Information Science in the Mirror of the Digital Humanities: Some Epistemological Observations

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Abstract

Purpose/thesis: The purpose of this paper is to discuss the similarities and differences between the epistemologies of information science and the digital humanities in the light of the turns of information science.
Approach/methods: Numerous viewpoints, discernible from the literature, related to the epistemologies of the two disciplines have been analysed and compared.
Results and conclusions: Despite differences in their disciplinary backgrounds, information science and the digital humanities have much in common. As serious self-reflection is needed for both disciplines, they may benefit from analysing the achievements and deficiencies of the each other.
Research limitations: Both epistemologies are in forming, so only a snapshot could be taken on their present reflection.
Originality/value: The paper intends to be an add-on to the body of knowledge about the epistemologies information science, the digital humanities and the relationship between them.

Keywords

Digital humanities. Epistemology. Library and information science. Information science.

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1. Introduction

Libraries are undoubtedly an important part of the digital humanities' infrastructure. Even more, different kinds of symbiotic relationships exist between a number of digital humanities centres and university libraries (Svensson, 2010). This fact would give inspiration and justification to examine and compare the epistemologies of information science and the digital humanities. Notwithstanding, such a study of the similarities and differences between the two disciplines should go beyond stating that the word *library* surfaces with a considerable frequency in the literature of digital humanities, or that the expression *library and information science* also appears there sometimes. It is well known, and we will point out later that – despite mutual interdependencies – information science is not identical with librarianship.

Accordingly, the examination of the apparent opacity that characterizes the epistemic scope of information science in the context of the digital humanities (Svensson, 2010) is much more promising, and is not only possible, but presumably useful. Obviously, we have to be aware of the

interdisciplinary nature of both fields of science. It is also clear that these connections are also present between the two of them. This dual nature of relationships gives reason to a comparison.

Instead of trying to be exhaustive in carrying out this examination, this paper will concentrate on those features of the respective epistemologies that allow us to define commonalities and dissimilarities between the two disciplines.

Information science denotes different fields and has different names that include *library and information science*. The two expressions are often used in parallel and synonymously (Buckland, 2012). In this writing, these terms will also be used as synonyms, disregarding the similarities and differences between them.

2. Epistemologies and turns

Epistemology is among others the interpretation and generalization of scientists' own collective experience (Hjørland, 2002). Epistemology and (in particular) social epistemology are of central importance to information science. Egan and Shera, foundational authors of this field, are of the opinion that the latter "will provide a framework for the effective investigation of the whole complex problem of the intellectual processes of society". They add that epistemology is the theory or science of the methods and foundations of knowledge, especially with reference to the limits and validity of knowledge; and through it the philosopher seeks an understanding of how the individual achieves a perceptual or knowing relationship to his environment. Social epistemology "merely lifts the discipline from the intellectual life of the individual to that of the society, nation, or culture" (Egan & Shera, 1952, 132). Information science provides many important applications of epistemology, because much of socially acquired knowledge is transmitted via recorded information (Fallis, 2006). As we will see it, in the literature of the digital humanities, the concept of epistemology appears fairly often, even if it is mentioned in some cases indirectly as a question, related to the choice of methods (to be) used. Methodology in this sense is not identical with epistemology. Notwithstanding, it strongly influences effective investigation.

Examining turns can also lead to relevant conclusions. The word *turn* is a metaphor that is used as a rhetorical means to bring attention to a new way of thinking. It also implies that a new strand of thinking has appeared and grown stronger. Such a move, characterized by some sort of cognitive interruption, materializes in more or less fundamental changes within a research tradition. It can be labelled not only as a turn, but a new paradigm, a new perspective or a new viewpoint (Nolin, 2007). In any case, turns are fairly rapid changes of direction that characterize the research traditions of a given discipline (Bawden & Robinson, 2012).

3. Beyond attention to text: some shared epistemological characteristics of information science and the digital humanities

Describing the epistemology of information science in its entirety would be extremely demanding and complex, thus the aim of this writing is restricted to putting finger on a selection of the relevant issues. This is also true for the digital humanities. Nevertheless, shedding light to some of the related issues can help in clarifying the nature of the two fields.

To begin with, we have to mention that there are numerous disagreements about the nature of information science, so we can speak about an ongoing discussion about its epistemology that makes it similar to the digital humanities. Disagreements appear on various levels. The deepest layers are the metatheoretical ones, as the choice of metatheory determines the concepts, the research methods, the naming of the field and the related fields (Hjørland, 2014). External forces have also influence on the self-identity of the discipline, among others on education to information science, by pushing it towards the use of fashionable terms in order to attract students (Webber, 2003).

Information science can be defined 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 & Robinson, 2012). The key word here is *recorded*, though the recorded form is not the only possible instance of information. It can appear as knowledge, i.e. a result of being informed and information is a process of becoming informed, as well. Nonetheless, recorded information is central. Also called *information-as-thing*, it is tangible; expressed, described or represented in some physical way. This is reflected by the world *document* that signifies anything physical, perceived as signifying, although this concept was not, historically, limited to textual media (Buckland, 1991).

Due to this evident preference towards textual material and the inclination to interpret written documents (Schreibman et al., 2004; Alvarado, 2012) the ties between information science and the digital humanities are much stronger than any other similarity.

Information science has imported knowledge and methods from other disciplines, and then exported ideas to different fields, such as computer science and management (Buckland, 2012). The nature of the digital humanities is in this regards similar, e.g. it developed alongside of corpus linguistics, which is situated on the boundary between the humanities, the social sciences, and the applied sciences (Fry, 2006).

Information science is thus a broad, multidisciplinary field, which requires a variety of perspectives and methods. While this is undoubtedly true, there seems to be a consensus that it pertains to the domain of social sciences (Bawden & Robinson, 2012). Many of its subfields have issues and use methods, taken from the humanities, and on the whole, information science has a strong humanities tradition (Cronin, 2008).

When we look for the connections between information science and the digital humanities, the easiest question is the one about the differences between the digital humanities and information science. The perhaps main and undoubtedly obvious difference is carried by the name of the former. Information science does not have to differentiate itself from the humanities research tradition as the digital humanities do. Not as if information science would not need mark itself off something. However, this something is librarianship (including information services in the sense of information management as professional practice) means that the discussion is about the relationship between discipline and profession, and similarly between theory and practice. The question is if the concern of information science is in studying the practicalities of the handling of scientific and technical or everyday information, or does it deal with the "science of information", i.e. the academic study of information phenomena? In other words, we can simply ask whether information science is a discipline, or a practical art. The answer is that information science is clearly both an academic discipline and an area of professional practice (Robinson, 2009). In any case, there is a body of literature

on it and information science has a history, community, organization, and venue for its activities (Cibangu, 2013).

Information science is characterized by a high number of turns in (Zins, 2007), which shows some uncertainty in its epistemology. On the other hand, the sequence of turns has bestowed the field with a variety of theoretical and methodological alternatives (Bawden & Robinson, 2012).

The most important turns that characterize the recent decades, are the historical turn, the linguistic turn, the cognitive turn, the sociological turn and the socio-cognitive paradigm. The main characteristic feature of the historical turn was a search for the identity of information science (Nolin, 2007). The linguistic turn focused on discursive approaches. It was followed by the cognitive turn, which brought with itself a shift to individual thought processes (Bawden & Robinson, 2012).

The central claim of the socio-cognitive paradigm is that tools, concepts, meaning, information structures, information needs, and relevance criteria are shaped in discourse communities, which provide ordered and bounded communication processes that take place within the boundaries of a given community (Hjørland, 2002).

The digital humanities are by no means a well-defined or clearly fenced-off field. On the contrary, they are characterized by ongoing negotiation, different epistemic traditions coming together, and radically different visions (Svensson, 2012b). The digital humanities are not only pragmatically oriented (Dalbello, 2011), but their nature is craft-like that makes them similar to computer science (Cecire, 2011). In fact, this is also true for information science.

A founder of digital humanities, Roberto Busa approached the discipline from the humanities computing side, stating that it is

> precisely the automation of every possible analysis of human expression (therefore, it is exquisitely a "humanistic" activity), in the widest sense of the word, from music to the theater, from design and painting to phonetics, but whose nucleus remains the discourse of written texts (Busa, 2004, XI).

While emphasizing the high degree of emerging nature of, as well as diversity and heterogeneity in the digital humanities, Svensson (2012a) also points towards the foundational role of the epistemic traditions of humanities computing.

To continue with demonstrating the variety of approaches, we can see that Schmidt (2011) sees the importance of using technology to create new objects for humanistic interrogation. Frischer (2011) affirms this, and identifies the humanities' basic tasks as preserving, reconstructing, transmitting, and interpreting the human record.

At their core, the digital humanities use technology to create new objects for humanistic interrogation (Schmidt, 2011). It is

> the application of information technology as an aid to fulfil the humanities' basic tasks of preserving, reconstructing, transmitting, and interpreting the human record (Frischer, 2011, 28).

We can turn this the other way round, saying that the digital humanities' goal is to study the effects of the human record on the development and use of information technology (Schreibman, Siemens & Unsworth, 2004). The digital side of the digital humanities is strongly informed by a narrative of technological progress, while the humanities side has strong roots in a humanities sensibility. However, this equilibrium may be questioned (Flanders, 2009).

The digital tools are undoubtedly core resources of the digital humanities (Dalbello, 2011). Similarly, the thinking of information science in our era is also determined by information technology to a substantial extent. To be exact, it has always been depending on the actual information technology of the given period. Today, this technology is a computing one. Based on this, there is a possible turn, conceived for the digital humanities and the social sciences in general that may be potentially useful for information science, as well. It is the computational turn, which is designed to change the direction in the thinking about the digital humanities, by examining critically

> how knowledge in the 21st century is transformed into information through computational techniques, particularly within software (Berry, 2011, 3).

The reason for this is the following:

> To mediate an object, a digital or computational device requires that this object be translated into the digital code that it can understand. This minimal transformation is effected through the input mechanism of a socio-technical device within which a model or image is stabilized and attended to. It is then internally transformed, depending on a number of interventions, processes or filters, and eventually displayed as a final calculation, usually in a visual form (Berry 2011, 1–2).

The epistemology of the digital humanities can also be influenced by the computational turn as it aims not only to understand culture through digital technology, but to explore the cultural dimension of computation (Porsdam, 2013). One of the reasons is in the fact that engaging with software is also a problem of reading and writing, and the textual aspects of software make the concept of the document more than a simple metaphor (Frabetti, 2011).

We can agree with Dalbello, who asserts that

> the humanities fields are struggling to develop criteria to guide the use of technology to maintain the ideals of humanistic endeavour, and understand the effects of a growing digital infrastructure as a system for knowledge production in the humanities (Dalbello, 2011, 482).

In doing this, it is worth to heed the words of Unsworth (2002): "real" humanities computing means using the computer as tool for modelling humanities data and it is not identical with using the computer for modelling the typewriter. This is a question of both epistemology and the methods used. As computing is also central to information science today, it has to recognize this.

The digital humanities are clearly attached to the use of social media and to the idea of replacing the "read-only" ethos of the humanities with a "read/write/rewrite" ethos (Burdick et al., 2012, 56). Addressing basically the same issue, Gordon-Murnane (2012) explains that it is especially big data that offers the humanistic disciplines the possibility to quantify more social spaces, thus claiming the status of quantitative science and objective method. Boyd and Crawford (2012) warn us, the big data phenomenon, surrounded by an aura of truth, objectivity and accuracy, carries the risk of re-inscribing established divisions of scientific method and the legitimacy of social science, as well as humanistic inquiry by suggesting mistakenly that qualitative researchers interpret stories and quantitative researchers produce facts. Working with big data remains still subjective. This means that methodological issues (in the sense of what methods and how should be used) are more important now than ever.

There are also warnings from the digital humanities campground. For instance, Schmidt (2011) reminds us that

> work in digital humanities should always begin with grounding in a theory from humanistic traditions. If it doesn't, it will aimlessly reproduce a problematic social world.

On the other hand, he adds that the only possible route to renew its theoretical traditions is to use massive stores of digital data. Porsdam (2013) raises the question whether digital humanist are confusing being connected with communicating. This means that the Internet communication, in which people typically engage, especially with the use of social media and mobile phones, may be superficial rather than meaningful. If it is the case, the digital humanities should concentrate on substance and dialogue instead of studying mere connectedness, striking a better balance between the "how" and the "what", i.e. moving

> away from an interest in gaining and making accessible more information only, to an interest in also making sense of and understanding that information.

He also adds that the developments within the digital humanities have to be discussed with a view not only to its potential, but also to its limits. For instance, competing with the natural sciences with the help of machines, and with the aim of reducing human subjectivity would lead back to "mechanical objectivity' of the nineteenth century.

A fundamental question is addressed by Frabetti (2011), who suggests that

> a deep understanding of the mutual co-constitution of technology and the human is needed as an essential part of any work undertaken within the Digital Humanities.

Basically the same task can be identified for information science. It is interrogating the possibility of positively influencing the cyber-infrastructure (Dillon, 2007). We know that computer code enables new communicative processes, and with the increasing social dimension of networked media the possibility of new and exciting forms of collaborative thinking arises. The question is if software and code can bring in something truly collaborative that takes us beyond blogs, twitter feeds, and so forth, and

> make possible something truly collaborative – something like the super-critical thinking that is generative of ideas, modes of thought, theories and new practices" (Berry, 2011, 8).

It is not by accident that this demand was qualified by Bawden and Robinson (2012) as one of the "big questions" for information science. This objective is also in accordance with the view of Wilson (2010), who departs from the existence of information society and sees information science

> as a central synthesizing discipline in understanding not simply information, but the world we live in.

4. Conclusion

Despite differences, retraceable first of all in their origins, information science and the digital humanities have much in common. The latter remains interested in text, while the former focuses on recorded information, both going beyond traditional media. The nature of information science is interdisciplinary and cultural. It imports methods from many

disciplines, including the humanities. In contrast, the digital humanities have a solid and well established theoretical background in the "traditional" humanities (Cecire, 2011). Notwithstanding, in the heat of "revolutionizing" this tradition, it struggles for its theoretical self-understanding.

Continuing the already exisiting self-reflection is undoubtedly needed for both disciplines, while information science may benefit from analysing the achievements and deficiencies of the digital humanities. One recent example can be the issue of data-related concepts and tasks. As it is well-known, due to the rapid growth of digital technology, huge amounts of data are available that require management in the widest sense of the word. Some of the related concepts are defined vaguely or are still emerging ones, showing sometimes continuity, sometimes discontinuity with existing ideas. Tasks to be fulfilled in relation to this development and conceptual understandings require information science to engage in a critical discussion about these issues and learn from the digital humanities. Such self-reflection can be made by a comparison with the digital humanities. A number of such moves toward improving the field are unavoidable and always advantageous for information science.

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Nauka o informacji w zwierciadle humanistyki cyfrowej: kilka uwag epistemologicznych

Abstrakt

Cel/teza: Celem artykułu jest omówienie podobieństw i różnic pomiędzy epistemologią nauki o informacji i humanistyki cyfrowej w świetle zmian zachodzących w tej pierwszej.
Koncepcja/metody badań: Przeanalizowano i porównano szereg punktów widzenia wyróżnionych w literaturze przedmiotu, dotyczących epistemologii dwóch omawianych dziedzin.
Wyniki i wnioski: Pomimo różnic w ich dziedzinowych korzeniach, nauka o informacji i humanistyka cyfrowa mają ze sobą wiele wspólnego, a analiza ich osiągnięć i braków może przynieść znaczące korzyści dla obu dziedzin.
Ograniczenia badań: Obie epistemologie znajdują się w stadium formowania, można zatem sporządzić jedynie zarys ich obecnego kształtu.
Wartość poznawcza: Artykuł stanowi uzupełnienie dotychczasowej wiedzy w zakresie epistemologii nauki o informacji, humanistyki cyfrowej oraz łączących je relacji.

Słowa kluczowe

Humanistyka cyfrowa. Epistemologia. Bibliotekoznawstwo i nauka o informacji.

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