CHAPTER 6

Information Science and the Collection Discipline in the Academia: A Review

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Introduction

This article presents the history of information science; considers various conceptions, controversies, and challenges with the field; identifies its sub-specialties; points out its relationship and overlap with library science and other disciplines; and gives a discourse analysis of its multidisciplinary aspects and prospects as an academic discipline and profession. This way, a broad view of the field, which serves as a useful clarification for researchers, is then provided.

Conceptual Clarification

The information science discipline revolves around the complete concept of data, information, and knowledge management, librarianship, metadata and taxonomy, record management, and archiving, these also include museums and galleries among others (Bauden & Lyn, 2021). So many questions were being asked about the discipline of information science and what it stands for in academia. Information science is an academic discipline and profession. It is the science of information (Buckland, (1996). This is still very vague, because, sometimes we may think we know some terms, but in the real sense, we do not know what it stands for, but it is familiar anyway.

One of such ways in which we visualised information science is its concern with computing, algorithms, and data science. Some viewed information science as relating to information and communication technologies. Others view it from the librarianship and documentation fields. Still, some view information science as dealing with information recorded in documents, with its meaning and knowledge among others (Bawden, & Robinson,2015). What then is information science? According to Borko (1968), information science is a discipline that investigates the properties and behaviour of information, the forces governing the flow of information, and the means of processing information for optimum accessibility and usability. It is concerned with that body of knowledge relating to the origination, collection, organization, storage, retrieval, interpretation, transmission, transformation, and utilization of information. This includes the investigation of information representations in both natural and artificial systems, the use of codes for efficient message transmission, and the study of information processing devices and techniques such as computers and their programming systems. It is an interdisciplinary science derived from and related to such fields as mathematics, psychology, computer technology, operations research, etc., which inquire into the subject without regard to its application, and an

applied science component, which develops services and products. The emphasis here is its concerned with recordable information and knowledge, and the technologies it rides on alongside services that enable their effective and efficient management and subsequent use. Information science is therefore seen as an interdisciplinary field of study that deals generally with the organization, access, collection, and protection/regulation of information, whether in physical or digital forms (Bawden & Lyn, 2012). Here, you can observe also that the discipline involves the legal aspect of information because the information is considered property and has to be legally protected. Particularly now that we are living in the 21st century where society is becoming information-driven or knowledge-based. The society itself is gradually drifting to a knowledge society. This is real in other parts of the globe, even though in Africa, it is to a very large extent still an idea and a concept to be actualised.

Library science on the other hand is an academic discipline that is primarily concerned with data, and information. This field focuses on the study of collecting, preserving, and organising books and other documents in the library, how to classify and use data or objects, and emphasizes the importance of preserving knowledge and promoting literacy. Library science is one of the collection disciplines that deal with the collection, organization, storage, and retrieval of documents in physical forms such as books and digital forms as the case may be in a knowledge society. The field is not static and stodgy, but constantly changing and evolving, as technology creates new strategies for sharing, managing, and organizing information. This has to be because the whole world is gravitating towards a knowledge society from an information society, with so much to gain and take advantage of.

Information Science and Library Science: A Historical Account

Information science and library science as noted above are two different disciplines with similar dealing and practice. Both deal with the effective collection, storage, and retrieval of information. The library is said to be the hub of knowledge in any institution of learning and information science deals with data, information, and knowledge and goes beyond that by collecting, storing, and effectively retrieving when needed by users. Information science as seen as a multidisciplinary subject deal with the theorems from other disciplines like computer science, psychology, and sociology among others as it digitally pushes its core values away. Any knowledge that will make data, information, and knowledge well appreciated and useful to users, information science is highly interested in it. So, it goes even to the field of psychology and sociology. Hjørland, (2018) stated categorically how the convergence of these disciplines gave rise to library and information science or studies. Library science and information science are two different academic fields of studies joined to form Library and Information Science (LIS). The term was first used at the School of Library Science at the University of Pittsburgh, which added information science to its name in 1964. Other American library schools followed thereafter, and by the year 1990 and beyond almost all former library schools had modified their names by adding information science to them. The development was like a wildfire that affected many schools worldwide. The trend was motivated by the growing ICT which also passed through this

transformation from communication technology and information technology to information and communication technology where information manipulated in a computer could be communicated in the same machine via modem to another computer in another location to be demodulated and the information received (Huang et al. 2012). Library schools in Africa and indeed Nigeria also were positively influenced by this move in the right direction.

Despite various trends to merge the two fields, some consider the two original disciplines, library science, and information science, to be separate (Salman, 2018). However, it is common today to use the term as synonyms, and there is this attempt to drop the concept of "library" and to promote more information departments or I-schools as seen in other schools in the United Kingdom and the United States of America. There have also been attempts to revive the concept of documentation and to speak of library, information, and documentation studies (or science) since library studies itself originated from documentation studies (Salman, 2018).

The iSchools idea is a global phenomenon now that promotes an interdisciplinary approach to understanding the opportunities and challenges surrounding information-related disciplines. It majors among others on the organization of information and universal access to information. The field is concerned broadly with questions of design and preservation across physical information spaces such as libraries, museums, collections, and repositories, and importantly too is the digital information space and the virtual information spaces such as online communities, social networking, the World Wide Web, and databases. Degree programs at iSchools include course offerings in areas such as information architecture, design, policy, and economics; knowledge management, user experience design, and usability; preservation and conservation; librarianship and library administration; the sociology of information; and human-computer interaction and computer science.

There is a shared ground between information science and library science, and this is also fundamental in the discussion. It is the sharing of their societal role concerning overall concern about the problems of effective utilization of recorded information. But there are also very significant differences in several critical respects, such as; the selection of problems addressed and in the way they were defined, and theoretical questions asked and frameworks established. All of these differences may point to the conclusion that librarianship and information science are two separate fields in a strong interdisciplinary relation, rather than the same field, or one being a special case of the other (Asheesh, 2020).

Having said all this, what tends to bind these disciplines to be formally known now as the library and information science is much stronger and the trend in fusing the discipline is still ongoing with research in various fora so that the true picture of information science will be made visible. This is in another way calling for further research from researchers, particularly from the African region to lend their voice and findings that will birth the information science of the future. With various opinions of scholars on the subject matter, the unique concern of LIS as a discipline

is Humans becoming well-informed. This has come to stay because no other field has this as its core value and major concern (Konrad, 2007).

Educational Practices in Library and Information Science

Educational programmes in the library, information, and documentation science are highly concerned with the data that results in what people know, by taking advantage of experts and technology as the need calls for it. Let's take two different dimensions of how LIS's primary focus on the human quest to know is being exemplified. The organization of information and information resources is fundamental to library science and information science in what is now library and information science and its multidisciplinary nature. Some of the main tools used by LIS toward this end to provide access to the digital resources of modern times assist humans' effort to make their intellectual output accessible by recording, identifying, and providing bibliographic control libraries keep organizing and preserving information and keep track of documents, both hard and soft copies for subsequent retrieval. The theory of indexing and classification has assisted humanity in organizing information and information resources through the library, all with the primary goal of humans becoming more well-informed. The trend has given rise to so much or too much information that is somehow an issue now - information overload.

Secondly, the development of Metadata is another area that exemplifies the primary concern of LIS to be something more than a confluence of several disciplines. The idea in Internet classification systems and cataloguing systems was mainly concerned with two objectives: firstly, to provide rich bibliographic descriptions and relations between information objects, and secondly, to facilitate the sharing of this bibliographic information across library boundaries. The development of the Internet and the information explosion led many communities to need mechanisms for the description, authentication, and management of their information. These resulted in the development of taxonomies and controlled vocabularies to describe their knowledge as well as unique information architectures to communicate these metadata systems in various domains. These descriptions are means and pointers to resources for people to acquire knowledge. Things have gone beyond these as descriptive information takes into cognisance now the ownership and copyright of a digital product and description for the different formats and accessibility features of a resource, this made the quest for knowledge by humanity simplified.

Having dealt with the issue of the confluence of library and information science and its relevance in the schemes of things in the developmental stride in human history, various endeavours in life were championed by a defined organised body of knowledge called academic discipline to propel it from what it used to be from its cradle to its current state, just like what happened in the fields of medicine and psychology just to mention but some few. This brings to the limelight the assertion of whether information science is an academic discipline or not. This question has to be answered because the lifeline of information science lies in the fact that, it is only the academic body that has the impetus to nurture it to maturity and for its continuity. Information Science is an academic discipline with defined areas of professional practice. Even

though some argue and doubt if it is an academic discipline since it does not have a defined theory to support it, rather than those from other disciplines (Bauden & Lyn, 2021). Because it derived its theorems from other disciplines, it is sometimes referred to as a multidisciplinary field of studies, involving several forms of recorded information with defined meaning and its ability to solve practical problems in life. Hirst (1974) opined that information science is a field of study because it focuses on the subject of interest, using any form of knowledge-philosophy, computing, and mass communication among others which assisted in studying it. So, no matter where the source of the theorem is emanating from, as long as its information content will assist in solving issues in life, it is termed an academic discipline, because the primary goal of any discipline in the history of humanity is to solve problems.

So now, if the information content is of great importance, and it can solve human problems, then it is worth knowing what this information is all about. This is needful because information could be viewed in other domains too such as biological information (Bauden & Lyn, 2021). The gene carries along information codes that tell who you will eventually be, how your complexion will be, and even your personality traits and temperaments. So which information are we dealing with? According to the Oxford English Dictionary, (2021), information is seen as the imparting of knowledge. This is the concept of information science understood information to be its primary focus (Bauden & Lyn, 2021). Information is highly interrogated and seen as complex because, haven seen in the light of data, information, and knowledge and not others such as biological information we stated among others. This could be understood and operated at different levels. Liebenau and Backhouse (1990) opined that any form of this information we referred to and communicated should be seen concurrently in four levels: pragmatic, semantic, syntactic, and empirical.

The second controversy over Information Science as an academic field of studies is transient into the challenge of how it could be categorised. It has been known by several names such as a meta-science, a postmodern science, and an interdisciplinary subject known as knowledge science. There have also been variations in the way the discipline is regarded in other parts of the globe like the United Kingdom and the United States (Robinson & Bawden, 2013), (Buckland, 1996). The placement of the discipline in faculties also has its fair share of the challenge. The discipline due to its multidisciplinary approach was placed in any faculty. It could be found in the faculty of arts and humanities, social sciences, computing and technology, science, business and management, and education (Bauden & Lyn, 2021), as in the case of Library and Information Science at Taraba State University, Jalingo, Nigeria, it was formally at the Faculty of Education but recently moved to the Faculty of Social Science. The University of Ilorin, Nigeria, is located in the Faculty of Communication and Information Science. The Faculty of Communication and Information Sciences (CIS) was formally established through the decision of the Senate at its 193rd (Special) meeting held in June 2008. The Faculty of Communication and Information Sciences is the University's flagship Faculty designed to take full advantage of multidisciplinary interactions of the science and technologies of computing, information, and

communication (Unilorin, 2023), while the premium university, the University of Ibadan, Nigeria, was recently placed in the Multidisciplinary Faculty. The University of Ibadan had reassembled 5 Centres into a new Faculty, the Faculty of Multi-Disciplinary Studies. The new departments (made from old centres) are the Department of Peace, Security and Humanitarian Studies (former Institute for Peace and Strategic Studies), the Department of Sustainability Studies (former Centre for Sustainable Development), the Department of Data and Information Science (former Africa Centre for Information Science), the Department of Mineral, Petroleum, Energy Economics, and Law (former Centre for Petroleum, Energy Economics, and Law) and the Department of Bioethics and Medical Humanities. This placement was due to its multidisciplinary nature and its tentacle spread across many other fields of study as mentioned (UI, 2023).

Still, in the same vein, there is no established list of topics that fall within the remit of information science as a core curriculum for the discipline (Bauden & Lyn, 2021). Most common topics include information organization; information seeking and retrieval; information law and ethics; data, information, and knowledge management; and research methodology among others (Bauden & Lyn, 2021). All these topics fall within the communication chain of recorded information (Robinson, 2009). So, most of the courses ranged within these topics in the communication chain. Since this is left open, most schools must strive to work within the range of the communication chain from information creation to use and preservation to be reused again. Currently, the National University Commission is working with universities to produce a better curriculum for the university level. We want to suggest that the new curriculum should not only target meeting the world standard in library and information science curriculum alone but as the benchmark is being set, the commission that is saddled with the responsibility should make sure all facilities needed for the take-off and complete implementation should be put in place. What do we mean? It is noticeable that one remarkable challenge of library and information science in Nigeria is the lack of computer laboratories for students to use while in training (Okeji & Mayowa-Adebara, 2021).

As simple as stated, it is a major challenge because the library and information science professionals in the 21st Century work and practice more online by providing access to resources than dealing with physical resources. The responsibility of curators is purely more of online interactions. The world is almost set, as we envisage the deployment of the 5g technology worldwide which shall change the landscape of events, with the assistance of development like the internet of things, including resources material for knowledge acquisition by clients. This is our clarion call for the authorising bodies at all levels to make sure that all that is needed for the effective take-off of this monumental project in the new curriculum is well achieved and the success laudable and stands the test of time. We want to stress that, there was a standard before now, how much have we as a nation performed if we rate ourselves, and how can we do more in terms of performance so as not to go the same way again, after a little while, we call for a new and advance curriculum in a disguise of meeting the global standard.

At this point, it is clear that there is an overlap in information science which focuses on recorded information/documentation, and the collection disciplines such as librarianship and archival science are so eminent and obvious. There has been a conflation of these mentioned fields into a broad field known as library and information science, library and information management, or library and information studies, irrespective of the flavour it rides on, it means but one. The flavour depends on regions such as the United Kingdom and the United States of America. Apart from the collection disciplines we mentioned, there are new disciplines as part of the information coverage including the Digital Humanities (DH), the Technology Discipline, and Data Science (Bauden & Lyn, 2021). We can begin to appreciate why all graduate from library and information science must as a matter of urgency be computer proficient to be relevant and have a great impact in the discharge of their duties. What awaits the products of library and information is great shortly and a gleam at that can spur us to the state of being proactive as an individual – a student, department, faculty, university, and the nation of Nigeria at large.

The Future of Information Science

To predict the future that awaits the professionals in this field is a herculean task, let alone predicting the future of profession and discipline which is still highly debated in the schemes of things. This calls for a reason to worry. But when one reflects and thinks deeply, concerning the powers of recorded information and documentation, and the need for the solidification of the profession and as a field of study, then doing all it takes to make it well-rooted is a welcome development. This is because of what we stand to gain as far as recorded information and documentation are concerned (Bauden & Lyn, 2021). When we talk about predicting, this is always based on sufficient facts and knowledge to enable us to make such assertions about the future at hand. Predicting the future based on relevant information and knowledge is still very difficult, but many indicators are there to give us some positive push that the future is bright when all the factors play out as it is supposed to be. One thing that is prominent now is the online search of digital sources. Instead of it being done by specialists, anyone with smartphones found everywhere could take up such a task, just to mention one issue. Do we still have a stake? Do we still have a future? If anyone with a device can dive into the field and its practices? (Bauden & Lyn, 2021).

The place and role of information recorded and documentation are still very relevant in the infosphere, it has just been reframed (Bauden & Lyn, 2021). Instead, the responsibility for this profession increased by the day as the curator of the infosphere. The evolution is still ongoing as a curator and stewardship of the new ever-evolving information environment (Fyffe, 2015; Van der, 2017). When it is envisaged that these professionals would assume a new position as curators of the infosphere, then we should note that this will positively influence the academic discipline that produces such graduates. So, we are likely to see more in the academic cycle in terms of research, and teaching to develop the profession (Bauden & Lyn, 2021). We think this was foreseen years back by United Nations International Children's Emergency Fund (UNICEF) and United Nations Development Account (UNDA), as *a* capacity development programme of the United Nations Secretariat aimed at enhancing the capacities of developing countries in the priority areas

of the United Nation development agenda to have established centres in Africa to cater for the need of lack of professionals in the field of information science. In 1991, two centres were funded and established in Ethiopia and Nigeria. The Nigerian Institute was cited at the University of Ibadan, known as the African Centre for Information Science. The products are being prepared for the future as curators of recorded information, now the Department of Data and Information Science, in a multidisciplinary faculty.

According to Bauden and Lyn (2021), there are three different places information science could gravitate to in the nearest future academia. There is a closer alignment with the informatics and Data science field of studies. Secondly, is the alignment of information science with media, communications, journalism, publishing, and related subjects. Thirdly, there is a close tie between information science cultural studies, and digital humanities. As stated earlier, the future may gravitate to any of these or all of these in the future. This brings to the limelight the multidisciplinary aspect of information science dealing with data, information, knowledge, etc. showcased in the information recorded and documentation (Bauden & Lyn, 2021). As students of library and information are being produced yearly now in Nigeria and the State, their focus and aspiration should tilt towards these areas of studies as the world is gravitating to and reals task of specialties awaits these professionals far above the just able to hold a smartphone to manipulate information, the content is far more than what you can superficially imagine. It shall take prepared graduates who are thinking in this direction and making frantic efforts to be among those who will drive information science when the discipline finally arrives at its full potential in the future. But these will also take efforts from the research and teaching angles to arrive there among others.

It was based on the aforementioned that Bauden and Lyn (2012) proposed seven critical issues we should be pondering which will influence the future of information science. Reasoning all along this line will be of great value. (1) What is the best theoretical basis for the information sciences? (2) How is the concept of information in the information sciences related to the ideas of information in other domains? (3) How can principles of information science be applied to all sectors where documents and information resources are used? (4) How can lessons from the past be applied to current and future information environments? (5) How can we best operate in a world where an information glut, previously unimaginable, will be the norm? (6) How can we best show the impact and value of knowledge and information resources and services in changing environments? (7) How can information research and information practice best be linked, so that each informs the other?

These seven questions motivate us to action, as it was summed up by asking, what is the future of information science as an academic discipline and as a profession? Over a decade ago, these same questions were still relevant in 2023 when they were first penned down. These questions raised information science from where it was to where it is today. Up till now, they are still relevant questions to be responded to in academia towards the future of information science. After over a decade, Bauden and Lyn, (2021) think that searching and beckoning for answers to these seven questions serves as a pointer to the future and it was summed up now as; How can

individuals and societies best operate, in information terms, so as best adapt to the new infosphere and pursue what Floridi terms 'the human project' or life in the information society?

The indication here is that things are enfolding as the emphasis now is on the best practices of individuals and the society at large taking up new roles and positions in adopting the new infosphere and the human project. This implies research on ontology, epistemology, and ethics in the infosphere with relevance to Library and information science. This brings to focus information recorded and documentation concerning big data and information science. You can now perceive what the future holds for information science when its full potential is made manifest, all that is seen now is the shadow of the reality to come.

The specific areas that call for attention in information science research in the 21st century and as a matter of urgency according to Bauden and Lyn, (2021) are sustainability and climate change, democracy and social justice, privacy, and big data among others. Predicting the future even with available information cannot be certain. But we know the information will have its way of influencing the future positively, to what extent and in what direction, only time shall tell.

Summary

Information science is an interdisciplinary field that draws on concepts and techniques from other disciplines to understand the nature of information, its behaviour, and its roles in various domains. It deals with how people create, access, and use information, as well as how information is organised, managed, and shared. Information science is a rapidly evolving field due to the emergence of new technologies, and specialties of information science include data analytics, information policy, information systems, information retrieval, digital libraries, and knowledge management. There is an overlap in information science which focuses on recorded information/documentation, and the collection disciplines such as librarianship and archival science are so eminent and obvious. There has been a conflation of these mentioned fields into a broad field known as library and information science, library and information management, or library and information studies, irrespective of the flavour it rides on, it means but one. Apart from the collection disciplines we mentioned, there are new disciplines that are part of the information coverage. These and other factors are indications that the future of information science is bright.

Conclusion

There have been various viewpoints about information science which constitute a situation of chaos of contributions. This article is written from the viewpoint that information science is an interdisciplinary field and that the history and theoretical issues connected therewith are important to shape the focus of researchers in the field.

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