Evaluation of e-DDC Usage Among University Libraries in Bali

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ABSTRACT

This study examined how librarians at university libraries in Bali used e-DDC. This objective of the study was to ascertain how often e-DDC is used among university libraries and what factors affect that utilization. This study used a descriptive quantitative approach. All members of the library staff or librarians who had utilized e-DDC at university libraries in Bali made up the population and samples used in this study. Total sampling was the chosen sample method. The data were obtained through questionnaires, observations, and interviews. The findings of this study demonstrated that the library personnel preferred using printed DDC over electronic ones. As a result, they do not profit fully from using e-DDC. This was due to the fact that the information in printed DDC is more comprehensive than that in electronic form, making e-DDC utilization less than ideal. External factors like user training, accessibility, term clarity, and convenience of use affected how e-DDC was used. The DDC system must be re-maximized (upgraded) as a result, and the librarian or other library personnel must also be more receptive and adaptable to the current system in the library. The main purpose of using e-DDC is to make it simpler for users to find the needed classification numbers and to improve the processing section's productivity.

Keywords: Classification; e-DDC

1. INTRODUCTION

As an educational institution that uses a variety of information sources to support the teaching and learning process, higher education is one area where the rapid proliferation of information has an impact. The quantity and variety of collections in a library are impacted by the need for and expansion of information. The library must pay special attention to carrying out work including classification activities as an information manager. The library is starting with this effort to organize various forms of the information therein. Library classification is part of the field of processing in the library. This activity includes grouping information/knowledge into the same or similar subject. In simple terms, classification in the library can be interpreted as a classification/grouping of knowledge contained in a document of all kinds. The ultimate goal of this activity is that library users can easily, quickly, and precisely find sources of information within the library.

In general, classification refers to grouping or classifying a number of goods, objects, or objects into the same characteristics and elements. Library classification is organized into two events, namely 1) organizing the information itself by recognizing similarities between fields of knowledge, and 2) library classification by arranging books on shelves, and storing all books according to their subject (Batley, 2014). Due to the vast amount of information available today, classifying activities are a fundamental library task that must be completed. Special techniques and management are needed to organize the library's billions of collections so that the necessary collections can easily be discovered. Therefore, engaging in classifying tasks is crucial.

According to Lestari (2016), classification organizes relevant knowledge. In addition, another opinion by Alamsyah (2017) states that library classification is a systematic arrangement for library users through the subject of books and other materials on shelves or catalogs and index entries. Due to a large number of collections, a system that controls collection management was required to make it easier to organize work for processing operations in the library. As a rack management system, the DDC notation scheme facilitates both physical and mental access (as a classification system) (Kapoor, n.d.)

There are several types of classification systems or guidelines in libraries, such as DDC (Dewey Decimal Classification), UDC (Universal Decimal Classification), LCC (Library of Congress Classification), BBC (Bliss Bibliographic Classification), and CC (Colon Classification). The Dewey Decimal Classification (DDC) is the most widely used system among all the available classification systems in Indonesian libraries. Melvil Dewey first developed the Dewey Decimal Classification (DDC) system in 1873. He was an American citizen and librarian at Amherst College (Mutia & Suherman, 2018). DDC has been used by more than 135 countries worldwide, including Africa, America, Asia Pacific, Europe, the Middle East, etc. (Online Computer Library Center, n.d.)

Information management in college libraries requires a good classification system, one of which is the Dewey Decimal Classification (DDC). This classification system can help the librarian in optimizing the performance of the processing section in library so that library users can easily, quickly, and precisely find the needed information within the library. The sophistication of Information technology today also influences activities in the library Processing Division, including the development of the Dewey Decimal Classification system in electronic format (E-DDC). This E-DDC system can assist library managers in determining the classification number of books in the library more quickly and easily. According to Sulistyo Basuki (in Supriadi, 2015), library classification purposes include, 1) assisting users in identifying and placing a collection through a call number, and 2) grouping all the same documents into one. The notation contained in the DDC consists of IndoArabic numbers used with decimals. The numbers contained in the DDC generally start with a base number and progress from general to specific. At each level the division is indicated by adding a new digit (Krishna, 2021). The sources that will be used to determine the subject vary, such as the title, table of contents, the text itself, or maybe external sources that can be used to determine about the book (Lazarinis, 2014). The base class in classification by discipline or field of study. As a result, the DDC is hierarchical. (Golub et al., 2020).

Since the initial revision was completed in 1885, regular development of DDC has continued to this day. The 23rd edition was initially supposed to be published in 2010. However, it was postponed by around a year till it was issued in May 2011. As of now, it has a strong foundation in Europe thanks to the creation of the "European DDC User Group (EDUG) in 2007." The library presently serves as a hub for research on the theory and application of knowledge

organization, including information retrieval (Satija, 2013). For 131 years, the DDC system has grown and changed to meet the community's demands. Each revision has been enhanced, changed, and modernized by incorporating the findings from the most recent research in library classification (Suresha, 2016) (Rotmianto, 2016). In addition, there are several changes, expansions, and additions to numbers in the form of tables and charts contained in DDC23, including providing changes to notation regarding Indonesia (Suharyanto, 2012).

The DDC classification system has been developed in electronic form (E-DDC), making it easier for librarians/library managers to carry out classification activities more quickly and efficiently. Electronic DDC is an online version of DDC with a high added value, and can be searched by words or phrases, numbers, terms, indexes, and Boolean operations. Text can be browsed, and hierarchies can be displayed. In Indonesia, the Electronic Dewey Decimal Classification was developed by Rotmianto Mohamad in 2009 and aimed to assist and facilitate librarians and any activists in the library. In this case, the classifier determines the library's classification number. The presence of E-DDC is expected to be able to understand the overall DDC scheme. Since 2017, electronic Dewey decimal classification has changed its name to electronic classification (e-Class) (Rotmianto, 2019).

Several reasons underlie the creation of E-DDC, among others: 1) Library management systems have developed many in libraries, such as SLIMS (Senayan Library Management Systems), INLISlite (Integrated Library Systems Lite), LASER (Library Automation Service), LARIS (Library Automation Service). Airlangga Retrieval Information System, Openbiblio, KOHA, Athenaeum Light etc. However, no software application can help determine the classification number (particularly for free/open source software), 2) so many human resources lack a foundation in library science, and 3) The complete edition of the DDC manual (Manual DDC) is quite expensive, making it unavailable to libraries across Indonesia, particularly those in rural areas (Rotmianto, 2016).

2. PREVIOUS FINDINGS

Several studies, some of which will be described here, have measured the use of DDC in different types of libraries, including academic libraries. Dwiyantoro et al. (2018) in his study analyzing the use of E-DDC in classifying library materials in the Lancang Kuning University library. Four libraries were used as a sample in his research, and the findings revealed that there were still inconsistencies in the categorization of library materials. The librarian also mentioned how simple it was to utilize the e-DDC application. This study almost closely mirrors that of Dwiyantoro's study. However, it focuses more on the usage of electronic DDC and skips over the variables that motivate libraries to utilize e-DDC.

Another research conducted by Rotmianto (2020) stated that in carrying out the classification of literary works when using the Relative Index, it is advisable to avoid searching with keywords of literary form. This conforms with the standards for categorizing literary works according to where they were initially published. In addition, the third research is on applying the archaeological library classification system at the Yogyakarta Special Region Archaeological Center Library by Saputro (2017). This research focuses more on using a classification system for the collections in the library regarding the Archaeological Library Classification System (SKPA). There are several obstacles found in the results of the study, including 1) overlapping main class divisions, 2) errors in subclass division, 3) inconsistent classification, 4) the emergence of new classification numbers, and 5) missing several subclasses in the application of SKPA. The findings mentioned above show a difference in the study, which focuses more on state university librarians' usage of electronic DDC.

An interesting study looks at how efforts to automate the determination of classification numbers in old library collections are carried out by Kragelj & Kljajić Borštnar (2021). Their paper, "Automatic Classification of Older Electronic Texts into the Universal Decimal Classification" aims to develop an automatic classification model of old digital texts into Universal Decimal Classification (UDC) using machine learning methods that the librarian processes. These results indicate that the machine learning model can assign Universal Decimal Classification to a certain level for almost all scientific texts. If true, the library would benefit enormously from carrying out its duties. Similarly, a study was, "Automatic Classification of Reference Service Records" conducted by Arai & Tsuji (2014) at The National Diet Library in Japan. They proposed a method to automatically assign NDC (Nippon Decimal Classification) codes to reference service records using NDC codes of reference materials.

3. METHODS

This descriptive study employs a quantitative approach. All the public university library staff in the province of Bali made up the study's population. Seven universities utilized e-DDC as a way to support library classification tasks. Because the number of samples utilized equals the size of the population, complete sampling was used. The sample size is equal to the population, which consisted of librarians: 53 people from 6 public universities throughout Bali. They are from Universitas Udayana, Universitas Pendidikan Ganesha, Politeknik Pariwisata Bali, Politeknik Negeri Bali, Politeknik Kesehatan Denpasar, and Institut Hindu Dharma Negeri Denpasar. The data were obtained through questionnaires, literature study, and observation. This study's design was based on the Technology Acceptance Model. Based on user perceptions, the Technology Acceptance Model (TAM) defines how users accept information systems (Tella & Olasina, 2014).

Davis and Kim's examination of TAM components inspired the study's concept. The following are the study's hypotheses:

1) Job relevance has a significant effect on perceived usefulness of using e-DDC,
2) User training has a considerable impact on perceived benefit of using e-DDC
3) User training has a significant effect on perceived ease of use of e-DDC use,
4) Accessibility has a significant effect on perceived ease of use using e-DDC,
5) Terminology clarity has a significant effect on perceived ease of use using e-DDC,
6) Perceived ease of use has a significant influence on perceived usefulness of the use of e-DDC,
7) Perceived usefulness has a significant influence on intention to use using e-DDC,
8) Perceived ease of use has a significant influence on intention to use of e-DDC,
9) Intention to use has a significant effect on actual to use e-DDC.

4. RESULTS AND FINDINGS ANALYSIS

The use of e-DDC in this study is divided into a variety of categories, including the types of classifying systems that have been used, the most popular form, the current version of e-DDC, the reasons for using e-DDC, the intensity of e-DDC use, and the length of time that e-DDC has been used. As indicated in table 1, Dewey Decimal Classification (DDC), Universal Decimal Classification (UDC), and Library of Congress Classification (LCC) are the three classification systems that have been used among the libraries.

Table 1. Types of classification systems

Types of Classification Systems	Number of Responses	(%)
Dewey Decimal Classification (DDC)	52	98
Universal Decimal Classification (UDC)	0	0
Library of Congress Classification (LCC)	0	0
Others	1	2

According to the data, 52 respondents (98%) utilize the Dewey Decimal Classification (DDC), making it the most popular classification system. It is similar to research conducted by Ullah et al. (2017), which stated that DDC is the most used classification system, followed by UDC and ACM by doing comparisons and evaluations available in bibliographic classifications in Indonesia.

Furthermore, the most typical library classification system form is available in two different formats: printed and electronic. Table 2 demonstrates that libraries use printed materials the most.

Table 2. The most frequently used form of the system

The Most Used	Number of Responses	(%)
Printed	32	60
Electronic DDC	21	40

Some factors influence the usage of printed forms. For instance, the contents are more comprehensive than those in electronic format, and the hardcopy forms arrived before those of electronic ones.

As the classification system evolved, e-DDC underwent various revisions broken down into different versions. Table 3 shows that as many as 33 respondents (62%) use e-DDC version 23. In contrast, no one uses e-Class at all because the recent version of e-class (electronic classification) is not often well-known by libraries or librarians. In addition, the latest version has not been widely published with an open-source system to the public. Therefore, most librarians or library staff are more familiar with e-DDC version 23 as the last version of the e-DDC.

Table 3. E-DDC version used

E-DDC version used	Number of Responses	(%)
E-DDC version 1	4	8
E-DDC version 22	16	30
E-DDC version 23	33	62
E-Class	0	0

There are several reasons for using e-DDC for classification activities, including budget constraints to purchase printed DDC, speeding up identifying the required classification number, and making it easier to identify the necessary collection classification number, as shown in table 4 below:

Table 4. Reasons for Using E-DDC

Reasons for Using E-DDC	Number of Responses	(%)
Budget constraint to buying printed DDC	2	4
Identify the necessary classification number quickly	23	43
Making it easier to identify the required classification number	28	53

This is in line with Yulia Putri's research (2021), who stated that the use of the e-DDC application is beneficial, more straightforward, and in terms of time is more efficient.

In terms of intensity and duration of used, the following tables illustrate that most of the 21 respondents (40%) stated that the intensity of using e-DDC was less than 2 times a week. This shows that the intensity of the use of e-DDC is low. It is because some librarians or library staff prefer to refer to printed DDC, such as respondents from Udayana University. The reason is that the information contained in the printed DDC is more complete than the electronic DDC and the use of the printed DDC has been a guideline from the beginning at Udayana University

Table 5.
The intensity of used e-DDC

Intensity of used e-DDC	Number of Responses	(%)
< 2 times	21	40
2-3 times	19	36
> 4 times	13	24

Table 6. The length of time used e-DDC

Duration of used e-DDC	Number of Responses	(%)
<10 minutes	23	43
10-20 minutes	20	38
>20 minutes	10	19

Meanwhile, the table 6 shows that most respondents use e-DDC for less than 10 minutes per book. One could assert that e-DDC can speed up classification activities within the library, due to the fact that e-DDC simply enters the necessary keywords to find the needed class number. Only a few respondents used e-DDC for more than 20 minutes, with a total of 10 respondents (19%).

By examining the degree of the influence on the components of TAM, the usage of electronic Dewey Decimal Classification (e-DDC) in the university libraries in Bali can be explained as follows.
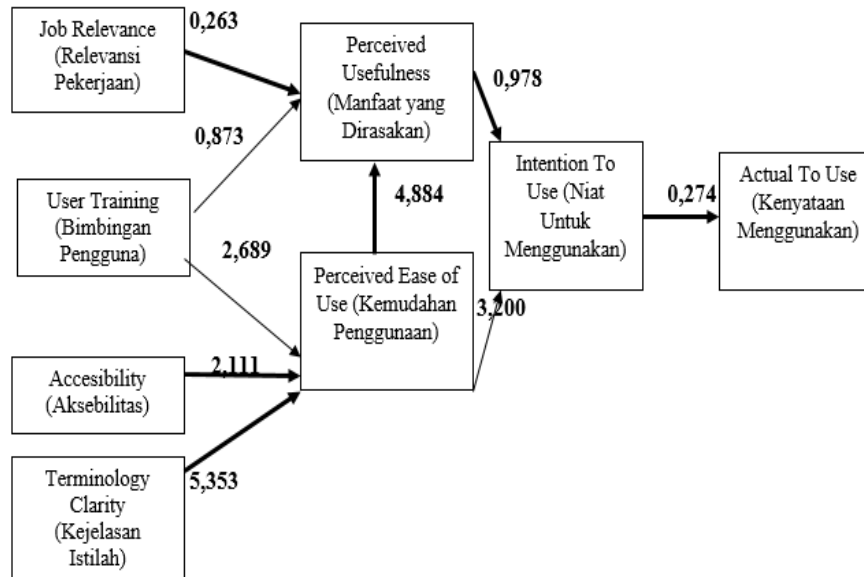

Figure 1. Structural model results between variables

Based on the hypothesis testing in Figure 1 shows that an adequate level of significance is indicated by the t statistic value > 1.96 (significance level 5%). Based on the level of significance (α) = 5% = 1.98, a two-sided test with degrees of freedom, namely df = (n-k) = (53-8) = 45. From this, it can assert that five hypotheses show a significant influence between variables and three hypotheses show no significant impact.

In addition, external variables that affect the use of e-DDC in the library of State Universities in Bali include user guidance, accessibility, clarity of terms, and ease of use. The effectiveness of using e-DDC compared to the printed DDC showed that the duration of the utilization of e-DDC is more optimal than the printed one. However, the intensity of librarians or library staff in libraries that used the printed DDC more than electronic DDC.

5. CONCLUSION

Classification activities among university libraries in Bali used the Dewey Decimal Classification (DDC) guidelines, and the more widely used format is the printed format. It indicates that e-DDC has not been maximally used among libraries. Several factors influence the use of e-DDC, including user training, accessibility, clarity of terms, and ease of use. In addition, comparing the effectiveness between the use of e-DDC and printed DDC shows that the duration of the use of e-DDC compared to manual DDC is more optimal. However, the intensity of librarians or library staff at State Universities in Bali uses manual DDC more than electronic DDC. It is suggested that the development of classification activities across all libraries, not just in academic libraries, can be studied for the upcoming study. Additionally, different ideas can be used to produce research on the application of classifying systems in libraries.

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