Task-Based Evaluation of a GPT-4 'Dewey Decoder' Tool for Dewey Decimal Classification in Academic Libraries in Sri Lanka

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Abstract

This study evaluates an AI-powered Dewey Decimal Classification assistant the Dewey Decoder, a custom tool built on OpenAI GPT-4 for its effectiveness in academic libraries. A task-based experiment involved 61 purposively selected Sri Lankan university librarians who classified sample resources using the Dewey Decoder and their normal manual workflow. Data were gathered on (a) accuracy (agreement with an expert gold standard), (b) efficiency (time per classification task), and (c) usability (5-point Likert survey and open-ended feedback). Results show the Dewey Decoder achieved a mean accuracy rating of 4.32 / 5, correctly identifying broad classes in 93 % of cases while revealing occasional errors with nuanced or culturally specific works. Eighty-five per cent of participants reported time savings; 69 % completed each classification in under three minutes, compared with over five minutes manually. Usability was rated 4.52 / 5, with participants praising the tool's step-by-step guidance but noting limits on Sinhala/Tamil support and the five-query cap in free GPT-4 accounts. Although purposive sampling ensured expert input, it constrains generalisability beyond similar academic settings. Overall, findings indicate that GPT-4-driven assistants can substantially enhance cataloguing speed and consistency, provided language coverage and integration with library systems are improved. Future research should test the tool across more diverse collections and librarian populations to validate these gains.

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Introduction

Background

The widely used library classification system in the world is the Dewey Decimal Classification (DDC) system developed by Melvil Dewey in 1876. This hierarchical structure enables library classifiers to categorise various topics, providing a consistent framework for organizing and accessing library materials (Desale & Kumbhar, 2013). It aids patrons in locating and retrieving information efficiently through the systematically organised library materials. (Tóth, 2002). Despite these advantages, its application is slightly complex due to increasing volumes of information resources and numerous changes in frequent editions. Therefore, awareness of current changes and expertise are necessary for library classification.

The hierarchical structure of the DDC is developed on a numerical basis. Ten main classes accommodate broader disciplines, and each of them is subdivided into specific subject areas or topics. Demand for library classification increases as the library grows, especially as the collection matures with diversified subjects. (Wang, 2009). However, a numerical classification system like DDC can be challenging if the library materials are highly specialised or their subject specifications are not well defined in the existing DDC edition. Moreover, DDC requires regular updates as the knowledge expands frequently. However, the updates are also incapable of fulfilling regional or cultural needs, further complicating the classification process in a globalized context. (Yang, 2024).

Problem Statement

Efficient decoding and applying DDC in libraries are challenging for classification professionals, particularly in academic libraries. Classifying library materials in multiple subject areas or disciplines is time-consuming, and expertise is required due to the hierarchical and detailed nature of the DDC system. Librarians must make complex decisions based on the contents of conventional manual classification practices, which can lead to inconsistencies and delays. Furthermore, it can affect the user experience and classification accuracy. (Pong et al., 2008). These issues are escalated due to the increasing volume of materials in academic libraries. However, libraries demand solutions without compromising accuracy. (Wagstaff & Liu, 2018) Of the classification process.

Introduction to Dewey Decoder

The "Dewey Decoder" developed with OpenAI's ChatGPT-4 gives a real-time classification experience using the 23rd edition of the DDC. It assists the classifier through a logical, step-by-step process. Once the command was given to "Initiate Dewey Decoder", it identified the main subject among DDC classes (000-900) of the given material. Then, it finds the specific subdivisions within the initial class.

The system addresses major challenging tasks in classification, such as providing index and additional table numbers, especially for interdisciplinary or highly specialised subjects. Similarly, the system supports verifying the manually built class numbers.

Research Objectives

The key objective of this study was to evaluate the functionality of the "Dewey Decoder" in the classification divisions of state universities in Sri Lanka. The accuracy, efficiency, usability, practical benefits and limitations of using a custom GPT-powered tool for library classification were examined in the academic setting.

Literature Review

Overview of DDC and Classification Challenges

DDC system has many challenges despite its popularity and historical importance. It seeks expertise to classify items, especially for interdisciplinary or emerging subjects. (Wang, 2009). Especially in academic libraries, precise classification is essential, though it is time-consuming. The growing collection creates complexity and seeks efficient classification management. Thereby, classifiers look for modern approaches to streamline the process. (Bachelor of Library and Information Sciences, 2023). In addition, librarians seek responsive tools to address unique cultural or regional needs. However, manual classification fails to handle these specialised demands efficiently, emphasising the importance of AI-based solutions to overcome these challenges. (Adetayo, 2021).

AI in Libraries

Rapidly spreading artificial intelligence (AI) has reshaped academic settings with AI chatbots, such as those powered by OpenAI's ChatGPT for library processes, such as 24/7 classification and knowledge management assistance. (Rahman et al., 2025). Providing humanised responses and handling repetitive tasks enables librarians to engage in other intellectual works and higher-

level support services. For example, Artificial Intelligence and Graph Computing (AIGC) automate operations such as classification. (Xiaocheng, 2023).

The use of AI not only gives efficiency but also enhances user experience. Research findings elaborate on the delivery of timely responses, diverse linguistic needs, and access to resources beyond operating hours. (Lappalainen & Narayanan, 2023).

Contextual understanding and accuracy are critical in classification and knowledge management. Therefore, AI tools are subjected to their improvements as they mature. This has become a good sign for libraries to adopt AI as a key supporting system for modern libraries. (Cox, 2023).

The Gap in Current Solutions

Due to predefined knowledge bases, the Effectiveness and adaptability of existing AI solutions for DDC classification are uncertain. (Panda et al., 2024). In contrast, expanding collections and increasingly diverse materials require real-time, context-sensitive DDC classification. (Xiaocheng, 2023).

The "Dewey Decoder" aimed to fill these gaps and overcome the complexities in an organised and interactive manner. Unlike standard chatbots, these designs better manage the intricate, hierarchical structure of the DDC and meet specific classification requirements. (Gamage & Wanigasooriya, 2024). However, the availability of empirical studies on custom AI models for library classification seem scarce, stressing the necessity of further research on their advantages in real-world scenarios.

Building on the growing body of research that explores automation in library workflows, scholars have investigated both rule-based and machine-learning approaches to Dewey Decimal Classification (DDC), highlighting persistent trade-offs between speed and accuracy (Pong et al., 2008; Wang, 2009). More recently, studies on generative AI in library contexts have underscored its promise yet noted unresolved concerns around reliability and user interaction (Cox, 2023; Houston & Corrado, 2023; Panda et al., 2024). Of particular relevance, Illangarathne (2023) compared an OpenAI language-model prototype with human cataloguers and reported only moderate performance (F1 $\approx$ 0.53) relative to expert consistency, emphasizing that current AI still falls short of human accuracy in assigning DDC numbers (Illangarathne, 2023). These findings collectively reveal two gaps: (a) few evaluations

incorporate real-world task settings that capture librarians' workflow and usability needs, and (b) the potential of more advanced models such as GPT-4 to narrow the accuracy gap remains under-examined. Addressing these gaps, the present study tests a custom GPT-4–driven *Dewey Decoder* in a task-based scenario with university librarians, assessing not only classification accuracy but also efficiency gains and user experience, thereby extending prior work from purely algorithmic benchmarks to holistic, practice-oriented evaluation.

Role of Custom GPT Models in Library Classification

Custom GPT models are fine-tuned versions of OpenAI's GPT architecture that incorporate domain-specific data or instructions to perform specialized tasks—such as tailored text generation, classification, or conversational support—more accurately than the general model. Custom GPT models have re-engineered library classification, providing step-by-step guidelines for subject identification, number formation, and indexing consultation. This enables streamlined workflow, accuracy and efficiency in complex and interdisciplinary subject classification. (Lappalainen & Narayanan, 2023).

The structured sequence of classification steps enhances consistency. It lightens the cognitive load on librarians by combining automated suggestions and professional judgment for accurate classifications. (Rahman et al., 2025). The initial success of models like the "Dewey Decoder" seeks further research to evaluate the full potential of these models to improve library services.

In summary, while prior studies have evaluated automatic classification accuracy and noted AI's potential (and limits) in DDC assignment, none have examined a tool like the Dewey Decoder in a task-based user scenario. This study fills that gap by focusing on real-world librarian interactions with an AI-driven classification tool, evaluating not only accuracy but also the tool's impact on workflow efficiency and user satisfaction.

Methodology

Custom GPT Model (Dewey Decoder)

Custom GPT-based "Dewey Decoder" facilitates accurate classification using DDC 23rd edition. Classifiers are guided through a sequence of logically organised steps as OpenAI's advanced language processing capabilities simplify DDC decoding. The steps are direct for subject identification, number formation refining with table numbers where necessary, and

indexing consultation. This supports lightening the inherent complexity, especially when classifying multiple subject materials. (Rahman et al., 2025).

The model incorporated datasets specific to library science and classification to ensure relevance and accuracy. The model provides recommendations optimised for academic settings based on typical library workflows and subject hierarchies using reinforcement learning from human feedback (RLHF) (Xiaocheng, 2023). Additional adjustments improved the contextual understanding of interdisciplinary subjects and materials discussing new fields or region-specific studies. (Lappalainen & Narayanan, 2023).

Participant Selection

Sixty-one academic librarians were purposively selected from state universities in Sri Lanka, considering their familiarity and experiences with DDC practices. Selection criteria were a minimum 3-year experience in the classification division, ensuring participants had a solid foundation in library classification principles. In addition, basic digital literacy and willingness to use AI models to interact effectively with the Dewey Decoder interface are required. This purposive selection was to yield reliable feedback on its performance, usability, and potential limitations.

Task-Based Evaluation Framework

Participants completed tasks to reflect library workflows to assess the "Dewey Decoder", as given below.

1. Decoding DDC Numbers: Participants were supposed to determine the correct DDC numbers using the Dewey Decoder for the sample library materials to check its ability to guide classifiers in identifying and applying appropriate classifications.
2. Classifying New Acquisitions: Librarians had to use the model to classify newly acquired materials across diversified subjects, reflecting the dynamic and varied nature of academic collections
3. Verifying Existing Catalog Entries: Participants reviewed existing DDC classification numbers given to the existing collection to confirm or update the accuracy of these classifications, addressing a common challenge in library maintenance

Accordingly, the overall functionality of the model was assessed in terms of various aspects of DDC classification that librarians encounter in their daily workflows.

Data Collection

Focus was given to 03 core metrics: accuracy, efficiency, and usability. Accuracy was verified by comparing the numbers built manually with the Dewey Decoder classifications. It tracked how often the tool suggested the correct or most appropriate classification number.

Quantitative and qualitative methods were used to evaluate usability through a semi-structured questionnaire. Participants rated the model's convenience, functionality, and relevance to their classification needs in the survey. They shared their insights, experiences, preferences, and challenges through the interview. These insights were helpful in refining and optimising the tool to cater to academic librarians' distinct needs. These three metrics were combined to evaluate the impact of the Dewey Decoder, offering empirical data and user perspectives to inform future enhancements.

Results

Accuracy of Dewey Decoder

Correct identification of the main subject and suggestions for the most appropriate DDC numbers for the library materials were expected. Accuracy was verified by comparing system-defined numbers with manual numbers.

The tool achieved an average accuracy rating of 4.32 out of 5, indicating that participants generally found the classifications it generated relevant and dependable. The Broad Classification step—which determines the general subject area—received a slightly higher average rating of 4.33, reflecting strong alignment with librarians' expectations. However, the Further Breakdown step, which is intended to refine the classification into more specific subcategories, scored a lower 3.97, suggesting that while helpful, this feature could be improved to offer greater precision. Some participants also reported that the tool's index consultation was not comprehensive enough, particularly when handling nuanced or interdisciplinary topics. The study results show that the Dewey Decoder maintains good accuracy for standard classification work, yet loses precision when processing culturally distinct material or elaborate content domains; this leads to the necessity of advancing the classification algorithms with native cultural understanding.

Table 1: Accuracy of Dewey Decoder

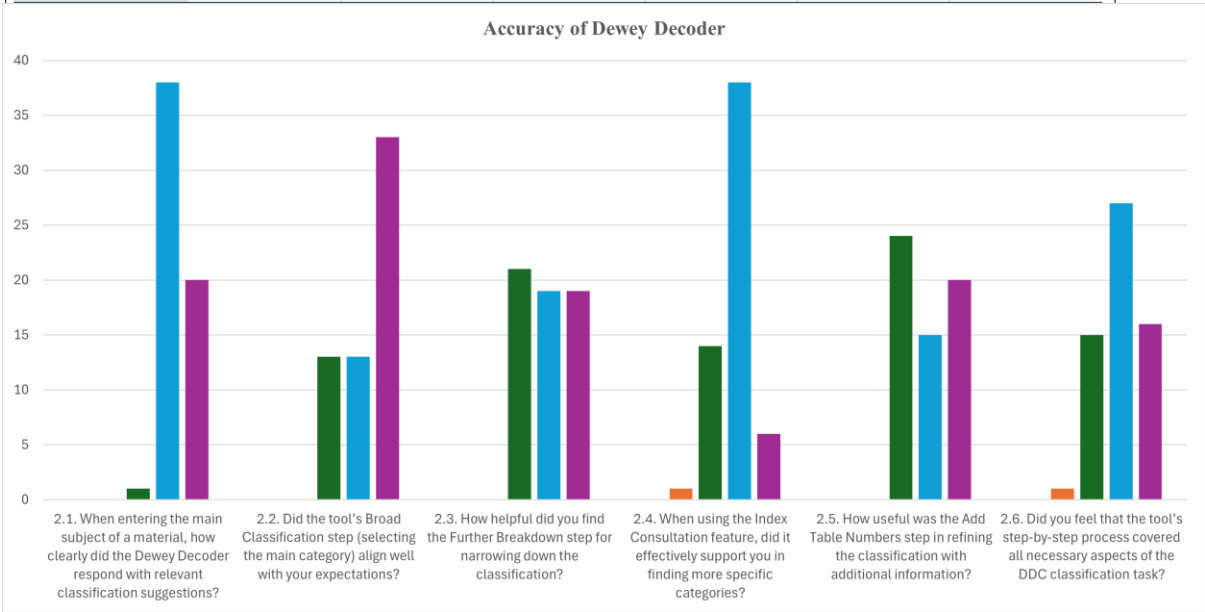|		2.1. When entering the main subject of a material, how clearly did the Dewey Decoder respond with relevant classification suggestions?	2.2. Did the tool's Broad Classification step (selecting the main category) align well with your expectations?	2.3. How helpful did you find the Further Breakdown step for narrowing down the classification?	2.4. When using the Index Consultation feature, did it effectively support you in finding more specific categories?	2.5. How useful was the Add Table Numbers step in refining the classification with additional information?	2.6. Did you feel that the tool's step-by-step process covered all necessary aspects of the DDC classification task?
		Statistics					
N	Valid	59	59	59	59	59	59
	Missing	2	2	2	2	2	2
Mean		4.32	4.34	3.97	3.83	3.93	3.98
Std. Deviation		.507	.822	.830	.620	.868	.777
Minimum		3	3	3	2	3	2
Maximum		5	5	5	5	5	5

Figure 1: Clarity of Dewey Decoder in suggesting the main subjects

Efficiency in Classification

Dewey Decoder efficiency assessment involved determining how long users needed to use this tool compared to traditional manual classifications. A majority of participants 80%, who utilised the Dewey Decoder experienced significant workflow improvements because they reported achieving time-saving efficiency in their work. The tool improved time efficiency according to all users except one, who observed no change in efficiency levels.

The study revealed that 39% of participants (25 respondents) used 1 to 3 minutes for classification work, but 30% (19 respondents) finished classifying before one minute. Three to

five minutes became necessary for task completion among 20% of participants (13 professionals), while a single user needed over five minutes for the assignment. The Dewey Decoder is an efficient time-saver for DDC classification tasks because it provides step-by-step assistance that traditionally requires extensive time allocations.

The programmed structure of the tool speeds up operations while clearing decision pathways, which specifically benefits librarians working in intensive cataloguing environments. The Dewey Decoder is a powerful tool that enhances project efficiency while creating productivity gains for academic library classification work.

Table 2: Efficiency in Classification – On average, how long did it take you to complete a classification using the Dewey Decoder

3.1. On average, how long did it take you to complete a classification using the Dewey Decoder?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 minutes	28	45.9	45.9	45.9
	3-5 minutes	13	21.3	21.3	67.2
	Less than 1 minute	19	31.1	31.1	98.4
	More than 5 minutes	1	1.6	1.6	100.0
	Total	61	100.0	100.0	

Table 3: Efficiency in Classification: How would you rate the overall time savings when using the Dewey Decoder compared to traditional methods

3.2. How would you rate the overall time savings when using the Dewey Decoder compared to traditional methods?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	3.3	3.3	3.3
	Moderate time saved	22	36.1	36.1	39.3
	Significant time saved	37	60.7	60.7	100.0
	Total	61	100.0	100.0	

Table 4: Efficiency in Classification: With the ChatGPT free account limit of five users per day, were you able to complete all intended tasks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	3.3	3.3	3.3
	done only few examples	21	34.4	34.4	37.7
	i just used multiple accounts signed up to tool and it helped me a lot	1	1.6	1.6	39.3
	No, I needed additional uses	18	29.5	29.5	68.9
	Yes, the limit was sufficient	19	31.1	31.1	100.0
	Total	61	100.0	100.0	

3.3. With the ChatGPT free account limit of five uses per day, were you able to complete all intended tasks?

Usability and Librarian Feedback

Participants appreciated the Dewey Decoder tool's user-friendly layout and functional elements that helped their workflow classification tasks. Users evaluated the tool as user-friendly because it received an overall rating of 4.52 out of 5 for accessibility. Participants showed high intentions to include the tool in their regular cataloguing work since they evaluated its potential use at 4.14 points out of 5.

The main features distinguished themselves as being extremely beneficial to users. The tool supported librarians through its subject identification functionality for classification initiation with specific focus points while providing broad classification recommendations against main DDC categories and advanced detail classification systems and providing index consultation for complex subjects and the addition of table numbers to enhance classification refinement. The system features combined to make the DDC system more efficient and made participants feel more confident in their use of it.

The users who gave positive responses also noted several difficulties with their experience. Integrating Sinhala and Tamil language support in the classification system received recurring recommendations from participants since it would enhance the accuracy and accessibility of Sri Lankan collections. Many participants expressed concern about the ChatGPT free account's

daily usage restriction of five requests despite finding it useful for their work. While performing indexes, the system proved to be less beneficial for detailed classification tasks, according to some librarians.

The study participants recommended multiple improvements to answer the identified concerns. The recommendations focused on enhancing indexing processes to provide improved classification suggestions while improving logical analysis capabilities for complex DDC notations and building up the number of available free daily uses to maintain continuous workflows. Library personnel required better documentation and user guidance to unlock all possible functions within the tool. The feedback confirms Dewey Decoder's reliable usability and worth as a classification tool and recommends improvements that enhance its functionality for various academic libraries.

Discussion

The research findings are examined within this section through their connection to both research targets and existing AI-assisted library classification studies. The Dewey Decoder provides beneficial effects for classifier efficiency while improving accuracy levels, offering academic librarians the support they need for their Dewey Decimal Classification work. However, the tool demonstrates substantial time-saving benefits and workload reduction, yet it suffers from two main drawbacks: indexing capability and language support. These issues create opportunities for increased development potential.

Impact on Academic Librarians

The Dewey Decoder system increases librarian productivity and classification precision in schools, emphasising accuracy within their organisational structure. The librarians evaluated the tool as highly effective in material identification and classification tasks at a 4.32 out of 5 accuracy level. The Broad Classification stage of use received a high rating of 4.33 out of 5, demonstrating that the tool matches conventional DDC classification standards. Productivity increased dramatically because the tool decreased the necessary time for classification tasks. Most 85% of respondents noted considerable time efficiency improvements based on feedback, and 69% finished their classification work within three minutes. The tool enables librarians to use their extra time for essential duties, including information retrieval support and catalogue maintenance. The tool provides step-by-step instructions that reduce mental workload, helping

novice and experienced librarians to complete classification tasks accurately. Research findings show that AI tools used in library science make operations more efficient by handling repetitive tasks (Rahman et al., 2025). Implementing AI for classification parallelises the growing implementation of AI-based cataloguing assistants, which can lower error numbers and develop universal naming consistency among large library systems (Xiaocheng</p>, 2023).

Addressing Classification Challenges

The research investigated particular manual classification hurdles that academic librarians face during their work with interdisciplinary items and their need to verify DDC numbers and achieve consistent cataloguing methods. These problems are resolved through the Dewey Decoder, which provides step-by-step guidance for librarians to improve their classification decisions.

The manual classification of complex subject matters is a significant challenge in library research because specific topics require knowledge across multiple educational domains (Lappalainen & Narayanan, 2023). The Dewey Decoder helps reduce this problem, yet users have suggested that better index systems would make it more useful. The participants noted that the tool occasionally provided suboptimal classifications for Madol Duwa and other literary works, so further development of the literary-based classification logic remains necessary.

The tool solves problems related to short-time availability. Manual classification forces users to consult DDC manuals extensively, resulting in non-uniform classification results among various cataloguing personnel. The Dewey Decoder automates both recommendation systems and classification processes to standardise the cataloguing process, thus reducing inconsistencies among cataloguers. The five-free-use-per-day restriction of ChatGPT presented itself as a challenge for high-volume classification workloads.

Comparison with Traditional Methods

The research shows that the Dewey Decoder produces superior outcomes to manual methods for classifying items because of higher speeds, consistency, and better user satisfaction. Accurately classifying one item with the DDC system through manual methods demands prolonged inspection of schedules and indexes followed by verification, which takes 5-10 minutes each (Cox, 2023). Analysis by the Dewey Decoder helped librarians finish their

classification work in less than three minutes, thus achieving a minimum of fifty percent faster results than manual methods (69% success rate).

The AI system helped increase the reliability of assigned categories and provided speed enhancement. Librarians depend on their expertise when conducting manual classification, but the Dewey Decoder maintains consistency through predefined classification methods. Research indicates that automated tools provided through AI decrease human mistakes in cataloguing by implementing controlled procedural methods.(Adetayo, 2021).

Manual classification retains superiority over automated methods regarding materials needing specialised interpretation and knowledge, especially regional historical or language-based materials. The existing inability of the tool to work with Sinhala and Tamil languages prevented the effective classification of local materials, which could have been handled more easily through traditional classification workflows.

The Dewey Decoder enhances operational efficiency and consistency, but its effectiveness will receive better results through better indexing, extended language integration, and unrestricted employee usage for library professionals. Due to active improvements, AI-based classification tools can adopt traditional cataloguing methods in most routine tasks.

Challenges and Limitations

While the Dewey Decoder has demonstrated significant benefits in improving efficiency and accuracy in DDC classification, several challenges and limitations were identified during the study. These challenges fall into two main categories: language and contextual limitations and technical limitations. Addressing these issues will further refine the tool and ensure its widespread usability in academic libraries.

Language and Contextual Challenges

During the study, researchers discovered multiple limitations that restricted the effectiveness of the Dewey Decoder in enhancing precision and speed for DDC classification system use. The tool faces obstacles between language and context-based issues and technical issues. These issues demand resolution to improve the tool for broad academic library adoption.

Academic library workers faced the primary obstacle of not being able to receive help from speakers of Sinhala and Tamil despite those languages being prevalent in Sri Lankan institutions. The Dewey Decoder system operates in English, preventing librarians working with local cultural materials from accurately assigning classifications. The tool presented difficulties in classifying materials from local Sri Lankan academia because it mishandled unique regional literature, historical documents and disciplinary subject matters that required human verification.

A participant explained how Dewey Decoder chose the DDC number 894.83 for Madol Duwa despite its incorrect classification for Sri Lankan use. The conflicting situation demonstrates how AI-tool adaptability faces limitations in multilingual and culturally diverse classification scenarios, specifically during non-English and folk literature classification tasks.

Subject area terminology will differ between cultural and academic settings, leading to incorrect interpretations of subject classifications by the Dewey Decoder. The system's structured instructions do not include regional classification preference options, leading to cataloguing inconsistency. Local training datasets combined with customisable parameters should become available to librarians because this would let them customise the tool according to their institution's needs.

Technical Limitations

The participants pointed out that the Dewey Decoder had trouble dealing with advanced DDC notations and complex classification needs. The tool functions well when dealing with basic organisational schemes yet faces difficulties when handling complex, specialised materials, which need an in-depth understanding of number-building principles and hierarchies.

Index consultation proved insufficient to professionals due to problems when classifying multidisciplinary books which span multiple subject fields. Manual adjustments became necessary when the Dewey Decoder supplied rigorous and too broad classifications because it lacked human judgment skills for dealing with classification details.

Users experienced difficulties because the free account from ChatGPT only allowed a maximum of five queries per day. The five-use-per-day allowance prevented librarians from optimally incorporating the classification tool into their daily work responsibilities, mainly in organisations with large cataloguing operations. Several participants solved the five-use-per-

day limit through secondary account creation, though such measures cannot be sustained in standardised institutional settings. The tool will gain better acceptance in academic libraries for widespread implementation if unlimited use becomes possible at the institutional level.

Additional work needs to be done to achieve proper technical interface capability between Dewey Decoder and current library management systems. The Dewey Decoder alone exists as a tool that requires librarians to copy classification numbers manually before placing them into their library catalogue systems. API integration between the library software and Dewey Decoder would improve functionality through automatic classification number updates to digital catalogues, removing additional manual work.

Conclusion

Summary of Findings

The findings of this study confirm that the Dewey Decoder is an effective AI-powered tool for assisting academic librarians with Dewey Decimal Classification (DDC) tasks. It performed strongly in accuracy, efficiency, and usability. The tool achieved an average accuracy rating of 4.32 out of 5, excelling particularly in the broad classification step. However, challenges remain in handling complex, interdisciplinary, or culturally specific subjects, highlighting the need for further refinement in index consultation.

Regarding efficiency, 69% of participants completed classification tasks in under three minutes, with over 85% reporting notable time savings compared to manual methods, demonstrating the tool's potential to streamline cataloguing workflows. Usability was rated highly at 4.52 out of 5, with users praising its guided process and helpful features. Nevertheless, limitations such as the lack of Sinhala and Tamil support and usage restrictions on the ChatGPT platform could hinder broader adoption in high-demand environments. Overall, the Dewey Decoder shows great promise in enhancing library classification practices while identifying key areas for future improvement.

Implications for Library Science

Integrating artificial intelligence (AI) into library classification workflows significantly advances modernising academic library operations. Tools like the Dewey Decoder streamline cataloguing by offering real-time, structured guidance that enhances efficiency and

consistency. By minimising subjectivity through standardised decision pathways, the tool supports accurate resource organisation, crucial for academic resource discovery. Its step-by-step interface also serves as a training aid for less experienced librarians, promoting consistency and accelerating professional development across teams.

The Dewey Decoder's potential for integration with Library Management Systems (LMS) opens doors to automated metadata generation, batch processing, and fully streamlined classification workflows. However, broader adoption hinges on addressing key limitations such as the need for multilingual support, better handling of complex or interdisciplinary topics, and improved subject indexing. Meeting these challenges will ensure that AI tools like the Dewey Decoder are efficient, scalable, equitable, and contextually adaptable in diverse library environments.

Future Research and Enhancements

Technical improvements must be applied to the Dewey Decoder to achieve maximum utility alongside broader acceptance in academic institutions implementing the Dewey Decimal Classification system. The Dewey Decoder's future development must expand its linguistic and technical features to adapt to multilingual library environments. Fundamental improvements to these areas will guarantee that the tool stays important and functional when cataloguing practices transform. The tool needs substantial improvements for multilingual functionality focused on serving institutions that do not operate in English. The tool would become more beneficial for Sri Lankan libraries when it incorporates Sinhala and Tamil languages to improve local and culturally precise material classification. The tool's ability to process complex interdisciplinary subjects should be enhanced through better index consultation and DDC number-building logic, extending its functionality towards advanced cataloguing requirements. Correct resource classification in academic libraries largely depends on improving classification system accuracy for detailed material grouping. Accessibility and integration also warrant attention. The practical application of the Free ChatGPT service is limited by its usage restrictions, which could be addressed by establishing premium subscription options for institutions. Strength and efficiency in workflows would exponentially grow through the integration of Dewey Decoder APIs with Library Management Systems for batch processing integration. Future studies must analyse the effects of AI-powered classification systems on operational efficiency, data quality, and employee performance to create the best standards that

assist institutions in optimising their adoption of AI technologies for academic library applications.

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