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Classification: The understudied concept

Umi Asma' Mokhtar*, Zawiyah M. Yusof

Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia, 43600 Bandar Baru Bangi, Selangor, Malaysia

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ABSTRACT

In the field of records and information management (RIM), classification is central for categorizing information including those embedded in records into a systematic structure for controlling and retrieval purposes. It is particularly a paramount concept and activity for information-related organization to organize and manage information from the beginning of its creation to disposal. The evolution of classification has diversified in applications in regards with the discipline of study including archival, library and information science. The need of classification has becoming more urgent in technology environment where information is easily created. However, technology has caused the authenticity and the integrity of information can be easily tampered and challenged. Technology together with the absence of classification has caused problems in dealing with information particularly in the aspect of storage. When classification is under-explored and minimally understood albeit its importance, the management of digital information becomes risky thus, affect to obscure decision making and provocation by laws. Therefore, it is essential that the concept is explored and be applied to ensure information/digital information created, maintained and preserved are in context, trustworthy, authentic and conform to standards and regulations. This paper discusses the concept of classification from various field so as to make clear why classification is significant to the records management field although is more popular in library science.
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1. Introduction

Classification is a management tool that provides for a systematic arrangement of objects into groups or categories (Franks, 2013), and is commonly used for systematic identification and arrangement of business activities and/or records into categories according to logically structured conventions, methods, and procedural rules as represented in a classification system (ISO 15489-1, 2001). In business, classification is a process that helps an organization describe, organize, and control information that builds upon an analysis of the organization's business activities. In records and information management (RIM), classification is a key foundational element which used to systematize information and facilitate retrieval. However, the concept has been better established in the library science field than in records management.

This paper is intended to investigate classification from a records management perspective. It has been noted in this regard that the concept is both understudied and not well understood. Research has shown that good records management strengthens government services by supporting business continuity; security and risk management; legal compliance and accountability; evidence-based decision making and transparency; good governance and public trust; good performance and government capability building (An, Shuyang, & Wei, 2011). Without proper understanding of such classification, it may be difficult or impossible to implement an efficient and effective records management initiative that addresses the complete life cycle of records from creation to preservation. Although classification plays a key role in the preservation of records over time, such systems may be overlooked or neglected when information systems to manage digital records are developed and implemented in favour of those elements of the records life cycle that focus on earlier stages such as storage and retrieval. Consequently, vast quantities of digital records have remained poorly managed over time.

The terms 'classification' and 'arrangement' were used synonymously in Schellenberg's modern archives approach without confronting extensively on the complexities of classification. On the other hand, Jenkinson's manual discussed the topic appropriately in different terms such as 'differentiation' and the placing' of records (MacLean, 1956; Schellenberg, 1956). The use of the classification and arrangement terminology has narrowed the implementation of both, as arrangement has been defined as a process of arrangement that reflected inventory processes, and using terms such as 'groups',

* Corresponding author. Tel.: +60 389216714.
E-mail addresses: umimokhtar@ukm.edu.my, umi.mokhtar@gmail.com (U.A. Mokhtar).

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'sub-groups', 'series', and 'items', while the terms 'placement' and 'differentiation' have been used less often.

Classification based on functions and activities has been preferred for controlling information and records, and is based on classifying records according to why records exist, rather than record topic. That is, it focuses on the context and use of records, rather than their content. A function-based classification system benefits organizations because it provides the following: an understanding of the relationship between the business and its records; identification of records required for their evidential value; prioritization of records for business value; and facilitation of retention decisions. The classification of records is a holistic concept based on the functions of an organization. A records classification scheme, also known as a file plan, is a process that may be used to categorize or group records into retrieval units. A file plan used to classify records based on business activities that generate records, and derives directly from an organization's business classification scheme. It is typically represented as a directory or folder structure such as function → activity → topic → subtopic (Franks, 2013).

Most studies tend to emphasize the technological aspects of classification, particularly how to automate classification, even though a theory of classification has yet to be developed (Hjørland & Pedersen, 2005). Records management specialists are driven by time and space to study many subjects, but generally they do not closely examine classification, because this area has been deliberately monopolized by LIS and computer specialists. The lack of research on classification from a records management perspective has impacted the related literature, the manual or automatic development of classification systems, and the implementation of classification schemes. This is due to a number of factors including the following: complexity of defining record characteristics; a thorough preliminary study of organizations; and detailed documentary analysis to ensure that records are correctly selected and classified. These processes are tedious, and records management researchers need to conduct further studies in this area. Most records management professionals have examined other areas, such as appraisal, preservation, or standards (Mai, 2004; Hjørland, 2008; Xie, 2008).

Classification is made up of several related principles including access, retrieval, maintenance, retention and disposal. A classification system should be based on the size and volume of a company and the volume of its records, how and by whom records are used, and how quickly records could be accessed (Schellenberg, 1956; Wallace, Lee, & Schubert, 1992). Classification systems allow records to be accessed easily, with the ability to retrieve all records including annotations and attachments, in the context of which the records belong. These systems also allow records to be maintained in their own context throughout life cycle, and preserved or destroyed based on classification comprehensive retention schedules that provide either control over preservation and custody, or justification for the destruction of records (MacNeil, 2002).

The application of classification differs among various groups within the information management community, namely librarians, archivists, records managers, and information technology people. For example, librarians classify content based on subjects and this works well with discrete or stand-alone items such as books or maps (Xie, 2007). IT professionals, on the other hand, classify documents by building models that can correctly predict the class of different objects; this in turn assists in allowing organizations to systematically organize, access, and process documents (Mohd Juzaiddin, 2004). Classification may also be associated with the categorization of records and documents based on the degree of secrecy and functionality of records. This study adopts the latter definition based on records function.

2. Classification from the perspectives of various fields

This section discusses the concepts of classification as found in the Archival Science, Library Science, and Information Science fields (Foscarini, 2009; Livelton, 1996; Orr, 2005; Xie, 2006). These fields have commonly been discussed in earlier classification research. At the end of this section is a discussion on the differences between classification from the library and archival perspectives.

2.1. Classification from archival science and records management perspective

Archival science is a systematic body of theory that supports the practice of appraising, acquiring, authenticating, preserving, and providing access to recorded materials. It emerged from diplomatic work in the nineteenth century as a body of concepts and methods directed towards the study of records in terms of their documentary and functional relationships and the ways in which they are controlled and communicated (Duranti & MacNeil, 1997).

Archival science theories have contributed to the records management field, which is responsible for the systematic control of the creation, maintenance, use and disposition of records (Pearce-Moses & Davis, 2008). There are two types of archival theory (Murdoch, 2007). The first type describes and explains archival procedures and activities, such as devising arrangement schemes, defining series, and reconstructing provenance. The second type is concerned with the content and context of records, rather than rote processes of control (Roberts, 1990).

The field of archival science plays an important role in the development of a records classification system because the theory provides the basis for identifying the context, content and structure of records, determining the authenticity and reliability of records, and preserving records from the creation to preservation stage. The classification of records operates on a principle whereby records are grouped on the basis of a function or activity (Pearce-Moses & Davis, 2008). It is based on an analysis of functions and activities in relation to organizations' mandate and business processes (Xie, 2007).

Classification is not just used as a retrieval tool. If one understands classification as a mere retrieval tool, then its role in the context of electronic records systems would be outdated or excessive, given the highly sophisticated search engines which are usually embedded in those systems. Therefore, to avoid misperceptions or misunderstandings of context, it is important that classification is seen as offering other value for ensuring management is efficient, effective, and competitive (Foscarini, 2009). ICA (2008a, 2008b, 2008c) and HB5031 (2011) assert that the classification of records enables the following:

i. work to be linked to form a continuous record of activity;
ii. changes to the way business activity is described to be recorded and documented;
iii. meaning to be passed on to those who may not have been directly involved in the business that was undertaken;
iv. work to be distributed to appropriate people and groups;
v. management responsibility for sets of records to be distributed;
vi. link to security and access permissions to be applied to records; and link to disposal periods and actions to be applied to records.

Therefore, the purpose of record classification is not solely to either describe content or enable search and retrieval. Rather, records classification is most often used to support a whole suite of records management processes, including identifying records to be captured and created to support businesses and providing a structure for determining and implementing retention, security, and access decisions, as well as to place records in the context of

the business activity that created them (HB5031, 2011). Classification for recordkeeping purposes is typically used to ensure that the links between the business being performed and the resulting records are robust and maintained.

This difference is essential for records management, as it demands that information managed as. Classification in archival science and records management perspective plays a major role in preserving the relational links between the description of the business and the records. Its primary purpose is to link information about records, enabling the content of the record to be linked to associated events such that the 'full story' can be recreated.

The contribution from archival science theory and records management practice has distinguished the function of classification from the library science and information science perspectives. This is referred to the aspects of records life cycle and trustworthiness. Records are classified based on requirements such as policy, laws, mandates, and organizations, and maintain trustworthiness through authenticity, integrity, and reliability from creation until preservation. The value of classification is not only in daily operational activities, but strategic management and longevity of the business or organization.

2.2. Classification from the library science perspective

Classification in library science is a system or method of coding and organizing library materials (books, serials, audio visual materials, computer files, maps, manuscripts, teaching aid) according to subject, then allocating a call number that links to the relevant information resources (Mishra, 2010). Cataloguing is also one of the important jobs of library classification (Khan, 2006). Library classification is organized in two ways. The first is organizing knowledge by identifying similarities between subjects, while the second is physically organizing books on shelves (Batley, 2007).

Theories supporting library classification has been criticized for lacking substantive intellectual content (Hjørland, 2008). Jones (2005) and Szostak (2004, 2008) claimed that lack of theory in library classification is because of the focus given to the application of new technology and standards, a culture of social reality and systems of activity (Bowker & Star, 1999; Bowker & Star, 2000), rather than contributing to the context or primary purpose of records. The nature of classification in library science differs from records management. Library classification keeps all similar items together and dissimilar items separate in an attempt to help the library users to locate the materials needed in the quickest possible time (Monaff, 2004). On the other hand, in records classification, assigned records are based on function to maintain reliability, integrity, and authenticity from creation to preservation (Duff, 1996; Duranti, 1998, 2007; Duranti & MacNeil, 1997).

The ideal classification system in library science is one that is based on a single classification principle, with mutually exclusive classes and complete coverage of related systems (Bowker & Star, 1999). Library classification is usually based on subjects, organizing materials into categories according to a scheme that identifies, distinguishes and relates material concepts or topics (Pearce-Moses & Davis, 2008). This approach may be seen in a library, in which books are grouped together based on their subject such as politics, chemistry, computers, biology and so on. Monaff (2004) and Foscarini (2009) believe that this approach is included in the library classification model because it may be applied for retrieval purposes.

2.3. Classification from an information science perspective

The scope of classification discussed in Vickery writings in early 1960s ranges from the narrow (classification *per se*) to a broader discussion about the subject of information retrieval, reflecting the diversion between library science and information science (Broughton & Mills, 2011). Classification is associated with information science, as this field governs the flow of information and techniques to manage information for optimal storage, retrieval and dissemination (Borko, 1968).

The idea of optimizing storage and information retrieval has been amalgamated from librarianship and computer science (Saracevic, 1999). As library science focuses on classification *per se*, library science focuses on the broader subject of information retrieval (Broughton & Mills, 2011). However, theories of classification in information science often being debated for the absence of a theoretical foundation, absence of 'explicit' theories and laws, and practice-oriented (Capurro, 1991; Webber, 2003; Hjørland, 2005).

2.4. Comparison of classifications from archival science, library science and information science

Comparisons of classification are normally based on the methods employed by two disciplines, archival science and library science (Foscarini, 2009; Orr, 2005; Xie, 2006). Lewinson (1939) discussed issues relating to archives classification, later noted as 'records classification' in the entire study, noting that in the US, it was considered a new and immature method compared to that used by Europe. Lewinson claimed that America had better experience with library classification and had established the basic significance of library classification, but lacked systematic groundwork in records classification. It was noted that library classification was based on three elements, namely the predetermined logical scheme of subject matter; the physical arrangement of material according to the logical scheme of subject matter; and finding of material using this scheme (Campbell, 1941). The third element has been supported by Monaff (2004) and Foscarini (2009), who stated that library classification serves as a retrieval oriented technique. It is not, however, recommended to employ library classification methods to classify records (Leland, 1915, in Schellenberg, 1956) because, 'no decimal system of classification, no refined methods of library science, and no purely chronological or purely alphabetical arrangement can be successfully applied to records classification'.

Elements of library classification are related to archival theory and the practical conditions of archival work (Greetham, 1999; Lewinson, 1939; Schwartz & Cook, 2002). For example, the physical arrangement of library materials, as outlined in the second element of library classification, is governed theoretically by the principle of provenance (*respect des fond)*. However, the action of assigning records to a place in a predetermined logical scheme based on subject matter, and their identification by a system of symbols representing the elements of the scheme, will not work for the classification of records. This is a determination of objective fact, not the application of an intellectual scheme (Lewinson, 1939). Therefore, so-called library classification is not a classification *per se*, but rather an exercise in taxonomy that redefines classification used for archival purpose in a fashion, rejecting entirely any analogy with library terminology. As for records classification, it covers descriptive activities consisting of an 'objective determination by appropriate techniques of legal and historical research (if necessary), of agency, of origin, of custody, and similar determination of the functional types of records represented in the collection, and boundaries, temporally, geographically, or otherwise objectively delimited' (Lewinson, 1939).

The principles of provenance (*respect des fonds*) and the principles of the sanctity of the original order (*registrazurprinzip*) have influenced the classification of records specifically and records management generally, including the writings of professionals such as Jenkinson, MacLean, Bearman, and Upward. In addition to the principles, *respect des fonds* has been equally important as the 'ambient' level for recordkeeping. The concept of *respect des fonds* was developed in 1841 in France. It has been claimed as relevant to

Table 1
Summaries of information, library and archival science.

Field	Description		Notes
Information Science	Definition: Investigates the properties and behaviour of information, the forces that govern the flow and use of information, and the techniques, both manual and mechanical, of processing information for optimal storage, retrieval and dissemination (Borko, 1968)		The focus of classification is optimal storage, retrieval, and dissemination Relates to classification from a technological approach
	Theoretical philosophy:	No	
	Practical philosophy:	Yes	
	Approach: not specific		
Library Science	Definition: Collection, organization, preservation, and dissemination of information resources and the political economy of information (Mishra, 2010)		The focus of classification is coding and organizing library material
	Theoretical philosophy:	No	Organizes in two ways, firstly, organizing knowledge by identifying similarities between subjects, and second is, organizing books on shelves
	Practical philosophy:	Yes	Relates to classification from aspect of keeping similar items together and separate from dissimilar items, to be located in quick time
	Approach: subject based, facet analysis		Retrieval-oriented
Archival science	Definition: Access to recorded material, appraising, acquiring, authenticating, preserving (Duranti & MacNeil, 1997)		The focus of classification is based on: activity or functions, identifying context, context and structure of records; determining the authenticity and reliability of records; and preserving records from creation to preservation
	Theoretical philosophy:	Yes	The theory provides a method to identify context, context and
	Practical philosophy:	Yes	structure of records, determine the authenticity and reliability of
	Approach: function-based		records, and preserve records from creation to preservation

the preparation of inventories and the physical grouping of records in repositories, and acts as a classification system for recordkeeping entities. The functionality of the principal can be found in matters that deal with juridical or legal entities at a broad level but less on the internal dimensions of structure that relate to the process of creating records. Therefore, the *respect des fond* model serves as a framework that holistically defines administration bodies at a legal rather than the actual level in which records are created (Upward, 1998).

Upward (1998) claimed that the two principles of *provenance* and *registrazurprinzip* have led to a third approach to the ordering of archives, namely '. . . the system of classification should be based on the original organization of archives, which corresponds in its main outline, with the organization of the administration that produces it'. The non-Dutch archivist claimed it has no relevance to 20th century records, and Australian experience has found it to be irrelevant. As a result, MacLean explored practical practices and approaches that extended Jenkinson's Manual and in turn led to further discussions about the archival term 'classification'. The term, which in North America and Australia has continually bumped against alternative usage by librarians and records managers, has appeared to have fallen into disrepute (Upward, 1998). The term, however, has particular meanings within archival theory and practice, which need to be considered before deciding to eliminate it.

Table 1 is a summary of archival science, library science, and information science perspectives, describing the definition, theoretical philosophy, and classification approach of each. These three fields contribute important concepts to classification, and focus on different purposes, but complement each other because they are interdisciplinary. From the archival science perspective, classification is holistic and theoretically strong. Library science has seen more research undertaken about classification but it is primarily about retrieval purpose and practice. From an information science perspective, classification has evolved as the tool to optimize the process of storage, retrieval, and dissemination.

3. Classifications approaches

This review of classification approaches focuses on the classification of records, from the early days of registry and filing systems to modern electronic systems. The evolution of records classification approaches is discussed, as well as the evolution and principles of classification and reasons for choosing the latest approach to classify records based on function.

3.1. Evolutions of records classification

Registries, based on archival science approaches, were an early method used to administer and take responsibility for the maintenance and use of public records. The concept was introduced in Germany, but developed differently on the European continent. The basic difference was its relative position in the governmental structure. In Europe, the clerical function of writing and copying letters was separated from that of providing recordkeeping services. Special offices, known as 'registries', gradually evolved to preserve and service current records. Registries received the divisional mail from a central clerical office. The mails were registered, indexed, and routed to the proper officials with all pertinent attachments. The returned mails were then classified in accordance with an established scheme of classification following the four processes (register → index → classification → inventories) as follows:

i. Registers consisting of ledgers or card files containing entries for the individual documents in consecutive numerical order;
ii. Indexes, to persons and subjects;
iii. Classification schemes indicating the subject headings under which the records were physically arranged; and
iv. Inventories, showing the actual files kept in accordance with the classification scheme.

Posner's observations of this early system showed the tendency to super-rationalize and over-refine sub-partitions of

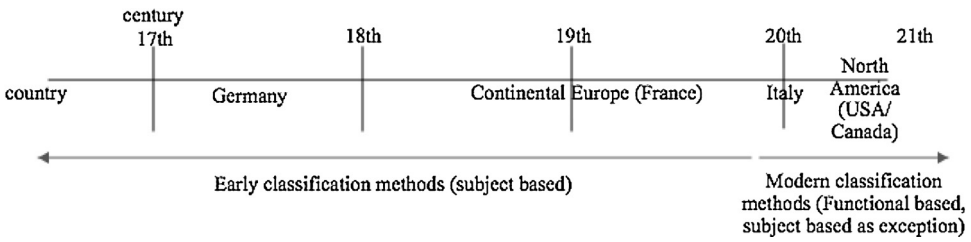


Fig. 1. Early and modern classification system timeline.

records. It was claimed to be complicated and was gradually replaced by more simple and logical classification schemes. Practical-inductive principles of classification evolved in the sixteenth (16th) and seventeenth centuries (17th), and were followed by rational-deductive principles in the eighteenth century (18th).

On the contrary, there has been little occasion to develop theories about the classification of inactive records in England, because there records were relegated without a selection process to storage, under the so-called Golden Rule of Archiving. The lack of theoretical development also stemmed from how records and archives were perceived. In England, records and archives were similar things; therefore all records, either from active or inactive phases, are acquired in the storage.Germany, renowned for its administrative efficiency, developed a revolutionary new method to organize records made and received by the government in the seventeenth (17th) and eighteenth centuries (18th). All records related to the same subject, and secondarily to a given business transaction, activity, or procedure, independent of their status of transmission (*i.e.*, the degree of perfection, that is, draft, original, or copy), form, or value. The records would be incrementally put together in separate physical and logical units, called *dossiers* or files, which would then be in turn combined organically according to various homogeneous criteria such as names of persons or corporate bodies, geographic units, subject-matters, or dates), a system known as *Registratursysteme* (Foscarini, 2009). This was the first example of a systematic method of classifying records according to a comprehensive, subject- and function-based *Aktenplan* (*i.e.*, file plan). The effectiveness of such a 'mixed model' of classification was related to it being a natural way of carrying out administrative work that was itself very rational, linear, and rigorous. Fig. 1 represents the timeline beginning from seventeenth (17th) century to twentieth (20th) century of early classification system.

The German system claimed to be systematic and advanced; however, *a posteriori*, ex-post is a flaw in the system (Foscarini, 2009). As a consequence, explicit links among the interrelated records of a business transaction were established when the activity the records referred to was concluded and the relevant file transferred to the central registry, rather than concurrently with the creation of the records and the development of the activity generating them. Hence, critics suggested that the 'original order' of the records was artificially created for the sake of administrative control.

At the beginning of the ninetieth (19th) century, the German system spread throughout most of continental Europe as a consequence of the conquests made by Napoleon, whose administration adopted and improved the system by combining classification and registration capabilities into a single tool. The systematic identification and pre-organization of all incoming and outgoing correspondence was subsequently extended to cover internal records as well. With these adjustments, such classification became the heart of the Napoleonic administrative system.

The Italian system, credited by the legal system, developed a method for the classification and registration of records in the mid-twentieth century. Writings from Raffaele De Felice broadly discussed the topic of records classification from both a conceptual and a methodological view. De Felice viewed classification as systematic, designing the system with an organic, logic and coherent method. He claimed that classification was systematic 'by competence', using activity, function and office interchangeably (Foscarini, 2009). The use of competence in his writings reflected the function-activity-transaction notion, later proposed by Schellenberg in 1950s. Foscarini (2009) has suggested a classification system structured 'by competence' will be 'function-based' to the extent that the organizational structure corresponds to the hierarchy of functions and activities attributed to any given entity. But, classification does not affect administrative change because its flexibility is constrained by the organizational setting. This organizational setting informs its structure not the administrative change.

3.2. Function based classification

Function-based classification was introduced by Schellenberg by including the concept of selection in records management, emphasizing the processes involved in distinguishing official documents before permanent preservation as records (away from office of origin) and at the highest point as archives. The process is not easy, because in England the terms 'records' and 'archives' tend to be used interchangeably, whereas in the US, the terms are distinguished based on their point of use. The primary reason why most records are preserved is to accomplish the purpose of records' creation and accumulation. Moreover, records also must be preserved for cultural reasons, and for reference and research purposes in archival institutions. Realizing the needs for records to be preserved for long term use, Schellenberg imposed a classification approach to select and keep only relevant record that have evidentiary value. The approach was based on organizations and functions, and is known as function-based classification.

Although there were other ways to classify documents, such as by subject, Schellenberg rejected those approaches claiming those were suitable for reference and information files. He emphasized the importance of starting from an analysis of an agency's functions, activities, and transactions (Foscarini, 2009). On the other hand, records should be classified by function because records are the result of a function and used in relation to a function. It is also possible to refer to the organizational structure, if the organization is stable and its functions and administrative activities are well defined (Foscarini, 2009; Schellenberg, 1956). As a result, function-based classification is an approach that has become a point of reference for records classification not only in the US, and the functional analysis framework (function-activity-transaction model) has become a useful reference worldwide.

There are also other factors that contributed to the records classification system such as aggregations of records, appraisal, and selection on the basis of the higher evidential and information value of records. The critical point underlying Schellenberg's model is that

any predictable retention and preservation need to be taken into account. Schellenberg also made no reference to the nature of the records and theoretical considerations (such as the need for establishing and perpetuating the original context of records creation), but pragmatically concludes that records should be classified for quick retrieval whenever needed but should not be over-classified.

3.3. Classification elements

Classification is made up of three elements. These are physical action, scheme and logic (Savic, 1995; Schellenberg, 1956). Physical action is regarded as the user interface, use and achieved result; scheme is regarded as the knowledge base; and logic is the inference engine. Therefore, classification does not stand alone but requires a user interface, knowledge, and engine to work. This places records classification in the element of scheme, a core point which must be considered prior to developing a system. In addition, classification needs a solid foundation and techniques so as to enable the implementation of the system to work well. The arbitrary use of this concept may jeopardize an organization in the long run while impairing system efficiency. This is evident in the actual practice as many electronic document management system have to be reviewed and revised (Xie, 2008).

In records management, purposes of classification including protecting the confidentiality of records, managing retention schedules, assisting with the retrieval of records in context, and managing workflows (Sabourin, 2001; Zawiyah & Chell, 2005; Foscarini, 2009; Zawiyah, 2009; HB5031, 2011). Classification has been viewed as a form of roadmap that provides rules and definitions, from the creation of records to their disposal (Xie, 2006). This is to ensure that records can be identified and located, used and understood across time (HB5031, 2011), with stable and fixed content, and correspond to a template made up of four sections: documentary form, annotations, context and medium (InterPARES, 2001). Records classification must also include document relationships, in order to assure authenticity and reliability.

3.4. Classification design

The design of records classification should be consistent with or comply with legislation, regulations, international standards and the characteristics of documents, as well as an organization's business needs (Chosky, 2006). For records classification to be successfully implemented, the structure of an organization must be understood. The life cycle and the value of the documents also need to be determined since not all documents are records. Thus, it is important to distinguish classification within the ambit of a retention schedule.

The principles of records classification, when applied either manually or electronically, could have a significant impact on the management of records. On their own, computer systems are not likely to be successful in managing records, because they require a systematic, efficient, and effective document retrieval process, the management of records retention, the assigning of access privileges, the protection of records confidentiality, the retrieval of records in context, and the management of workflows (Foscarini, 2009; Zawiyah, 2009; Zawiyah & Chell, 2005). Furthermore, records management may help Malaysia in realizing Vision 2020, but it has not been given a high priority (Zawiyah & Chell, 2005). Therefore, the evolution of IT applications no longer focuses on technical aspects only but also non-technical aspects such as arranging documents based on records management classification; identifying documents and records; valuing records; appraising records; and labelling records for retention purposes. This is the impact of records evolutions and better understanding of the importance of records for business and nation (Cook, 1992).

It is common in document and information retrieval to state that classification should be involved at documenting of the description, storage, and retrieval process. Classification could be implemented to simplify searching or to provide a set of document descriptors to optimize requests for document matching. More sophisticated approaches also involve requests for classification. In contrast, manual classification works differently because it is a manual process and can lead to human error. For example, it does not consider the principles on which it is based in a critical way, formulate them properly, or apply them consistently (Jones, 1970, 2005). The setbacks of manual classification are controllable when the principles of records classification are introduced in a systematic manner, either function-based, subject-based, structure-based or even type-based methods (Foscarini, 2009; Schellenberg, 1956). These principles have been introduced to accommodate the needs and requirements of organizations particularly government agencies. Most research conducted in this area depicts a good response towards the principles proposed and have evolved positively from subject-based to function-based (Schellenberg, 1956; LAC, 2006).

4. Conclusion

Classification relates to systematic arrangement of documents or records according to the requirements of organizations, including libraries, archives, government agencies, or private companies. Various theories underpin the classification system, from management science, and information science to archival science. This paper discusses three disciplines that support the development of classification systems. The theory of archival science is at the heart of the development of a records classification model, because it provides the value to the model from the aspects of authenticity, validity, and reliability. The theories from information science contribute to search and retrieval techniques, as these two functions are widely used in the discipline. Gaps in the literature from the three disciplines have suggested the notion of integrating the various theories to propose a holistic model for records classification. Most previous works on records classification do not include all the three disciplines, such as Orr (2005) and Livelton (1996) with archival science, and Xie (2006) with archival and information science. However, Foscarini (2009) included all three disciplines. The focus of the research is different, as it is a study on the function-based classification system in Canada.

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Umi Asma' Mokhtar is a lecturer of information science at School of Information Technology, Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia. Her current research interests are (1) Electronic records management, (2) Function-based classification system for electronic records, and (3) Information policy.

Zawiyah M. Yusof is currently a Professor at School of Information Technology, Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia. She obtained her PhD in Records Management from Department of Information and Library Science, Aberystwyth, United Kingdom. Her research interests are in Records and Information Management; Knowledge Management, Information Policy; and IT and Society.