Conceptualizing Subject Classification

Chatterjee, Sidharta and Samanta, Mousumi

School of Economics, Andhra University, Central Library, Jadavpur University

30 August 2021

Conceptualizing Subject Classification

https://orcid.org/
0000-0002-7062-5941

SIDHARTA CHATTERJEE

https://orcid.org/
0000-0001-5383-0962

MOUSUMI SAMANTA

30th August, 2021

Table of Contents

Research Paper

Conceptualizing Subject Classification[1]

SIDHARTA CHATTERJEE[2]
Visiting Researcher, School of Economics, Andhra University

MOUSUMI SAMANTA[3]
Visiting Researcher, Central Library, Jadavpur University

30th August, 2021

ABSTRACT

In this research, we attempt to conceptualize the classification system by which information and knowledge are classified in libraries. This paper also examines the role of subject ontogeny in classification and delineates how subjects are classified following certain schemas and systems. It stresses on the role of ontology and ontogeny in classification schemes and how these tools of knowledge organization help libraries organize information more efficiently for their fast retrieval.

Keywords: Classification schemes, Subject ontogeny, DDC, Knowledge Organization
JEL Classification Codes: A3, Z00

1. Introduction

PHYSICAL Libraries stand today at a critical juncture challenged by the power and impact of digital libraries empowered by the internet and communication technologies. Despite facing competition from digital libraries, physical libraries still continue to function as veritable knowledge organizations and as centers of learning and community education (Aabø, 2005; Chatterjee, Samanta & Dey, 2021). It is expected that owing to growing literacy rates around the world, libraries would continue to play a significant role in information dissemination across societies. Libraries, in essence, are interdisciplinary knowledge organizations that store information from virtually every field of human understanding; the whole of human knowledge. Library science—therefore, as a domain—is the *broadest* and richest of all—for it is most interdisciplinary in nature

[1] This paper is an attempt to understand and conceptualize library classification using DDC.
[2] Corresponding author, Visiting Researcher, Andhra University, School of Economics. Email: sidharta123@yahoo.com
[3] Visiting Researcher, Central Library, Jadavpur University. Email: mousumisamanta0@gmail.com

(Shera and Perry, 1964). This feature makes a library not only a storehouse and a depot of *diversified* knowledge, but it also makes a library an organization of immense intellectual significance for the varied nature and forms of knowledge that it holds. Libraries are as well excellent centers of information preservation, collection, storage, organization, and information retrieval for the fact that they hold written scriptures of the 'universe of knowledge' ever since the time ancient. However, it should make sense today that libraries being deep into the information and digital age, are fast adapting to the new paradigm by adopting digital and ICT-based technologies to upgrade their existence in the digital world (Grigora, Maronitou, & Spathari, 2017).

Therefore, it makes more relevant today to undertake a formal discussion on the theory of classification system to understand and conceptualize how the universe of knowledge is organized in a library in the modern context. Although libraries organize knowledge using systems of classification conceived in the late 19th century, they have been periodically revised to accommodate the growing body of information. Libraries are fast adopting digital means as tools of automation and Online Cataloging, Online Classification (OCLC, MARC, etc.) to organize and store knowledge in digital formats—a further shift in paradigm in knowledge organization and storage. In that sense, digital technology continues to change the roles of libraries and librarians (Lougee, 2002). Naturally, how does the role of librarians change in such a context? Digital libraries by digital access are more concerned with creation, storage, and dissemination of knowledge online. The role of librarians, in essence, is diverse in nature; e.g., from custodian of knowledge resources to collection development, preservation, organization and management of information, and providing user services in physical libraries (Ilesanmi, 2013). They are also responsible for cataloging, indexing and classification of knowledge in libraries. It is this role of librarians—classification, that we are interested in, in this paper, and so it is our topic of interest in this research. This paper, hence, attempts to conceptualize how knowledge is organized using the

conventional or traditional system of classification (DDC) commonly used in most libraries.

2. Classification of Subjects in a Library

In library and information science domain, classification organizes knowledge in a hierarchical mode by categorizing concepts and subjects according to their relationships with other concepts. Many attempts have been made to understand the essence of knowledge organization in libraries through classification schemes. They have either dealt with "concepts", "subjects", or "facets" and "ideas" each having different meanings in classification systems (Smiraglia & Heuvel, 2013). The overall goal of classification is to identify and organize the smallest elements of knowledge in its most elementary format that could be sorted and classed under respective subject headings which would be most interrelated in meaning and behavior to the domain in question. It also involves dissection of documents into their fragmentary parts to demarcate concepts and draw conceptual boundaries between ideas and notions to sort them out for proper classification using schemas and systems of notations. This is to enable a highly specialized system of organization of knowledge resources in a library to take shape in order to allow readers access information in a most efficient manner. Classifiers from Paul Otlet to Ernest Cushing Richardson, and then SR Ranganathan all have envisioned such an efficient system of classification.

The prime objective is to allow access to information to readers who might be searching for specific books, magazines, or gen. The goal is to satisfy the intellectual curiosity of people in society. Large libraries generally hold substantial collection of information which must be efficiently managed so that information could be retrieved quickly on demand. Information organization in physical libraries involves assigning classification codes to the items for indexing purposes. From the perspective of information retrieval (IR), it must be acknowledged that indexing and classification are considered at the epistemological level which involves meta-analysis and

meta-description to define subjects at the objective level in order to allow their efficient categorization. Such logical meta-description reveals the true essence of a subject by providing objective description in a manner consistent with the idea of existence of specific *kinds* of knowledge at a certain place. It means that—this is indicative, pointing and directing readers towards certain places where information could be retrieved based on how and where such concepts are stored (Hjørland, 2018). When concepts are stored in an organized manner, it becomes easier for information seekers to retrieve it. And this is the perspective held at the level of Knowledge Organization (KO) too.

2.1. Subject Matter Classification

Human beings need information. This claim is undeniably indisputable. But it is also a fact that people not only need information but improvement in ways to access information by better means of search and retrieval processes. The retrieval process should match the needs of a search for information. In libraries, information is organized in such a way employing classification and cataloging that readers' needs are met with minimal search efforts which save time for the readers[4]. However, there must be an element of perception and acumen in designing subject matter classification schemes which must be highly competent enough to do justice to the search process; i.e., to retrieve documents in response to user needs. Knowledge as books, periodicals, and magazines are being continuously added to the already existing pool of information in libraries. This not only makes a library a growing organism[5], but with growth, it also places more responsibilities on the library staff to manage such knowledge more competently so that information could be retrieved conveniently and quickly by users—thereby abiding Ranganathan's fourth law of library science. Now, readers follow at least *two* different approaches to search books and periodicals; for books, readers follow subject-approach. Therefore, books are classified on the basis of subject-matter whereas

[4] This abides Ranganathan's *fourth law of library science.*

[5] The basic tenets of Ranganathan's *fifth law of library science.*

journals are indexed using various periodicals directories such as Ulrich's Periodical Directory, among others.

2.2. Document retrieval

Document retrieval in a library makes use of *class number* and *call numbers* to retrieve information sought by readers. Document retrieval—by nature, is a process that follows certain methods which nevertheless confirm the evidence of authorship and publication details useful for reference. In a library, both class numbers and call numbers are useful tools for locating a book or a journal. The *Class number* suggests a notation used for a particular subject in a classification scheme, whereas a *call number* helps in the identification of a book in a library.

Scholars and readers in pursuit of knowledge may not know that certain knowledge exists in a library, and it is the job of librarians to make them aware of such information that would allow their access to it. The *Class number* and a *Call number* are tools that aid librarians in "locating" information. This is important—since the evidence that certain information exists is the function of cataloging and indexing as a dependable source of such information in a library. The role of subject ontogeny, in this case, is to furnish more details about the historicity of subjects, concepts and domains that define a classification system underlying revisions and improvements in library catalogs. Now whatever may be the methods, the foremost goal of such a system of information retrieval is to augment the dissemination of knowledge—a task in which libraries have specialized sufficiently well ever since the times of the ancients.

Libraries are one of the primary means of diffusion of knowledge in society. Libraries nourish human minds and provide us with knowledge. They have continued to serve humanity as being the essential touchstone of education, learning, and intellectual training. Training of intellect does not only require information, but also proper and efficient means of access to information. The aim and objective of every library are to allow readers free, fast, and efficient access to information and knowledge which users

usually seek for. Such a process demands well-organized sources of knowledge that could be accessed or retrieved with less effort but greater accuracy (relevancy). Therefore, the goal of this short research is to examine the importance of classification in knowledge organization, and how subject ontogeny functions as a tool to refine and define classification schemes that are backbones of information storage in libraries.

3. How Information is Organized in Libraries?

The standard role of libraries is to "organize" information and provide access to it. Information in libraries is organized systematically according to classification schemes that help to find a book, a document, or a journal for readers and patrons. A System of Classification classifies concepts, objects, and things according to their various attributes and characters (objective meanings). In the information organization process (Chatterjee & Samanta, 2021), *classification* is a "means" of categorizing information as concepts according to their relationships with each other. Our universe of knowledge is huge and rapidly expanding with the continuous addition of new concepts, ideas, and thoughts originating from the intellectual processing of information, its analysis, and by synthesis of new information. Some information becomes concepts that develop into domains that must be objectively placed in relation to other concepts (or subjects); i.e., it becomes a 'class' in a system of concepts (objects) having relationships that share similar attributes (Hjørland, 1992; Tennis, 2012). Access to knowledge granted by a classification system becomes easier and fast when such a system is conceptually organized by collocation, which is a documented practice (Tennis, 2012). The changes in the organization of information or concepts due to the addition/modification of knowledge in a classification system are best defined by Subject Ontogeny which adds dimensionality to classification systems.

Classification systems organize information, which according to Chatterjee and Samanta (2021) is a process wherein information is categorized—and then organized based on the relationships between

concepts. The entire process of classification of documents is a practice and a process according to some schemes which become a tool for accessing knowledge. The goal of any classification system is to sort out concepts and subjects according to their nature and sources of origin. According to Tennis (2002), *classification* is an interpretive process that needs dimensionality. By definition—"a class is an object in a system of objects that have relationships" (Tennis 2002; 2012). "Subject"—therefore, given a conceptual meaning in library and information science—is that property of a document that describes most explicitly the content of a book, or a written material that exclusively belongs to particular discipline or a field of study. Thus, according to Hjørland (1992), "*a subject could be viewed as an attribute of a thing which cannot be separated from its other characteristics.*" When classifying subjects (documents), content-oriented indexing is considered based on description of subjects that are conceived as attributes of the documents. In other words, subjects are classified on the basis of these following attributes;

i. Relationship between the properties of a document and real user needs, and
ii. Functional attributes of a document that results in it consequent categorization on the basis of purpose.

By classification, documents (information) are categorized into their respective subjects that define their attributes with relation to functions or user needs. By classification, documents are organized according to the domains to which the intrinsic concepts of the documents belong. Concepts are sorted, ranked, and grouped suitably following their semantic nature and relationships with other preexisting concepts. They are classed and categorized according to the field of inquiry and understanding that help synthesize such knowledge. By methods of domain analysis, concepts are placed under specific subjects/domains that most closely match the meanings of such concepts.

The ontogenesis of concepts or ideas underlying the dynamics of subjective categorization of concepts constitutes the practical significance of subject ontogeny concerning classification schemes. Indeed the entire process augments user access to stored knowledge. Therefore, "classification" is not only useful for accessing knowledge, but also saves time for the users seeking information. It plays a significant role in subject access in physical and digital libraries. In essence, classification is a *branching* of concepts achieved by placing items in relation to one another for ease of interpretation. Classification schemes are indispensable tools for organizing information and knowledge in libraries and they undergo periodic revisions. Now, what gives dimensionality to a classification scheme which justifies the rationale to construct concepts that can be distinguished? In other words—how subject classification could be conceptualized using domain knowledge? In the next section, by exposition of arguments, we explain the features that characterize dimensionality in classification.

4. Dimensionality in Classification

Classification schemes are among the primary tools for accessing knowledge. These schemes undergo revisions that add dimensionality to classification systems. It may also be said that the tools for classifying information and knowledge could be useful for domain identification and analysis too. Changes in knowledge through time are updated by periodic revisions, for the ontology of subjects and the interrelationships between them and between existing and evolving concepts are dynamic, and they never remain constant. Classification schemes are excellent ways of interpreting knowledge. It helps us to understand whether if something is part of something else or not. The access to knowledge granted by classification schemes becomes easier as it saves the time of readers. Libraries hold information and store knowledge that is systematically classified for ease of access. The knowledge that is held by an organized system like a library gets reflected and highlighted by classification schemes (e.g., DDC, UDC, Colon Classification, etc.), and when subjects

change, they are collocated through revisions into their new proper places. *Subject ontogeny*—the organic growth and development of concepts from a simple conceptual level into a complex subject level—form an interpretive layer characteristic of knowledge organization theory that help users to re-collocate the changes in knowledge through time (Tennis, 20012). Subject ontogeny, therefore, is a historical "process" helpful in charting the development of a domain/class or a subject in a classification system through time. It can be used to refine classification systems via methods of domain analysis that depend on establishing relationships among concepts by linking classes. The whole process makes subject access easier by classification through defining ontogeny where the desired knowledge is reflected correctly in classification schemes. Therefore, there is a genuine need for periodic updating and revision of the scheme so that new knowledge could be added and placed in relation to its semantic illustration with respect to the domain(s) in question. Revisions—therefore, add dimensionality to classification schemes (Tennis, 2002).

4.1. Indexing Subjects

Let us suppose that a concept which exists under multiple domains needs to be classed under multiple index entries. This has been exactly the case for eugenics as pointed out by Tennis (2011). In one way or other, one may ask—can a subject or a concept have multiple index entries? This may be so in the case of concepts that are studied under different domains. A veritable example would be the concept of "equilibrium" that has multiple applications and is studied under various domains; e.g., chemical equilibrium, economic equilibrium, physiological equilibrium (homeostasis), ecological equilibrium, etc. The DDC class index entry for chemical equilibrium in the 21st edition is 541.392. For ion exchange and ionic equilibrium, the DDC class index entry is 541.373 3 whereas for macroeconomic equilibrium the class allotted to this concept is 339.5. The index entry for the physiological balance including metabolic equilibrium denoting the concept of "homeostasis" is 574.188.

The address for a subject may change owing to use or disuse by people over time. Prof. SR Ranganathan outlined these concepts lucidly by referring to "one place for every subject or every subject must have at least one place" (Ranganathan, 1967). That place for a subject may not be preserved over time i.e., it has no fixity—but its essence will remain unchanged. It must be kept in mind that classification schemes are essentially *indexing languages* that place concepts according to their order of relative similarity and semantic semblance. Indexing methods are both manual and automatic the theoretical basis of which have been discussed by Lancaster (1991), Hjørland (2018), and others. An indexing system is simply a pointer that helps to discover, trace, or list something. The indexing process is an act of identifying and listing documents in terms of their subject contents (Hjørland (2018); See the ISO standard 5963:1985). Indexing plays a major part in classification system which functions as a systematic guide to trace documents or find concepts in a document in order to facilitate their retrieval. It is also a useful tool which helps accessing information faster during search process; additionally, it provides clue about other documents. Access to information enables readers to study. What need of a document retrieval system in a public library if it is categorically slow and inefficient in retrieving documents? Hence, a meticulous design of an index based on alphabetical listing of words or other symbols sourced from source documents listing concepts that explain terminological distinctions fulfills the most basic criteria of designing a standard index. In fact, a simple generation of a list consisting of texts organized or listed alphabetically becomes an index; this is the most common form of index that we find at the end of a book. But according to Hjørland (2018), "An index, in contrast, provides efficient access to the specific topics covered in a document." If that is so, then what is the function of a classifier? How it differs from an index?

4.2. What is a Classifier?

The role of a *classifier* is to assign a "class" to a concept or a subject. Classifiers class knowledge resources hierarchically according to the

meaning that concepts hold and the domain that they would most likely fit into. They use orderly elementary categories to classify concepts in order to save time for the information seekers. The organizing principle of classification is a system by *extension* that must unequivocally and appropriately represent the schemes of knowledge organization to explain the categorization of the 'universe of knowledge'. However, such a system should be well defined by *intension*—where things must be known and identified (tagged) in order to determine the reference of an expression before it is to be placed within a particular class. This is to explain the course of origin and development of subjects and where they should be placed within the classification system. It also helps to explain the social evolution and social life of a subject with respect to other classes. Thus, the role of subject ontogeny in explaining the origin of a concept (subject) relates to an understanding of the story of a domain wherein it functions as a useful tool of classification. An *index*—on the other hand, is a "list" of articles and other publications within a discipline which provides bibliographic information on the authors, title, and date of publication, publisher, where it was published, and an accompanying abstract of the document wherever feasible.

5. Using Subject Ontogeny to Refine Classification

Classification schemes undergo periodic revisions to accommodate new concepts (as knowledge resources), and subjects. In a simple sense, classification schemes are employed to organize information according to the discipline that defines the essence of subjects and concepts; i.e., they classify concepts according to their individual ontological stances and their relationships with other disciplines. In fact, such a system determines policies that shape knowledge organization structures in knowledge depositories like libraries that must be kept in a systematic, orderly manner for reference and borrowing. Prof. SR Ranganathan stressed the importance of reference and information retrieval mechanisms by introducing the idea of "facet analysis" in classification systems (Ranganathan, 1964) which eased up the application of electronic modes of document storage, search

and retrieval. With the help of facet analysis, we can divide complex subjects into their simpler parts. In essence, the classification scheme constitutes two distinct systems; enumerative and faceted systems by which indexing is accomplished (Hjørland, 2018). Indexing is also accomplished by use of Verbal indexing languages. And, at the same time, facet analysis was the physical frontrunner augmenting machine search what we call *digital documentation* and retrieval system today.

A *reference* is a suggestive and indicative tool for document retrieval which helps to trace the ontology of a concept, idea, data, or say any written document. An *index*—on the other hand, is a systematic composition of fragments of concepts listed in a structured fashion composed as a directory, list, or catalog used for locating particular concepts. It is an authentic tool for searching information, ideas and concepts. The role of a classification system is to augment the search process by making it easier for readers to locate and access the information that they generally seek. According to Lougee (2002), the twin function of *classification* and *cataloging* is to support the search process and allow access to the body of knowledge organized under a systematic framework that underpins general inquiry over time. It is indicative of an organized development of relationships among subjects and concepts indexed using schemes of classification. The concept of classification thus refers to the organization of subjects/domains and sub-domains in a hierarchical fashion that enables timely access to information.

5.1. Role of Subject Ontogeny

The role of subject ontogeny, herein, is to augment the dimensionality of classification schemes. By dimensionality, we mean the spaces within a scheme that subjects hold and their spatial interrelationships with other classes holding related concepts. A 'class' herein refers to a concept in a system of knowledge that bears relationships with one another (Tennis, 2002), or it may be entirely different or unrelated. Subject ontogeny is used to express conceptual ideas, and their role in classification bears testimony

to the fact that they explain the evolutionary historicity of subjects in domains. Regarding ontology of subjects in online databases, online classification and indexing of documents/subjects follow analogous systems of classification that render those documents easily and quickly retrievable. Most online databases today are designed with an idea of subject ontogeny in mind. Therefore it is conventional for database designers to keep in mind the social and documentary nature of classification schemes that help interpret meaning, give a sense, provide explanations, understand, cross-refer, translate or render documents easily accessible to users who search for information online.

It is hard to escape without first conceptualizing what a *subject* literally means before one could actually start to classify or de-classify them. Subjects—according to Hjørland (1992), could be conceptualized in many forms and manners but a simple yet naive consideration of it would indicate it as ideas, in a more objective and Platonic sense. In a subjective sense, however, a subject represents the collective body of knowledge as the material content of a domain under study, inquiry and investigation—or simply, concepts. The subjective conceptualization of what subjects are, and how they should be perceived objectively in order to categorize them in a system of classification owes much to our understanding of the *aboutness* of its contents. This idea of *contents* corresponding to a subject matter enables communication of what the information is *about* by conveying its area of interest that is to be considered when conceptualizing "subjects". But Hjørland (1992) insists that mere consideration of "aboutness" would not suffice to conceptualize the deeper epistemological underpinnings that define a subject's subject matter. Now, one may ask what defines a subject's subject matter. To explain this matter in greater detail, a further recourse to *Ontology* may lead us to conceptualize better how and in what respect a subject becomes uniquely existent so as to chart its ontogenesis over time. Some scholars consider Ontology as a framework within which catalogues, taxonomies, and terminologies are organized (Poli, 1996) in a definite set of categories. Roberto Poli assumes Ontology as an objective consideration of things in existence with regard to the theory

of knowledge in its subjective sense. It is simply a tool for categorization which serves best to achieve certain objectives in organizing knowledge. Because organizing knowledge is one of the primary functions of a library, it needs to be seen how knowledge gets organized into an expressively efficient and competent framework the structure of which should be able to portray different instances of the whole into its distinct parts. For example, in the DDC, the section of Generalities assigned (000) is a whole division which is composed of its constitutive parts assigned different numbers in sequence according to the subjects such as Bibliography (010), Library and Information Science (020), and so on. Now, this seems interesting. The subject classified and assigned as (099) refers to *Books notable for format*. This is classified under *sub heading* "Manuscripts and Rare Books" assigned a DDC number (090). The number (100) which is next in sequence to *Books notable for format* (099)—has been assigned a new Heading; "Philosophy and Psychology". The number (101) which is assigned to a sub domain has been used to classify 'Theory of Philosophy' as an interrelated subject under heading "Philosophy and Psychology" (100) which exemplify different instances of these categories. The system continues in an orderly mode of classification; i.e., the number (199) assigned to *Other Geographical Areas* is followed by the number (200) assigned to a New Heading—"Religion". The entire classification system, therefore, is dependent on subject divisions depicting ontological dependencies among the whole (heading) and its parts (contents/subjects/sub domains).

Ontology thus focuses on the theory of dependence that divides a system into separable and non-separable parts (Poli, 1996). Now, the whole is dependent on its parts as much as the parts combine to become a whole. In contrast, *Ontogeny* refers to the growth and development of concepts in their course of evolution through time. Now, one may ask, why does subject ontogeny matter? If by *Ontology* we mean "how" a subject exists—i.e., a proper "categorization" of *existing* information into its respective classes to communicate and convey the contexts of its contents (Feinberg, 2011), by *Ontogeny*—we signify a subject's growth and development in course of time; for instance, the historicity of a domain (Tennis, 2012). One

can observe how the methodical ordering of subjects within classes is accomplished hierarchically that starts at the top level (Fig. 1).

000	**Generalities**
100	**Philosophy & psychology**
200	**Religion**
300	**Social sciences**
400	**Language**
500	**Natural sciences & mathematics**
600	**Technology (Applied sciences)**
700	**The arts**
800	**Literature & rhetoric**
900	**Geography & history**

Fig. 1 *The ten main classes as depicted in DDC 20th edition*

New concepts when added to the indexing language are supplemented in a branching pattern with the growth of new sub-disciplines that represent new concepts in the scheme. This could be understood from Fig.2 below wherein sub-domains as subjects are classified according to their relationships with subject headings. It shall, however, be seen that under Generalities 000, 040 is unassigned and kept vacant, which does not occupy any sub-domain(s).

000	**Generalities**	**500**	**Natural sciences & mathematics**
010	Bibliography	510	Mathematics
020	Library & information sciences	520	Astronomy & allied sciences
030	General encyclopedic works	530	Physics
040		540	Chemistry & allied sciences
050	General serials & their indexes	550	Earth sciences
060	General organizations & museology	560	Paleontology Paleozoology
070	News media, journalism, publishing	570	Life sciences
080	General collections	580	Botanical sciences
090	Manuscripts & rare books	590	Zoological sciences
100	**Philosophy & psychology**	**600**	**Technology (Applied sciences)**
110	Metaphysics	610	Medical sciences Medicine
120	Epistemology, causation, humankind	620	Engineering & allied operations
130	Paranormal phenomena	630	Agriculture
140	Specific philosophical schools	640	Home economics & family living
150	Psychology	650	Management & auxiliary services
160	Logic	660	Chemical engineering
170	Ethics (Moral philosophy)	670	Manufacturing
180	Ancient, medieval, Oriental philosophy	680	Manufacture for specific uses
190	Modern Western philosophy	690	Buildings

Fig. 2 *Sub-disciplines within subject-matter classification in DDC 20th edition*[6]

[6] This is just an incomplete snapshot of the sub-domains classified under subject headings in DDC 20th edition. For the complete classification scheme, readers are referred to consult the latest editions of Dewey Decimal Classification (DDC).

This is a progressive, gradually evolving process of growth and development in knowledge resources—*ontogenesis*. A further and deeper inquiry into the DDC under each of the divisions would suggest how a subject makes its entry or relocation to a new place over time. It also demonstrates the life and stability of a subject in a classification scheme.

6. How does Organization of Information augment Access to it?

Things systematically organized in an orderly manner are retrieved faster with ease than those things that exist in a muddled up, disorganized state. An order is a pattern of things arranged in a logical sequence. This context of organizing information relates to the concept of *Ontology* which concerns the existence of information in a structured manner. According to Foskett (1970), the primary goal of organizing information is to save the time of users in their search for information by efficient delivery and retrieval of documents (Feinberg, 2011). The more efficient the process of organization is—the easier it becomes for people to retrieve things and vice versa. This is also true for information and knowledge. The more efficiently information is classified and cataloged in a library, the faster and easier it becomes for readers to retrieve the required information following a search process. Hence, the entire scheme of classification could be termed as an "Organization Process". It is a machinating process because it follows an orderly class structure to organize information in a classification system. The practice of classification in libraries has both theoretical and practical aspects. The practical aspect corroborates the process of retrieval which has definite philosophical and epistemological theoretic implications, whereas the theoretical aspects which underpin classification schemas are similar to the theoretical framework of indexing process (Hjørland & Pedersen, 2005). It is by application of a system that one can test the effectiveness and accuracy of such a system which is meant to be effective in the quick retrieval of information. Nevertheless, indexing as a tool is becoming increasingly popular in the digital classification of websites, domains, and electronic documents beyond its conventional uses, i.e., in libraries and in books.

Indeed indexing is a theory-laden process, and by intellection one can dig deeper into the schemas that constitute a composite subject index. There, it will be found that its noetic is embedded deeply within social epistemology first proposed by Jesse Shera in 1951. Classification systems in libraries according to Shera and Perry (See Shera and Perry, 1964), is an ordered list of terms or names. Even if terms or names exist, ideas and concepts are abstract things that have no physical existence but in books and written records that take up space. The spatial nature of information existing as concepts in libraries is best explained by the development of humanity's knowledge reflected in a variety of ways where such concepts are placed in spaces grouped together on account of *identity* detected between them (Shera and Perry, 1965). The ground of demarcation between subjects and the similarities among them involves epistemological understanding of the concepts themselves. Classification, therefore, is a structure that reveals the inherent order in things, concepts and ideas that once erected remains almost valid for perpetuity—with minor revisions characterized by changes, not in the permanent hierarchy of that inherent structure—but in "proper place" which some concepts might wriggle in order to fit in or collocate themselves based either on the similarity or uniqueness over time.

7. Conclusion

This paper attempts to provide a basic understanding of how subjects are classified in a library using a common classification scheme most widely in use; the Dewey Decimal Classification (DDC) system. In essence, our aim is not to furnish a detailed account of the DDC, but to examine how information is organized efficiently using subject ontogeny as a framework for classification of concepts. It provides an account of the trivial intricacies of classification schemes to explain how subject ontogeny is used to refine classification.

REFERENCES:

1. Aabø, S. (2005). The role and value of public libraries in the age of digital technologies. *Journal of Librarianship and Information Science*, *37*(4), 205-211.
2. Chatterjee, S. & Samanta, M. (2021). Information Organization Process. *Available at SSRN 3903795*.
3. Chatterjee, S., Samanta, M., & Dey, S. (2021). The Role Played by Public Libraries in Promoting Information Literacy and User Education. *IUP Journal of Knowledge Management*, *19*(1), 36-49.
4. Dewey Decimal Classification and Relative Index. (1989). Devised by Melvil Dewey. Ed. 20., ed. By John P. Comaromi, Julianne Beale, Winton E. Mathews, Jr., and Gregory R New. Albany, N.Y.: Forest Press (Adivision of OCLC Online Computer Center), [4 vols. ISBN 0-910-6083-77 (set). $200.00.]
5. Feinberg, M. (2011). How information systems communicate as documents: the concept of authorial voice. *Journal of Documentation*.
6. Foskett, D. J. (1970, March). Classification and indexing in the social sciences. In *Aslib proceedings*. MCB UP Ltd.
7. Grigora, M., Maronitou, F., & Spathari, E. (2017). Introduction of Interactive and Product Design in reshaping the Public Library's services through ICT and public engagement: The case of Mytilene Public Library's archives.
8. Hjørland, B. (2018). Indexing: concepts and theory. *KO Knowledge Organization*, *45*(7), 609-639.
9. Hjørland, B., & Pedersen, K. N. (2005). A substantive theory of classification for information retrieval. *Journal of Documentation*, *61*(5), 582-597.
10. Hjørland, Birger. (1992): "The Concept of" Subject" in Information Science." *Journal of Documentation* 48, no. 2, 172-200.
11. Ilesanmi, T. C. (2013). Roles of the librarian in a research library in the digital era: Challenges and the way forward. *New review of academic librarianship*, *19*(1), 5-14.

12. Lancaster, F. W., Lancaster, F. W., Lancaster, F. W., & Lancaster, F. W. (1991). *Indexing and abstracting in theory and practice*. London: Library Association.
13. Lougee, W. P. (2002). *Diffuse Libraries: Emergent Roles for the Research Library in the Digital Age. Perspectives on the Evolving Library*. Council on Library and Information Resources, 1755 Massachusetts Ave., NW, Suite 500, Washington, DC 20036.
14. Poli, R. (1996). Ontology for knowledge organization. *Advances in Knowledge Organization*, *5*, 313-319.
15. Ranganathan, S. R. (1937). *Prolegomena to library classification*. Madras Library Association, Madras.
16. Ranganathan, S.R. (1964). Subject heading and facet analysis. *Journal of Documentation*, March 1.
17. Shera, H. Jessy and Perry, W. James. (1965); Changing Concepts of Classification: Philosophical And Educational Implications, in *Library Science Today*, Vol. 1 Ranganathan Series in Library Science 14.
18. Smiraglia, R. P., & van den Heuvel, C. (2013). Classifications and concepts: towards an elementary theory of knowledge interaction. *Journal of Documentation*, *69*(3), 360-383.
19. Tennis, J. (2002). Subject ontogeny: subject access through time and the dimensionality of classification. In *Challenges in Knowledge Representation and Organization for the 21st Century: Integration of Knowledge across Boundaries. Proceedings of the Seventh International ISKO Conference*.
20. Tennis, J. (2008). Epistemology, theory, and methodology in knowledge organization: Toward a classification, metatheory, and research framework. *Knowledge organization*, *35*(2/3), 102-112.
21. Tennis, J. T. (2012). The strange case of eugenics: A subject's ontogeny in a long-lived classification scheme and the question of collocative integrity. *Journal of the American Society for Information Science and Technology*, *63*(7), 1350-1359.