

## **Pragmatic paradigm in information science research: a literature review**

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**Abstract:** In social science research, Pragmatic Paradigm was proposed as a philosophical basis for mixed methods research, supporting a third option to qualitative and quantitative methods dichotomy. The *paradigm wars* between these approaches often encouraged the application of rigid methodological frameworks and the temptation of creating ‘one size fits all’ epistemological solutions. To overcome these issues, pragmatism focused on obtaining the necessary data to answering research questions, rejecting pre-established methods design. Several studies performed analysis of mixed methods research presence in information science but those which mentions the pragmatic paradigm are poorly known. In this paper, we explore the rationale and the foundations of the pragmatic paradigm and its applications in information science research. Using a recent literature review (*Web of Science* and *Scopus*), the main objective is to understand pragmatic paradigm presence in information science literature, understanding if mixed methods researchers and others refer pragmatism as their philosophical basis. The analysis shows that information science research is not aware of the pragmatic paradigm as a methodological foundation neither recognizes it as a basis for mixed methods research. Nevertheless, knowledge acquisition about information science field is still enriched through the study and observation of this paradigm choice.

**Keywords:** Pragmatic Paradigm, Epistemology, Information Science

### **1. Introduction**

In social science research, Pragmatic Paradigm was proposed as a philosophical basis for Mixed Methods Research (MMR) (Morgan, 2007; Mertens, 2010; Creswell, 2014), supporting a third option to qualitative and quantitative methods dichotomy. The *paradigm wars* between these approaches often encouraged the application of rigid methodological frameworks and the temptation of creating ‘one size fits all’ epistemological solutions. To overcome these issues, pragmatism focused on obtaining the necessary data to answering research questions, rejecting pre-established methods design. Several studies

performed analysis of MMR presence in information science (e.g. Fidel, 2008) but those which mentions to pragmatic paradigm are poorly known.

In this paper, we explore the rationale and the foundations of the pragmatic paradigm and its applications in information science research. Using a recent literature review, the main objective is to understand pragmatic paradigm presence in information science literature. We intend to understand if mixed methods researchers and others refer pragmatism as their philosophical basis. Therefore, this paper seeks to improve the knowledge about information science field, studying it through the observation of this paradigm choice.

## **2. The pragmatic paradigm**

According to Ormerod, Pragmatism is a philosophical doctrine «that can be traced back to the academic sceptics of classical antiquity, who denied the possibility of achieving authentic knowledge regarding the real truth and taught that we must make do with plausible information adequate to the needs of practice» (2006, p. 892).

However, its development as a philosophical movement that will influence social science research comes with the American pragmatic movement carried out by Charles Peirce (1839-1914), William James (1842-1910) and John Dewey (1859-1952) (Ormerod, 2006; Campbell, 2011).

In a study devoted to the understanding of the history and ideas of the initial period of the American pragmatism, Ormerod (2006) begins by examining the definitions that are associated with it, alerting to a duality: the term either refers to the pragmatic attitude or procedure, or to the philosophy espoused by Peirce and James warning of the rigor in its use.

In general terms, the basis of pragmatism enunciated by Peirce and James can be found in the research approach using the logical process of abduction, as opposed to deduction or induction (Campbell, 2011; Davies, 2013). As stated by Peirce: «Any hypothesis, therefore, may be admissible, in the absence of any special reasons to the contrary, provided it be capable of experimental verification and only in so far as it is capable of such verification» (apud Campbell, 2011, p. 52). Thus, for a pragmatist, the «mandate of science is not to find truth or reality, the existence of which is perpetually in dispute, but to facilitate human problem-solving» (Pansiri, 2005, p. 96). However, and «in all cases, there is a social context mediating the terms of the initial problem and its solution» (Ormerod, 2006, p. 901).

According to this principle, the process of investigation under pragmatic orientation places the focus on the research problem as determinant for the epistemology, ontology, and axiology of the research rather than the method (Onwuegbuzie & Leech, 2005; Davies, 2013; Parvaiz, Mufti, & Wahab, 2016). From the epistemological point of view, the researcher who acts in the pragmatic paradigm enjoys the freedom to choose the methods used to reach his objectives, using as a single criterion the adequacy of a given method or

methods to answer a given research question. The convenience and the opportunity of research situations are thus more important than the epistemological place that the researcher assumes in his relationship with the subjects or objects investigated (Mertens, 2010).

In methodological terms, pragmatism has a second period of use and expansion, which runs from the 1960s to the present day. A renewed attention to qualitative research starting in the 1980s left behind the dominant perspective of quantitative research. Crossing over the *paradigm wars*, the contribution of pragmatism to social science research can be found «on the connection between epistemological concerns about the nature of the knowledge we produce and technical concerns about the methods we use to generate that knowledge. This moves beyond technical questions about mixing or combining methods and puts us in a position to argue for a properly integrated methodology for the social sciences» (Morgan, 2007, p. 73).

In fact, quantitative and/or qualitative methods are compatible with pragmatism, and only the purpose of the study influence the researcher decision. This paradigm thus intends to present itself as a practical solution to the dichotomies and tensions prevailing in the scientific community between quantitative or qualitative options. The choice of methods is the result of the researcher's reflection and is based on the consensus generated in the community about the best paths to follow in each situation (Mertens, 2010).

The identification of the pragmatic paradigm with MMR can be found in several authors (Onwuegbuzie & Leech, 2005; Alise & Teddlie, 2010; Mertens, 2010; Hall, 2013; Creswell, 2014; Morgan, 2014; Parvaiz et al., 2016; Edmonds & Kennedy, 2017; Leavy, 2017) considering that «pragmatism explicitly hails the foundations for the mixed method researcher» (Parvaiz et al., 2016, p. 76).

The pragmatic paradigm is used in several fields of social science research. These applications can be found in ethnography, anthropology, sociology, information science and even in the development of public policies, etc. In practical terms, pragmatism is reflected in the appropriateness of the method to the research question without *a priori* limitations established.

On their work regarding prevalence rates of methodological approaches, Alise and Teddlie (2010) had already concluded that pragmatism is more associated with applied disciplines than pure disciplines (14% to 5% rates) (p. 119) and stated, consequently, that the use of MMR had higher prevalence rates on applied disciplines, as opposed to the still dominant trend of quantitative methods in pure traditional disciplines.

Hay, in his work on the dissemination of mixed methods as a methodology for a holistic understanding of the social and human sciences, scrutinizes examples of research produced in fields as diverse as medicine, ethnography or psychology,

among others. Having as an initial permission that research is developed «to discover findings that matter» (2016, p. 393), the methodology must be understood as a mean to that end, providing working tools for the understanding of a given problem. That is, explore a research question from more than one worldview or methodological perspective.

The description of the various investigations leads to the understanding of how research developed with preconceived ideas of methodologies to be used can lead to less rich results or even to misunderstanding on how to solve a problem. When changing to pragmatic paradigm, the researcher gains an inclusive methodology, producing a more comprehensible and exhaustive result of the problem in question. However, the logic that prevailed over the application of the pragmatic paradigm, is not justified in most of the cases Hay presents, as other authors had already concluded (Alise & Teddlie, 2010, p. 122).

### 3. Methods

Using a recent literature review (*Web of Science* and *Scopus*), the main objective is to understand pragmatic paradigm presence in information science literature. The information retrieval was divided in two phases.

In phase A, it was performed a search in *Web of Science* (Clarivate Analytics), particularly in the Web of Science Core Collection (March 3<sup>rd</sup>, 2018). It was made a 'Basic Search' (Topic = Title, Abstract, Author Keywords, Keywords Plus®) with the 'Search Terms': 'TOPIC: ("pragmatic paradigm" OR pragmatism) AND TOPIC: (librar\* OR archiv\* OR "information science")' and the 'Timespan: All years'. The database retrieved 70 results. Afterwards it was performed a content analysis in three steps: titles and publication names analysis (excluded 40); abstract analysis (excluded 22); full text reading (nothing excluded). The criteria for exclusion were those papers that mention pragmatism but not related with methodological paradigms issues. The final results were 8 papers.

In phase B it was performed a search in *Scopus* (Elsevier). It was made a 'Document Search' (March 3<sup>rd</sup>, 2018) using 'Search Field Type: Article title, Abstract, Keywords' with search terms: 'TITLE-ABS-KEY ("pragmatic paradigm" OR pragmatism AND librar\* OR archiv\* OR "information science")'. It was found 107 results. Afterwards it was performed a content analysis in two steps: titles and publication names, and abstract analysis (excluded 98); full text reading (1 excluded). The criteria for exclusion were those papers that mention pragmatism but not related with methodological paradigms issues. The final results were 8 papers.

The intersection between both searches revealed 5 duplicated records, resulting in a final list of 11 papers published between 2005 and 2018. This universe was therefore analysed in detail, regarding the following structure: Type of publication; Objective(s) of the study; Population; Methodological details; Implications of pragmatism for research outcomes.

#### **4. Information science applications**

The information science applications of pragmatism were analysed in 11 papers. These papers could be divided in four groups concerning the type of publication: four empirical studies (Martínez Avila & Guimarães, 2013; Majinge & Stilwell, 2014; Ab Aziz, Klein, & Ashleigh, 2015; Kavishe & Isibika, 2018); three conceptual papers (Hjørland, 2009; Martínez-Avila, Semidao, & Ferreira, 2016; Buschman, 2017); two historical studies (Dousa, 2010; de Almeida, 2012); two literature reviews (Sundin & Johannisson, 2005; Yokoyama, 2014).

Regarding the main objectives of the studies, it is possible to find two different landscapes. First, we found several studies around meta-theoretical and epistemological issues. Sundin & Johannisson (2005) study the neo-pragmatist position of Richard Rorty, and its combination with a sociocultural perspective, providing Library and Information Science (LIS) with a forceful epistemological tool. Hjørland (2009) analyses concept theories and develop a theory of concept, to view and classify it in accordance with epistemological theories (empiricism, rationalism, historicism, and pragmatism). Dousa (2010) reviews three variants of Pragmatism that have been historically influential in philosophy - Charles Sanders Peirce's scientifically oriented pragmatism, William James's subjectivist practicalism, and John Dewey's socially oriented instrumentalism - and indicates points of contact between them and knowledge organization theories propounded by Henry E. Bliss, Jesse H. Shera, and Birger Hjørland, respectively. De Almeida (2012) uses the philosophy and semiotics of Charles Peirce (1839-1914) to understand and evaluate the contributions of the Peircean thought to information organization. Martínez Avila & Guimarães (2013) reflects about library classifications criticisms from a poststructuralist and pragmatist point of view that rejects the idea of universality in knowledge organization systems. Yokoyama (2014) consider the relationship between philosophy and LIS and Martínez-Avila, Semidao, & Ferreira (2016) discuss the methodological aspects of critical theories in classification. To close this group, Buschman (2017) explores an approach to epistemology which allows a portion of LIS to coherently explain its social and intellectual contributions, and to overcome some of the epistemological problems that LIS encounters.

In a second landscape, we found some studies with human populations. Majinge & Stilwell (2014) examine whether ICTs facilitate information delivery to people with visual impairment and on wheelchairs and try to find out what assistive equipment is available in academic libraries in Tanzania's higher education. Ab Aziz, Klein, & Ashleigh (2015) investigate visualization concepts by eliciting users' experience when using university campus maps. Kavishe & Isibika (2018) examine the provision of access to information to persons with disabilities, particularly those in wheelchairs in Ardhi University and University of Dar es Salaam Libraries (Tanzania). In terms of populations, Majinge & Stilwell (2014) study an academic setting, comprising 196 respondents: library

directors, other professional library staff, disability unit staff, and people with visual impairment and on wheelchairs. Ab Aziz, Klein, & Ashleigh (2015) also study an academic population comprising 48 undergraduate and postgraduate students of Southampton University and Kavishe & Isibika (2018) examine 40 respondents that included library staff and students in wheelchairs.

The methods used in the 11 papers vary according to the landscape to which they belong. In the first landscape (meta-theoretical and epistemological issues) dominates the use of literature review and content analysis of this literature. In the second landscape (human populations), Majinge & Stilwell (2014) uses pragmatic paradigm with both quantitative and qualitative methods. Questionnaire, interviews and an observation checklist were used to collect data. Data gathered through questionnaires were analysed using descriptive statistics facilitated by SPSS, and data gathered through interviews were analysed using thematic analysis. Ab Aziz, Klein, & Ashleigh (2015) use a mixed methods approach, in the form of repertory grid technique to elicit a list of factors when using a campus map. Open-ended questionnaire and a semi-structured interview were the data collection techniques. Using pragmatism, Kavishe & Isibika (2018) also performs a mixed methods approach that includes both qualitative and quantitative data collection and analysis techniques. Data was collected through document review, questionnaires and interviews. Qualitative data was collected through interviews and quantitative data was obtained through questionnaires.

Regarding the implications of pragmatism for research outcomes it is clear the same division. In the first framework, pragmatism is mostly a support for MMR (Majinge & Stilwell, 2014; Ab Aziz, Klein, & Ashleigh, 2015; Kavishe & Isibika, 2018).

In the second framework, Sundin & Johannisson (2005) note that «despite the traditionally strong interest in applications within LIS, pragmatism has mostly been referred to in its everyday, pragmatic, sense rather than in its philosophical, pragmatist, sense. Even in texts that deal with metatheory, pragmatism is often referred to in a general manner without a discussion of its philosophical origins. Pragmatism is used to label, for example, principles for knowledge organization that are built on individuals' wishes and behaviors» (p. 31). The author provides some examples of pragmatism in LIS, namely Birger Hjørland and Patrick Wilson's views which arise several power and authority issues: «users' information behavior is not limited to studying, understanding and explaining information-seeking behavior, but also entails judgments of how this behaviour "should" be» (p. 33). Sundin & Johannisson (2005) conclude: «if we see LIS research as providing tools with which to manage information issues, then whose beliefs or interests are being promoted within LIS, regarded as a community of justification? Research is motivated by the pragmatist argument that it has the potential to contribute with tools that will help solve problems within different practices. (...) A research area that is heavily lop-sided towards

practice-related research is no more neutral than theory-focused research. Librarians, documentalists and other information specialists operate on the basis of their own interests; anything else would be unreasonable. But a vibrant LIS discipline requires that it is also possible to examine these interests critically» (p. 40).

Following the same path, Hjørland (2009) states that «pragmatism is based on the assumption that knowledge cannot be neutral (because of its teleological nature) and, therefore, it is important to uncover the inherent values and consequences in any knowledge claim, in any conception, and in any classification». Regarding concept theory, the author presents pragmatism in the perspective «that empiricism, rationalism, and historicism alone cannot account for conceptual developments» (p. 1526).

Within knowledge organization, researchers adopting pragmatist perspectives have tended to incline towards the socially pluralist model articulated by Dewey and championed by Hjørland (Dousa, 2010). Regarding also knowledge organization, de Almeida (2012) presents some arguments aimed at reframing Peirce's pragmatism, which should no longer be mistakenly considered as a doctrine of practical results, but as a useful methodological approach for professionals dealing with knowledge organization in Information Science field. Also using pragmatism, Martínez Avila & Guimarães (2013) state that «from our pragmatic point of view, the solution to the whole problem of universalism in library classification systems would be the development of local classification systems and special schemes in which the system's unique perspective and intended users are clearly identified. This solution would prevent unethical impositions of unavoidably biased systems to wrong audiences» (p. 25). Buschman (2017) proposes that LIS' problems with epistemology come from a variety of sources: epistemology itself, the combining of librarianship with information science, and the search for a common grounding of the information professions, their tools and their institutions. No such theoretical foundation is possible, but Deweyan Pragmatism offers a sensible, practical explanation for the historical development and practices of librarianship.

## **5. Discussion**

Most of the articles retrieved are meta-theory observing pragmatism in a philosophical point of view. Only three papers recognize pragmatism as a methodological foundation for information science epistemology, based on mixed methods choice, which is a small amount of the research retrieved and reveal a scarce penetration of pragmatism in this field.

It is important to acknowledge that most studies using MMR could not recognize pragmatism as their methodological foundation. This issue leads to an absence of pragmatic expressions or pragmatic paradigm in the methods' sections of published papers, which may have disrupted the results of this study. Nevertheless, and, as Alise and Teddlie (2010, p. 122) had already concluded,

there is a lack of concern in referring to the paradigm underlying research, especially in empirical studies.

Even considering the ten years' difference, these results are consistent with Fidel's findings: «the portrayal of MMR use in LIS revealed that the approach has not yet established itself as a concept in LIS research. (...) Only 5% of the 465 examined articles that described empirical research reported on its use, and no article mentioned MMR explicitly» (2008, p. 271).

There is also evidence of the difficulty of working with pragmatism and its semantic approaches. In fact, it's possible to distinguish among the literature a *practical* approach or the desire of applying research in problem solving processes, from a *methodological* approach which consist in the use of pragmatism closely related with the researcher's choices or the research contingencies.

These articles argue the kind of ontological or epistemological approaches that can contribute to the development of LIS, using concrete examples from LIS studies. Examining whether an ontological or epistemological approach can contribute to the development of LIS is important not only for studies of LIS but also for studies of philosophy. Showing that such an approach is useful involves proving the appropriateness of the approach. Hence, philosophy and LIS are closely related.

## 6. Conclusions

The initial purpose of understanding if mixed methods researchers and others refer pragmatism as their philosophical basis reveal a very incipient situation. The main objective was to understand pragmatic paradigm presence in information science literature. The analysis shows that information science research is not aware of the pragmatic paradigm as a methodological foundation neither recognize it as a basis for MMR.

Regarding the limitations of this study, it is possible that the absence of pragmatic paradigm could not be the result of a methodological option but only a matter of the traditional use of qualitative and quantitative paradigms choice. This study was based on a literature search of specific terms, which is also a limitation for content retrieval.

Nevertheless, knowledge acquisition about information science field is still enriched through the study and observation of this paradigm choice.

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