforms and library systems, facilitating efficient communication (Martins, Zagalo, & Pinto, 2002). Numerous metadata service platforms, including the Library of Congress and PUBCAT, provide copy cataloguing services through their search capabilities, allowing users to search for and copy relevant cataloguing information into their local catalogues (IRSpy, 2019).

Archiving information on a platform involves creating cataloguing information that provides descriptive and organizational details about the content being stored. To ensure consistency and accuracy in cataloguing information, the Programme for Cooperative Cataloguing (PCC) is utilized. This programme consists of cataloguing rules and standards applicable to

specific groups of libraries based on their type, region, and description language (John-Okeke, 2013).

Evaluating the effectiveness of a platform and its cataloguing information is essential. This evaluation includes assessing acceptance levels and identifying any issues that arise when a group of libraries attempts to utilise the platform. Feedback from librarians and users, functionality testing, and analysis of cataloguing information accuracy and completeness are part of this evaluation process (Hillmann, 2008).

Despite the increasing importance of metadata services in libraries, there is limited knowledge about the level of acceptance and potential issues associated with their implementation, particularly among library professionals at the University of Jaffna and public libraries in the Jaffna district. This lack of understanding hinders effective decision-making and resource allocation for the development and integration of metadata services in these libraries. Furthermore, the differences in perceptions among library professionals may present challenges in implementing and utilizing the metadata service to its full potential. Therefore, there is a need to investigate the level of acceptance and identify potential issues, on the effective implementation of metadata services in these libraries. By addressing these gaps in knowledge, this research aims to provide insights and recommendations for improving the adoption and utilization of metadata services in library settings, ultimately enhancing the efficiency and effectiveness of library operations and services.

Literature Review

Cooperative cataloguing practices and the evaluation of catalogue distribution systems have been extensively studied in the library and information science fields. Previous studies have explored various aspects of metadata service systems and cooperative cataloguing functions.

Several studies have explored various aspects of metadata service systems and cooperative cataloguing functions. Marias (2004) conducted a study focused on the significance of these systems in identifying the characteristics, principles, and objectives associated with copy cataloguing.

The empirical investigation conducted in this study revealed that the libraries chosen for the research faced challenges in generating original bibliographies. To address this issue, the study recommended the establishment of a central or consortium body responsible for producing bibliographies with comprehensive annotations. These annotations would be collectively agreed upon by the participating libraries within a specific region. Lunau and Turner (1997) summarized several significant issues that need resolution before implementing a centralized body for copy cataloguing. These issues include vendor stability, bibliographic data, and administration. Individuals should become metadata librarians to use a centralized system for cataloguing datasets. Examining the qualifications required for metadata librarians, Myung-Ja Han (2010) discussed the skills and expertise necessary for individuals to become metadata librarians. On the other hand, Schwartz (2011) studied the changes in attitude and skills experienced by librarians who transitioned from traditional to metadata cataloguing.

Several studies have focused on the preparation of mutually acceptable cataloguing data. One such study by El-Sherbini (2001) presented a methodology that rationalized the workflow of the union cataloguing system, leading to increased productivity. Additionally, Shieh, Summers, and Day (2002) summarized the cooperative organization of cataloguing data by libraries. They considered the internal working procedures of participating libraries and discussed the techniques used to annotate and load uniquely accepted records in the Virtual Library of Virginia (VIVA), which is used by statewide institutions in Virginia.

Several additional studies have focused on identifying the training requirements for implementing a metadata system. In a survey analysis of 165 Australian libraries conducted during a training programme, Philip Hider (2006) identified the necessity of systematic training programmes when introducing internet cataloguing systems. The analysis emphasized the significance of offering comprehensive training to guarantee the successful implementation and utilization of such systems.

Furthermore, researchers examined the metadata service system to assess its utilities and limitations. Lunau (1999) conducted a literature review on

evaluating metadata services and evaluated the virtual Canadian Union catalogue initiation (vCuc) based on feedback from participating libraries. While the vCuc distribution system was highly appreciated by most respondents, certain issues were raised, including inaccurate search results, insufficient item-level information, and delays in processing speed. In a related study, Wells (2001) provided insights into the automation status, updated heading types, and staff perceptions regarding improving copy-cataloguing. Philip Hider (2014) conducted a study on cataloguing practice using a standard distribution system for cataloguing datasets. The study revealed a significant demand for needed records and emphasized the importance of creating and archiving original records by experienced professionals, adhering to standards such as AACR II, MARC21, LCSH, and DDC. Warren (2007) analyzed cataloguers' views, perceptions, and attitudes in original cataloguing, metadata transcription, multitasking, quality and quantity differentiation, participation in professional courses, and modern changes in cataloguing. Wolverton (2005) surveyed 189 libraries to identify issues with the copy cataloguing system, providing insights into the questionnaire design for evaluating the system. Badalamenti (2004) conducted a case study of a shared authority control system connecting academic libraries and civic and provincial libraries in Tuscany, Italy.

Although the literature has extensively covered various aspects of metadata services, such as centralized systems, required skills and qualifications for metadata librarians, transitioning from traditional to metadata cataloguing, and the importance of systematic training programs for introducing internet cataloguing systems, no specific literature addressing the feasibility of using a metadata service for cataloguing by regional public libraries within the scope of this study has been identified.

Methodology

The research employed a survey methodology to evaluate a metadata service designed for cataloguing Tamil descriptors. The study developed a metadata service platform for the use of Public Libraries in the Jaffna district. This platform has made available 35,740 Tamil cataloguing records that have been thoroughly vetted for quality. The respondents were selected from these public libraries to evaluate the effectiveness of the platform. However, it was

found that many library professionals were only familiar with traditional cataloguing methods. On the other hand, the library professionals attached to the University of Jaffna had the most experience in preparing catalogues in modern contexts. These individuals, with their knowledge of modern cataloguing and research activities, were best suited to evaluate the system in the modern contexts relevant to the use of the platform by public libraries. Therefore, another group of library professionals attached to the University of Jaffna was also selected as the study population.

The Jaffna district comprises a total of 65 public libraries that operate under the authority of 17 Divisional Councils and one Municipal Council, offering various services to the community. There are 97 library professionals currently employed in the public libraries of the district, while 34 individuals are working in the library at the University of Jaffna. The study encompassed the entire population of 131 individuals, eliminating the need for sampling.

The participants received comprehensive training on the necessary knowledge and skills required to proficiently utilize the system, empowering them to make precise assessments regarding its effectiveness. To facilitate the assessment of the metadata service platform, a library system was customized to allow for the importing of records from the service platform, and respondents were granted access to the library system. Each record archived in the platform was assigned a unique control number between 1 and 35,740. Respondents were asked to search for a random control number within the same range and import the corresponding catalogue record to the library system. Finally, respondents were requested to record their evaluation in a questionnaire.

To evaluate the effectiveness of the metadata service platform, a set of questions was developed to reflect the measurements listed in Table 1. In addition to these questions, a separate set of questions was formulated to gather demographic information from respondents. This information encompassed details such as the type of library where they are employed, their designation, their highest qualification in library and information sciences, their level of proficiency in computer applications, and their experience in cataloguing library materials. This demographic data aimed to categorize the respondents and facilitate the prediction of inferences. The

level of acceptance of a metadata service and the potential issues associated with its use were determined through a set of distinct measurements (Table 1). These measurements were ranked on a 9-point Likert scale, ranging from 'not agreed' to 'most agreed'. The participants were then asked to provide their responses, which were used to calculate the mean values for each of the measurements.

Table 1: Description of the measurements

No	Description of the measurements (features)	Tags used in Table 4
1	The service is essential for public libraries	Importance
2	There are no difficulties in using the service	No Difficulties
3	The service can be introduced to public libraries for cataloguing	Introducible
4	The introduction of service to the public libraries will reduce cataloguing time	Reduce cat-time
5	The catalogue will be error-free when the public libraries absorb this service	Error-free
6	Full-level cataloguing will be maintained in the public libraries using this service	Full level cataloguing
7	The public readers in a region will get a standard search method and catalogue descriptions when this service is introduced to the public libraries	Searching
8	The requirement for human resources will be reduced when the libraries employ this service for preparing catalogues	Reduce human resources
9	Technical difficulties are not present in using this service	No technical difficulties
10	Basic computer literacy is adequate for the cataloguers to continue with the service	Basic literacy
11	This service becomes efficient in general	Efficient
12	The service becomes appropriate for the introduction to public libraries	Appropriate

A total of 115 respondents out of 131 participated in the study, with 34 from the University of Jaffna and 81 from public libraries in the Jaffna district.

The data collected through the questionnaire were analyzed using IBM SPSS Statistics 22. To ensure precise and meaningful inferences, respondents were grouped based on their experience and expertise.

The grouping was carried out based on specific criteria, with the first criterion being the type of library, as shown in the first row of Table 2. The respondents were divided into two groups: academic librarians (Group AL) and librarians or library professionals working in public libraries (Group PL).

The second criterion utilized to select respondents was based on their level of experience. Academic librarians at the University of Jaffna acquire experience through working in the library and conducting research within library-related fields. Conversely, library professionals in public libraries obtain experience solely through their work within the field. To ensure a fair and balanced representation of responses from these distinct groups, only academic librarians with three or more years of experience and library professionals in public libraries with six or more years of experience were selected as eligible respondents to evaluate the system.

Table 2: Criteria for grouping the respondents

	Group	
Criteria	**AL**	**PL**
Library	University of Jaffna	Public Libraries
Experience	More than three years	More than six years
Computer Literacy	Absoluteness/Expertise /Intermediate/initial	Absoluteness/Expertise /Intermediate/initial
Designation	Academic Librarians	Librarian
Qualification	PhD/MPhil/MSc/PGD/ HDLIS/DLIS	PGD/HDLIS/DLIS/DLIS L - II/DLIS L – I

To ensure a successful evaluation of the system, it was imperative that the selected respondents possess proficiency in IT. Hence, the third criterion for selection was computer literacy. Only respondents who displayed an acceptable level of computer literacy, namely proficiency, expertise, intermediate, or basic (excluding those in the poor level category), were deemed eligible participants (Table 2). By selecting respondents who met

this criterion, the study aimed to ensure that the evaluations were conducted by individuals who were well-equipped to assess the system accurately and efficiently.

To provide a more nuanced understanding of the respondents, their designation and highest qualification in library and information sciences were also taken into account and used as criteria for grouping them (Table 2).

Based on the selection criteria, the respondents were divided into three groups: Public Librarians (PL), Academic Librarians (AL), and others. Those who did not meet the criteria set for either PL or AL were classified as "others".

Results & Discussion

A total of 115 responses were obtained from the questionnaire, representing 100% of the library professionals working at the University of Jaffna and 84% of public libraries in the Jaffna district. To achieve a 95% confidence level with a 5% margin of error, the required minimum sample size for the total population of 131 is 98. The collected responses (n=115) exceed the minimum sample size required for the study, ensuring a good confidence level in the findings. Table 3 displays the distribution of respondents in each group (PL, AL, and Others).

Table 3: Distribution of informants in each group

Group	Informants	
	Count	Per cent
PL	44	38.3
AL	12	10.4
Others	59	51.3
Total	**115**	**100**

To determine the level of acceptance of a metadata service, the study used 12 distinct variables as shown in Table 1. Additionally, a reliability test was conducted to measure the internal consistency of these variables and determine how closely related they are as a group. According to the

reliability statistics, a reliability coefficient of 0.7 or higher is required to accept the measurements as having internal consistency. The value of Cronbach's alpha was found to be 0.757 for the 12 distinct measurements made in the study, indicating an acceptable level of internal consistency. Therefore, all measurements were considered for the analysis.

The participants were asked to provide their responses on a 9-point Likert scale, which was used to calculate the mean values for each of the measurements. The results of these calculations, which were performed separately for each group, can be found in Table 4.

Table 4: Mean values of responses recorded by each group

		Group			
No	**Feature**	**PL**	**AL**	**Others**	**All**
1	Importance	8.73	8.58	8.85	8.77
2	No Difficulties	7.68	7.83	7.76	7.74
3	Introducible	8.09	8.67	8.22	8.22
4	Reduce cat-time	7.91	8.25	8.46	8.23
5	Error-free	8.16	8.5	8.12	8.17
6	Full level cataloguing	8.52	8.42	8.64	8.57
7	Searching	8.43	8.67	8.59	8.54
8	Reduce manpower	7.66	8.17	8.27	8.03
9	No technical difficulties	6.86	7.67	6.88	6.96
10	Basic literacy	5.95	8.25	7.68	7.08
11	Efficient	8.25	8.58	8.47	8.4
12	Appropriate	8.7	8.58	8.63	8.65

To evaluate the level of acceptance of the service, two different approaches were taken. The first approach involved evaluating the measurements made by groups PL and AL. The second approach involved considering the assessments made by all informants, regardless of their grouping, which is represented in the "All" column of Table 4.

To ensure a comprehensive evaluation, the assessments made by informants without grouping were also taken into consideration. This allowed for a comparison of the evaluations with those made by the formulated groups.

However, it's worth noting that the measurements made by the "other" group were not considered in this study as they did not meet the qualifications for assessment.

Table 4 presents the mean values of responses recorded by groups PL and AL on the 9-point Likert scale, as well as the mean values of responses from the total population (irrespective of their grouping) in the last column. It is notable that all 12 features received significantly higher valuations than the midpoint of the 9-point Likert scale (5), regardless of whether grouping was considered or not.

This indicates that the stakeholders have a positive overall acceptance of the service. The fact that all features received valuations above the midpoint indicates that the service is performing well and meeting the needs of its users.

When considering both the grouping and the total population, seven features (numbered 1, 3, 5, 6, 7, 11, and 12) received mean values on the scale that were greater than 8. This indicates that these features were highly valued by the stakeholders and that they were accepted with great satisfaction.

The most satisfying seven features are:

1. The service is essential for public libraries.
2. The service can be introduced for public libraries for cataloguing.
3. The catalogue will be error-free when the public libraries absorb metadata services for cataloguing.
4. The full-level cataloguing will be maintained in the public libraries by the application of this service.
5. The public readers in a region will get a common search method and catalogue descriptions when this service is introduced to the public libraries existing in the same region.
6. The service will become efficient in general.
7. The service becomes appropriate for the introduction to public libraries.

In addition, when considering the measurements made by Groups AL and PL, two other features (numbered 4 and 8) were valued with a scale value

that was more and less significant than 8, respectively. According to Group AL, the introduction of the metadata service would significantly reduce the time required for cataloguing and the need for human resources. However, group PL's assessment included some remarks indicating that there are still a few duties that need to be completed even after employing this service.

These findings are noteworthy as they highlight some discrepancies in the perceptions of the two groups regarding the potential impact of the metadata service. While both groups agree that the service provides value, there are differences in their opinions regarding the extent of the benefits.

Feature 2, which pertains to the ease of using the service, received a value of no less than 7.68, regardless of grouping. This high evaluation suggests that copy cataloguing for Tamil records is a feasible task, even though Tamil records are an unfamiliar collection for copy cataloguing. This finding is significant as it indicates that the metadata service is effective in facilitating the cataloguing process for Tamil records, despite potential language or format barriers.

The stakeholders provided feedback on the evaluation, noting that internet connection breakdowns could present a challenge for metadata service applications. This observation is reflected in feature 9, which pertains to the absence of technical difficulties when using the service. Remarkably, feature 9 received the lowest scale value compared to the measurements made for other features, regardless of grouping (as shown in the "All" column of Table 4). This finding suggests that stakeholders perceive technical difficulties as a potential limitation of the service and highlights the importance of ensuring that the service is reliable and resilient.

Table 5: Percentage of computer literacy for group PL and AL

Computer Literacy	Group	
	PL	AL
Absoluteness / Expertise	18	58
Intermediate / Normal	82	42

One noteworthy observation from the assessment was made by the informants from the Public Libraries Group (PL). They reported that the cataloguers' basic computer literacy was not adequate to handle and use the system for cataloguing. As a result, the PL group assessed feature 10, which pertains to the adequacy of basic computer literacy for cataloguers to continue with the service, with a low scale value of 5.95 compared to other features. In contrast, the AL group valued the same feature highly, with a scale value of 8.25. It's important to note that the computer literacy level of the PL group is significantly lower than that of the AL group, as shown in Table 5. Therefore, it is essential to conduct computer literacy programmes for the librarians working in public libraries before introducing the service to them. As stated by Olorunfemi, Olorunfemi, Adebayo, Letsoalo, and Modirwa (2019), the training programmes are designed to improve the proficiency of individuals in delivering information and advisory services. Hence, this training will equip them with the necessary skills to handle and use the system for cataloguing effectively.

Conclusion

The study examined the features and services provided by a metadata service for cataloguing Tamil collections and found it to be an essential and appropriate tool for public libraries.

By adopting this system, public libraries can produce error-free catalogues, enabling readers to retrieve information easily. Overall, library professionals have found the service to be efficient, although certain challenges must be addressed before implementation. Specifically, the study revealed that technical difficulties such as breakdowns in internet connections would be a challenge for metadata service applications, and computer literacy programmes should be undertaken for librarians working in public libraries before introducing the service to them. The programme will serve to impart necessary skills and knowledge to library professionals, especially in working with library information systems and metadata services. It is important to note that the introduction of a metadata service will not significantly reduce cataloguing time or the need for human resources, as other processes are involved in completing cataloguing tasks.

Based on the findings of the study, it was recommended that a metadata service be introduced to public libraries in the Jaffna district, along with a cooperative cataloguing system to facilitate the creation of standard cataloguing records. It is recommended that the impact of the metadata service be evaluated in the future after the system has been deployed for a significant period of copy cataloguing. This will enable a comparison of the current findings with the future effectiveness of the metadata service.

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