University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Library Philosophy and Practice (e-journal)   Libraries at University of Nebraska-Lincoln

Summer 5-20-2020

Plurality of Traditions and Metatheories in Information Science

Taufik Asmiyanto
University of Indonesia, tasmiy@ui.ac.id

Muhamad Prabu Wibowo
Florida State University, mw18cs@my.fsu.edu

Plurality of Traditions and Metatheories in Information Science

Taufik Asmiyanto
Department of Library and Information Sciences,
Faculty of Humanities, University of Indonesia
tasmiy@ui.ac.id

Muhamad Prabu Wibowo
Information Science
College of Communication and Information, Florida State University
mw18cs@my.fsu.edu

Abstract

Information science presupposes multi traditions because of its close relationship to the convergence of several fields of science that saw epistemic and practical needs and demands due to the phenomenon of the information revolution and information and communication technology (ICT). The multi traditions in information science are relevant to explain limitless study objects in information science in understanding reality and ways of gaining knowledge throughout the development of science. A previous study on ontology and epistemology shows that there is a limitation on human reasoning on the understanding reality that affects further development of science. The plurality of traditions enables seeing information sciences from many different perspectives. The question posed is what methodological assumptions, approaches, and methods are used to direct and base this field of inquiry? The phenomenological hermeneutic method is used to be able to understand and interpret texts relating to ontological and epistemological views in information science. As a result, there is a dualism of views in information science that positions it in different epistemic constellations. The view that puts forward knowledge as the object of study uses the social epistemological approach as its theoretical foundation. Meanwhile, the view that emphasizes information as an object of knowledge underlies its conceptual foundation on information philosophy. This epistemic change changes the paradigm, approach, method, and position of the epistemology and ultimately repositioned the scientific area. This methodological pluralism also presupposes the involvement of evaluative-ethical dimensions so that norms and values become a source of reference in gaining knowledge. In other words, the development of science should not only focus on the use of descriptive-explanatory scientific language.

Keywords: Information science; Philosophy of science, Metatheory, Social epistemology, Information philosophy

Introduction

Investigations about ontology or metaphysics have been carried out long time ago. This investigation is aimed to answer the fundamental questions about the nature of reality. Until now, discussion about ontology and metaphysic grew into other foundation of knowledge. Any ontological and metaphysical questions are often *arche* (beginning, first cause) questions that difficult to answer throughout human history and civilization. The answer is usually valid at a

certain of time and context. The way people interact with reality is always changing, which shows limitation on how human interpreting reality.

Thales (624-546 BC) is the first Greek philosopher who began to question the reality of through rationales by excluding myths that were developed in the society at its time. Thales's rejection of the mythological narrative was the beginning of a wave of change in science. In other words, Thales was the first person to establish rationality by explaining the phenomena of the universe. Thales began a new propagation in the development of science, of which there was a transition from myth to logos. This transition is suspected to occur in the early sixth century BC in Greece (Bertens, 1990: 33).

Other than Thales, there are other philosophers who elaborated their ideas regarding the nature of reality. Anaximandros, Anaximenes, Empedocles, Herakleitos, Parmenides, Socrates, Plato and Aristotle are famous Greek philosophers, whose literature are still actively used to date. According to Heracles, the concept of reality is change. The emergence of a new reality is caused by change. The phrase "*panta rhei kai uden menei*" is used by Herakleitos to explain everything that changes. After Herakleitos, Parmenides added that the *arche* (beginning, first cause) was existed as the principle of universal existence (being) which determined all reality (beings) (Poespowardojo and Seran, 2016: 6)

Socrates (469-399 BC) began to shift the focus of his reality awareness to humans. According to him, the nature of reality is *arete*, the principle of goodness (the good). Meanwhile, Plato (427-347 BC), one of Socrates's disciples, saw the nature of reality as a good idea that had eternal (unchanging) and singular nature. The diverse and ever changing human world is a shadow of the Idea world. Aristotle (384-322 BC) opposed the view of his teacher who said that there was being (being qua being). According to him, there is a substance that stands alone with its consequences which are in the substance (Doludea, 2017: 10-11).

Understanding the nature of this reality continue to exist in the scholastic era which reached its peak in the X-XV century. For example, St. Augustine with the Platonic and St. Idealist approaches Thomas Aquinas through the perspective of Aristotelian realism. In addition, William Ockham proposed a different perspective in understanding the nature of reality. According to him, scholastic realism is an approach via antiqua which can no longer be used to explain the nature of reality. He offered the point of view of Nominalism as his successor (Poespowardojo and Seran, 2016: 8).

The struggle to understand "existence" invited a lot philosphers to join the discussion by bringing new ideas from many different perspectives since the 17th Century. Rene Descartes (1596-1650) expressed his revolutionary idea that consciousness is the basis (arkhe) of everything. Descartes argue that there are innate ideas, namely God, consciousness and breadth within human. Descartes's ideas later gave birth to the school of rationalism. Following Descartes' thoughts, Baruch de Spinoza saw that Arche consisted of only one substance, God. Entering the 17th Century, David Hume (1711-1776), initiated the transition of metaphysical thought in which he thought the knowledge base was experience. This view marks the emergence of empiricism as opposed to rationalism.

The struggle in interpreting existence as the nature of reality lies on the human mind, which shows the limit of its ratio. In other words, it is necessary to change way ot thinking to understand reality. The available of various ways of recognizing and explaining the nature of reality

2

is the confusing and the necessity that should be passed in the development of science. The dynamics of meaning that develops in determining the reality of arche is a dynamic process that runs in the direction of the growth and development of science. So, what is the truth of this arkhe? Once again the answers given are speculations that may be believed to be true within a certain period of time then collapsed replaced by speculation of other ideas.

Based on the continuous efforts to answer ontological questions about existence, it can be concluded that at least there are two main perspectives: realism and nominalism. Realism sees factual reality as a scientific picture of the object of empirical science. This reality is independent of the interpretation needs of the knowing subject. In other words, the presence of reality does not require the presence of a subject. Meanwhile, nominalism separates concepts and reality. This view wants to explain that it is impossible to build a representation of reality directly because knowledge of reality is mediated by the construction of consciousness (Poespowardojo and Seran, 2016: 265).

The ontological debate seems endless, where new speculation always appearing in order to replace old ones. According to Ludwig Wittgenstein, the task of philosophy is not to try to find the truth, but to unravel the complexities of unhealthy ways of thinking. And, when we do not have any answers to one question, it should be silent (Where of one cannot speak, there of one must be silent). (Doludea, 2017: 46). This study discusses four main perspectives about ontological and epistemic plurality in the realm of information science. The first part explains the various traditions of information science in the epistemological sphere. The second part explains the importance of the philosophy of science in information science. The third part is reviewing metatheory in information science. The fourth part, elaborates on the theoretical basis of social epistemology. The fifth part, explains the philosophy of information as the foundation of information science.

Information Science Traditions

Neologism of information science was first introduced by Jason Farradane around 1955 (Shapiro, 1995). Neologism outlined academic and professional qualifications in the field of documentation or information science. It appears that information science is a convergence of the field of documentation. This is certainly not entirely true. Because, throughout the 20th century strong impulses emerged from several fields of study: librarianship, bibliography and documentation to turn into information science. In 1968, the American Documentation Institute was a documentary educational institution that changed its name to the American Society for Information Science. (Buckland, 2012: 1) Meanwhile, Wersig and Neveling (1975: 127) see that information science has been developed at least since the 1950s. At the beginning of its development, this science was not a discipline that combines one science with one another, but instead being developed from the field of documentation or information retrieval, especially in relation to the use of technology which then brought this knowledge to the quantification of information.

The emergence of information science shows that there are epistemic and practical needs caused by the phenomenon of the information revolution and information and communication technology (ICT). According to Robinson (2009: 579) the phenomenon was triggered by: [1] increased awareness of technical information as a resource for research-based industries; [2] the need to deal with the information explosion; [3] the rapid growth of publications especially scientific and technical information during post-World War 2; [4] the application of new

technologies that deal with information (for example, the concept of Memex-Vannevar Bush); [5] development of Shannon-Weaver Information theory. The diversity of phenomena that led to the birth of this information science, in the initial phase, also contributed to the diversity of this science. However, approaches and traditions in information science apparently have nothing in common. There is information science which uses an objective approach, while others choose a cognitive approach. Information science also has diverse traditions: libraries, documentation and computers. The diversity clearly presents concepts that have different meanings, which imply different domains of knowledge. Different domains of knowledge also indicate different fields. However, all of them are represented by the term of information science. This confused scientists, practitioners, and students in the field (Chaim Zins, 2007).

The confusion of information science has led to speculation whether information science is a discipline or a practical art? However, Farradane (1976) answered the confusion by saying that information science is "true information science", and not "applied multidisciplinary art." He further asserted that an information science must be a cognitive science, which requires experimental studies, using a strong positivist and behaviorist approach. Meanwhile, others see that information science as an applied science (Harmon, 1971; Rosenberg, 1974). Brookes (1980) stated to have found a niche for information science, which cannot be claimed by other disciplines, is in the exploration of the world of objective knowledge, which is a different extension of the problem of documentation and librarianship (Robinson, 2009: 579).

The condition of the obscurity of this science was reiterated by Heilprin (1989: 343) who saw that although many laws, theories, hypotheses and speculations about information had been put forward, information science did not yet have an adequate scientific and epistemic foundation. This condition naturally resulted in various interpretations regarding the position of information science in the epistemological constellation. Naturally, these scientists of science questioned the type of knowledge in this field of information.

The diversity of traditions has brought a lot of focuses of studies in inforamtion sciences presents various different meanings in describing this science. Borko (1968: 3) defines information science as:

Information Science is that discipline that investigates the properties and behavior 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, logic, linguistics, psychology, computer technology, operations research, the graphic arts, communications, library science, management, and other similar fields. It has both a pure science component, which inquiries into the subject without regard to its application, and an applied science component, which develops services and products (Borko, 1968: 3)

4

The definition lets us understand information science from three main aspects. Firstly, the object of information science studies is the concept of information itself, its properties and behavior. Secondly, information science focuses on the body of knowledge related to the process of origination, collection, organization, storage, retrieval, interpretation, transmission, transformation, and utilization. Thirdly, interdisciplinary science derived from pure science and applied science. Borko's definition is actually quoted Taylor's writings entitled "Professional Aspects of Information Science and Technology" and published in the Annual Review of Information Science and Technology (ARIST) in 1966. Meanwhile, other experts interpret information science as "a multidisciplinary field. of study, involving several forms of knowledge, given coherence by a focus on the central concept of human recorded information "(Bawden, 2007)

The plurality of traditions must be interpreted as ways of reasoning objects that can be studied in information science. Information science is a vast new science that is focused on managing the information life cycle. On the other hand, this knowledge is understood as "only" librarians with other names. There is still a debate about the position of library science and information science. Some believe that the two are epistemically and ontologically different. These scientists argue that information science is a discipline that carries out investigations and research, while librarianship focuses on services and practices (Shera, 1982). Hayes (1985: 174) in his article "The History of Library and Information Science: A Commentary", clearly distinguishes the discipline of information science and library and information science. According to him, information science:

(1) As concerned with the information content of books and documents (in contrast to the concern of libraries with the books and documents as physical records);
(2) As concerned with practical knowledge, of value for the solution of specific problems (in contrast to the concern with the full range of knowledge that is the province of librarianship);
(3) As concerned with the application of computers and other automated systems (in contrast to the concern of libraries with intellectual processes as handled by people).

Most scholars see that library science and information sciences are different but interdependent. Saracevic (1992) sees that library science and information science are two separate fields with a common foundation. He argues that the similarity between library science and information science lies on the sharing of social roles, especially in matters of effective use of graphic recordings. But there are also very significant differences in some critical matters, including in: (1) the choice of the problem being handled and in the way the problem is defined; (2) the theoretical questions raised and the framework set; (3) the nature and level of empirical experiments and development and the results of the derived practical knowledge / competencies; (4) tools and approaches used; and (5) the nature and strength of the interdisciplinary relationships that are built and the dependence on progress and evolution of the interdisciplinary approach.

Information Science and Philosophy of Science
Not so many scholars are interested in the philosophy of science. Butler (1933: xi-xiv) stated that "unlike his colleagues in other fields of social activity the librarian is strangely uninterested in the theoretical aspects of his profession ... The librarian apparently stands alone in

the simplicity of his pragmatism : rationalization of each immediate technical process by itself seems to satisfy his intellectual interest ". Hjorland (2005: 6) suggests that "we need people who have competencies in both the philosophy of science or a particular metatheory and LIS. Unfortunately these kinds of double qualifications are still rare in our field. " This indication shows that the importance of information science scientists mastering the philosophy of science, moreover this field is an interdisciplinary field of science.

As an interdisciplinary field of science, surely an understanding of philosophy of science is needed because it is assumed that there is a recognition of plurality of methodologies. In addition, understanding this philosophy of science also prevents methodological anarchism, that is, the recognition of only one methodology that is the most correct (unified science). Philosophy of science can also help our field to better observe and investigate major and fundamental problems. Therefore, information science must really consider understanding of the philosophy of science as a guide in the development of science.

In general, philosophy of science discusses three main fields, namely ontology / metaphysics, epistemology and ethics. Ontology or metaphysics is understood as a science that dissects the meaning of existence, what exists, and the nature of ontos / exists in the world. Meanwhile, epistemology is seen as a science that seeks to answer the question what is knowledge and how to obtain knowledge. Meanwhile, ethics is interpreted as a view of moral considerations of what is considered good and how people should behave. These three fields have links to information science.

The development of sciences can be traced back to different approaches: empiricism, rationalism and positivism. Empiricism holds that experience is the single or most important way to obtain justifiable knowledge. A justification can be proven only through experience. Meanwhile, rationalism is a view that sees rational intuition (mind) as the main way to gain knowledge. Rationalism presupposes subject autonomy in gaining knowledge. Meanwhile, there is one thought that also stands out in the context of the development of science and is often regarded as a form of empiricism, namely: positivism. Positivism agrees that knowledge is a construction of experience based on free will. It seems that the tradition of positivism is a thought that wants to combine empiricism and rationalism.

These three schools of thought influenced information science researchers in the ways of reasoning for investigating their research objects and choosing approaches and methods that are appropriate to the type of flow they profess. Tracking researchers who use this school of thought in the field of information science is not easy. Because, often they do not explicitly state that the research they do is based on a certain flow. Hjørland (2005b: 144) notes that Ranganathan's analytical classification facets reflect a rationalist style of information science. According to Hjørland (2005b: 144), there are a lot of scholars who use positivist assumptions in information science, including: Dick (1991, 1993); Hjørland (1997, 2003a, b); Peters (1977); Radford (1992); Rayward (1994); Svenonius (2004) and Wildemuth (1993).

Metatheory in Information Science

Multi traditions in information science gave rise to different paradigms, approaches and methods in investigating the epistemic objects of this science. This condition is caused by the growth of information science into an interdisciplinary and complex field of science. However, a

6

science presupposes metatiori, paradigm, tradition or thought in an effort to develop science. Gorman (2001: 24) actually holds that "we cannot spend a lot of time and effort on speculative inquiry" but must try to solve the very serious practical problems faced by libraries, librarians, and library users today. This view is of course difficult to accept, because in an effort to solve these practical problems depart from theoretical and epistemic assumptions. In fact, according to Hjørland (1998: 606) the most basic metadata solution and information algorithm search is based on meteorological assumptions.

On the other hand, Luciano Floridi (2002: 42) in a different context but with the same intention argues that to determine whether a discipline requires meteorology or phenomenology (philosophy of a phenomenon) requires an understanding of the nature of the science. In the example given philosophy of language and epistemology, seeing these two realms requires phenomenology. Their subject is meaning and knowledge, not linguistic theory or cognitive science. Meanwhile, in philosophy of physics and social sciences is a clear example of meteorology. Both of them investigate the problems that arise from organized systems of knowledge and then both will investigate natural or human phenomena. Floridi (2002: 43), there are several other branches of philosophy that actually show tension against the two poles, which often combine phenomenological and metathoretical interests. This can be found in the philosophy of mathematics and logic.

In this section, we will focus more on the metatheory in information sciences. Metatheory is understood as a theory of description, investigation, analysis or criticism of theories in a domain. (Hjørland, 2005: 5) There are at least three methods that illustrate important perspectives in information science, namely constructivism, collectivism and constructionism. This methodology is used in the context of information seeking, retrieval, and knowledge organization and organizing knowledge.

Cognitive constructivism is a metathoritic position which sees the formation of knowledge as the creation of mental models (Talja et al., 2005). Mental models are defined as conceptual structures that are relatively stable and action-oriented. Mental models consist of schemes, scripts and knowledge structures that exist in a person. In information science, cognitive constructivism is a model of information transfer by giving freedom to every individual who receives that information to help the information in their minds. When someone gets the information, he/she is free to assimilate the information in accordance with what he/she wants.

In collectivism, knowledge is formed collectively or together and this is closely related to social interaction (Talja et al., 2005). Formation and development of knowledge structures positioned in social culture. When knowledge is formed, the people in the social structure only need to take that knowledge. In the context of IS, everyone who uses information is considered to have participated and this is part of social life.

Constructionism sees the formation of knowledge based on the linguistic process. In constructionism, the concept of cognition to gain knowledge is transformed into conversation. When there is a conversation, there will be differences of opinion and there may be chaos. However, the chaos that occurred here will produce a new understanding that can be accepted by all parties. In information science, constructionism is used as an assumption that information, information systems and information needs are entities that result from existing discourse (Talja et al, 2005). So that in analyzing information needs such as relevant criteria and keywords needed

7

interaction with relevant people so that it can be formulated. Constructionism focuses on rhetoric, argumentation and the language used in the dialogue being carried out.

Social Knowledge and Epistemology

Egan and Shera (1952: 132) agrees that knowledge is considered an object in information science studies. Information sciences deal with the process of knowledge creation in the midst of society. This framework serves as a theoretical foundation for information science that focuses its attention on knowledge management. This framework came to be known as Social Epistemology. By making social epistemology the conceptual basis of information science, it is hoped that library and other information institutions can work more effectively in managing and providing public access to knowledge. In other words, social epistemology provides a theoretical framework that supports the handling of all aspects of knowledge acquisition activities.

Shera (1970: 84 – 88) sees that social epistemology should not only provide a theoretical foundation, but it also should have practical implications by making library services and other information management institutions work more effectively in facilitating intellectual access to knowledge. Social epistemology is applicable in information science to discuss the activity of nonverbal cataloging, classification. It includes classification of knowledge can make it easier for people to find the knowledge they need (Shera, 1970: 90-92). Therefore, social epistemology can enhance cataloging knowledge when they understand the process of how knowledge is acquired and used.

Social epistemology was explained by Shera as a conceptual foundation of information science with the aim of increasing professional understanding of information in collecting, organizing and providing access to knowledge. In order to achieve that goals, information science scholars must understand what knowledge is and how people acquire it. The same thing was also expressed by Heilprin (1968: 35) who said that lack of knowledge about epistemology could be the biggest obstacle in developing information science.

Social epistemology can contribute to the development of science through the process of communication with the community rather than through direct observation. This socially acquired knowledge requires process of dissemination of recorded information carried out by information institutions. Therefore, the problem of managing knowledge is also an important concern in the field of epistemology.

Fallis (2006: 478-79) notes that there are several methods or techniques in information science that can be used to conduct research in social epistemology. For example, bibliometric analysis can be used to study the structure and dynamics of scientific knowledge (eg, Marshakova-Shaikevich, 1993). Bibliometrics can increase the efforts of information professionals to assist users of information services in gaining knowledge. Fallis also mentioned that most information research science are having epistemological questions. Fallis refers to Budd's (1995) approach by focusing on the question of how knowledge is obtained by information scientists, rather than how knowledge is obtained by users of information services.

Fallis (2006: 508) concludes that social epistemology is the appropriate theoretical foundation for information science. This perspective allows information science to help users of information services to obtain knowledge and this task is the main goal of library institutions and other information services. In other words, most activities that take place in information services are

8

intended to facilitate the acquisition of knowledge. Therefore, social epistemology provides an integrated theoretical framework that enables us to improve information service policies and practices. In addition, epistemological work is centered on answering questions about what knowledge is and how people acquire it, it is clear that epistemology can help to explain the main purpose of information services. As such, this platform can help information services to identify policies and practices that facilitate the acquisition of knowledge.

Fallis's perspectives on social epistemology is different that other information scholars that claimed that the main purpose of information services is not to help people gain knowledge, but to increase the distribution or distribution of recorded information (Fallis, 2006: 486). Many information scientists critisize the truth and belief in epistemologist's view of knowledge as a justified form of true belief. According to Fallis, this objection is more directed at classical social epistemology. Epistemologists often look for a set of conditions that are necessary and sufficient for what is considered knowledge. Apart from the objections, it seems clear that people who use information services have a variety of epistemic interests and values. People often want to gain significant understanding, knowledge, and wisdom in the most convenient and timely manner.

Information and Information Philosophy

The question of the meaning of information becomes one of the important issues and becomes the main discussion in information philosophy. Information science is often simply interpreted as a study of information. However, the object of information science can involve phenomena that are closely related to information and the ways people interact with information. Even though information science far many information scientists have put more emphasis on the interaction of people with information. Of course, this view requires argumentation in several ways so as to provide a clearer feel about the nature of information science. Furner (2006: 166) stated that at least three things are needed so that we can answer questions about the nature of information science, namely: (1) provide a limitation or definition of "information"; (2) describe phenomena related to information, indications, and related strengths; and (3) enumeration and description of the way people interact with information and with information-related phenomena.

This growing variety of meanings is happening to all fields of science, including information science (Floridi, 2011: 81). The polymorphic and polysemantic phenomena of information caused information to be interpreted through various perspectives, depending on the level of abstraction chosen and the need for its meaning. The various perspectives have made no single definitive answers of what is of information. The plurality of meanings places information in a confusing junction and its clarity depends on the limits of the meaning it contains.

Floridi (2002: 41) views information science from a different perspective. He saw that the nature of the objects that were dived into and investigated by science was not knowledge but a source of information. The existing library institutions did not only manage objects in the form of knowledge. However, the library also collects and manages objects that are not knowledge, for example fiction collections, children's books and so on which are generally stored and managed by public libraries. This line of difference is increasingly visible when Floridi explains the epistemic position of the social epistemological approach in information science. Social epistemology are both descriptive and prescriptive, while library and information science are full of values (normative). Floridi explained that the norms of science are not only obtained through

epistemology, but rather through normative explanations about knowledge. However, information science has a goal to document the evidence and assist the user in interpreting and evaluating the sources and origin of the evidence. (Floridi, 2002: 39-40)

In the epistemological context, Floridi (2004: 10) defines information as data that is structured, meaningful and true. Knowledge is relevant semantic information, which can be explained in the right way. Humans are the only semantic machines and information organisms (inforg) conscious in the universe, and the universe is the totality of information. The meaning of this information shows that the wrong information is not information, but pseudo-information. This view is different from the opinions that have existed so far in which the element of truth is not a part that forms the building of information. Information is only understood as meaningful data. This situation then opens a long arena of discussion by focusing on the question whether information can build truth? However, Floridi (2004: 10) remains in its stance that information in the semantic context is interpreted as formed good, meaningful and true data. The meaning of semantic information that contains truth values is acceptable if the truth value is true.

In the semantic context, information is an integral part of the construction of meaning (Floridi, 2011). The semantic context adds another perspectives on the shaping of the meaning of information. Semantically, there are several questions that that can be asked (Floridi 2011: 33): What is the semantic aspect of information? What role does information play in shaping meaning? These questions are questions that are often asked when people discuss and question information in the context of information philosophy.

Floridi proposes an information philosophy approach as an epistemic study for information science. He said that information science is an applied information philosophy (Floridi, 2002: 37-8) Information philosophy can work on any information-related object ontology, information dynamics theory, and ethical approaches that can contribute to and expand the study of information science (Floridi, 2004: 659) In other words, information science can apply the main principles and general techniques of information philosophy to solve empirical praxis problems and solve specific concrete phenomena (Floridi, 2002: 46).

The choice of information philosophy as a theoretical foundation for information science requires this field to define information from both ontological and epistemic angles. The finding towards definition of information is important in order to position information from the genus proximus so that the term information can be grouped in the appropriate class. In addition, through differentia specifica places information in different characteristics with other similar terms and at the same time constructs its own meaning that has its unique characteristics.

Information philosophy has been a part in the epistemological domain of information science. The metatheory related to concepts, properties, dynamics, methods and theories related to information have been offered in computer science and information. At that time, computer and information science aimed to study theories, concepts and methods in order to: [1] broaden understanding of the cognitive and linguistic abilities of humans, animals and AI (artificial intelligence); [2] analyze inferential and computational processes; [3] explains the principles of life management and agency; [4] applying a new approach to demonstrating physical and conceptual systems; [5] formulating scientific methods, for example the computational method of the philosophy of science; [6] examines ethical issues, aesthetic problems and psychological,

10

anthropological, and social phenomena that show the characteristics of information society and human behavior in a digital environment (Floridi, 2011, 16).

In information philosophy has two main thoughts: transedental and empirical thoughts (Adriaans, 2010: 44). Both of them have have strong historical roots in understanding the deeper nature of information. Transendental thought originated from Kant's philosophy, while empirical thought derived from Hume's thought. Floridi attempts to be involved in Transedental thought by trying to redefine popular ideas about information in order to revitalize the transedental philosophy program.

Information philosophy, in general, aims to develop an integrated theories, discussion, explanation, and evaluation of various principles and concepts and use of information. There are at least two main focuses in the investigation of information philosophy: critical research on the principles of information and the application of computational theory to philosophical problems (Floridi, 2011: 1). Information philosophy adds special attention to systemic problems that arise due to differences in application and its relationship with other philosophical concepts, such as knowledge, truth, meaning, and reality. Information philosophy provides critical research that is not merely interpreted as a quantitative theory of data communication (information theory) (Floridi, 2011: 14).

Conclusions

Multi traditions in information science adds diversity of paradigms, approaches and methods in understanding the objects of science and knowledge. The plurality of traditions enables scholars to explore multiple perspectives in investigating information as study objects in information sciences. Information science has always been an interdisciplinary and complex. Floridi (2011) suggested phenomenological and metathetic perspectives to information science.

The multi interpretative objects in the information science research brings a lot of conceptual foundations to the sciences. Social epistemology is a more appropriate theoretical foundation for information science. Social epistemology allows information science studies to practically help users of information services to gain knowledge. Social epistemology provides an integrated theoretical framework that makes it possible to improve information service policies and practices. Epistemological perspectives helps information science scholars to answer questions about what knowledge is and how people acquire it. Epistemology can help explaining the main purpose of information services.

The information philosophy approach is an epistemic umbrella that is appropriate for information science. Information philosophy can work on object ontology, information dynamics theory, and ethical approaches related to information so that it can contribute and broaden the study of information science. In other words, information science can apply the main principles and general techniques of information philosophy to solve empirical praxis problems and solve specific concrete phenomena.

References

Adams, Fred dan Moraes, Joao Antonio de. (2014). "Is There a Philosophy of Information?, *Topoi,* 35 (1): Hlm. 161-71.

Bawden, David. (2007). "Organised complexity, meaning and understanding: an approach to a unified view of information for information science". *Aslib Proceedings*, 59 (4/5), *p.* 307-27.

Bertens, K. (1990). *Sejarah Filsafat Yunani.* Yogyakarta: Kanisius.

Buckland, Michael. (2012). "What Kind of Science *Can* Information Science Be?", *Journal of The American Society for Information Science and Technology,* 63 (1), *p.* 1-7.

Doludea, Tony. (2017). *Ontologi: Sebuah Penuturan Sederhana*. Yogyakarta: Quark Books.

Fallis, Don. (2006). "Social Epistemology and Information Science", *Annual Review of Information Science and Technology,* 40 (1), *p.* 475-519.

Floridi, Luciano. (2002). "On Defining Library and Information Science as Applied Philosophy of Information". *Social Epistemology: A Journal of Knowledge, Culture and Policy*, 16 (1), *p.* 37-49.

. (2004). "LIS as Applied Philosophy of Information: A Reappraisal. *Library Trends,* 52 (3), *p.* 658-65.

. (2005). "Is Semantic Information Meaningful Data?, *Philosophy and Phenomenological Research,* 70 (2): hlm. 351-70.

.(2009). The Information Society and its philosophy: introduction to the special issue on "the philosophy of information, its nature and future developments". *Information Society: International Journal,* 25 (3): hlm. 154.

. (2011). *The Philosophy of Information*. Oxford: Oxford University Press.

. (2013). *The Ethics of Information*. Oxford: Oxford University Press.

Gorman, M. (2001), "The future of LIS research", Norsk Tidsskrift for Biblioteksforskning, No. 16, pp. 23-33.

Hayes, Robert M. (1985). "The History of Library and Information Science: A Commentary". *The Journal of Library History,* 20 (2), *p.* 173-178.

Hjørland, Birger. (1998). "Theory and Metatheory of Information Science". *Journal of Documentation,* 54 (5), *p.* 606-21.

. (2005a). "Library and Information Science and The Philosophy of Science". *Journal of Documentation,* 61 (1), *p.* 5-10.

. (2005b). "Empiricism, Rationalism, and Positivism in Library and Information Science". *Journal of Documentation,* 61 (1), *p.* 130-155.

Poespowardjojo, T.M. Soerjanto dan Seran, Alexander. (2016). Filsafat Ilmu Pengetahuan: Hakikat Ilmu Pengetahuan, Kritik terhadap Visi Positivisme Logis, serta Implikasinya. Jakarta: Kompas Media Nusantara.

Robinson, Lyn. (2009). "Information Science: Communication Chain and Domain Analysis", *Journal of Documentation,* 65 (4), *p.* 578-91.

Talja, Sanna; Tuominen, Kimmo; and Savolainen, Reijo. (2005). ""Isms"in Information Science: Constructivism, Collectivism and Constructionism". *Journal of Documentation,* 61 (1), *p.* 79-101.

Wersig, Gernot dan Neveling, Ulrich. (1975). "The Phenomena of Interest to Information Science". *Information Scientist,* 9 (4), *p.* 127-140.

Zins, Chaim. (2007). "Conceptions of information science", *Journal of the American Society for Information Science and Technology*, 58 (3), *p*. 335-50.