The Mutualistic Relationship between Information Systems and the Humanities

Jan H Kroeze, North-West University (Vaal Triangle Campus), Vanderbijlpark, South Africa, jan.kroeze@gmail.com

Abstract

The paper explores the nature of the relationship between the study fields of Information Systems and the humanities. Although literature on Humanities Computing states in principle that there is a bi-directional, beneficial symbiotic relationship, most studies and reflections investigate only the application of information technology in the humanities. This implies that the relation is commensalistic rather that mutualistic. However, studies do exist that implement theoretical constructs borrowed from the humanities in various aspects of Information Systems. Therefore, the author pleads that more recognition be given to the pre-discipline of Humanities-enriched Information Systems and proposes theoretical and practical ways to make the field more independent. The paper uses an interpretive research approach and explores the issue at hand on a meta-theoretical level. It suggests that, by building on the foundations of existing, pre-disciplinary enrichment endeavors, a new paradigm of Information Systems research may be acknowledged and nursed in order to facilitate further growth of the discipline.

Keywords

Information Systems, Humanities, Symbiosis, Mutualism

Introduction

This reflective paper on certain aspects of the philosophy of science regarding Information Systems focuses on the reflexive relationship between Information Systems and the humanities and endeavors to give recognition to one side of this synergy (the use of constructs of the humanities in the field of IS) that has been practiced for many years without receiving sufficient acknowledgement. The intention is to bring this issue to the fore and to create a debate on the validity and maturity of the sub-discipline. According to O'Donovan and Roode (2009:32), "[t]he importance of dialogue as a process through which the [IS] discipline will grow cannot be overestimated". Therefore, such a debate could stimulate more research that consciously addresses and promotes this identified research focus. This wish is parallel to the one expressed by Kock (2009:414) with regard to the social sciences, and especially the enrichment of IS through Evolutionary Psychology. This type of meta-research is essential for the IS discipline because every research approach reflects ontological and epistemological assumptions, influences research questions and methodologies, and affects the outcomes and results (Chiasson et al. 2008:33). Reflection is also needed to uncover the nature of the IS discipline and to overcome ontological rifts between diverse communities of practice in IS research (O'Donovan and Roode 2009:34, 37). Although Humanities-enriched IS may still be in a pre-disciplinary phase, scholars should look out for a "founding moment of rupture with the surrounding disciplines" (the inceptive moment when a new discipline is set apart) and foster initiatives to identify its own unique set of methods and practices, to build a community of teachers and researchers and to train its own "disciples" in order to make that moment arrive (Rockwell 2002).

First, the paper clarifies the use of some terms such as the terms Information Systems, humanities and social sciences. This is followed by an explication of the core issue, namely the difference between Humanities Computing and Humanities-informed Computing. Both sides of the mutual relationship are discussed in some detail, and some directions for the way forward are suggested. Since the paper uses an interpretive, meta-theoretical approach, no raw empirical data is presented, but references to existing endeavors of Humanities-enriched Information Systems studies are used to provide evidence ideas and suggestions expressed.

Information Systems vs. information systems

Since this paper mainly deals with research issues, the term Information Systems (IS) (spelled with initial capital letters) is used to refer to the academic discipline that covers all aspects of information systems, the software products (spelled with initial small letters). IS is usually regarded as a social science as opposed to Computer Science and Information Science, which are usually classified as natural-mathematical and human sciences (cf. Buckland 1999). However, it should be remembered that IS is also an interdisciplinary science that integrates knowledge from algorithmic perspectives with applications in business, organization and society (Avison et al. 2008:7). The term Informatics is also sometimes used to describe IS, but it will not be used here, since it is often used in Europe as a synonym for Computer Science.

Humanities vs. Social and Natural Sciences

The characterization of IS as an interdisciplinary science with a mainly social focus sounds clear and sufficient. According to Oates (2006:2), the discipline of Information Systems (IS) "is particularly concerned with the real-world social and organizational context in which information systems are developed and used", whereas Computing concentrates more on the technical aspects of software products. Oates uses the term Computing as a synonym for Computer Science, but in the rest of the paper it will be used as an umbrella term for Information and Communication Technology (ICT) disciplines, including Information Systems. According to Myers and Avison (2002:4), qualitative research methods were developed within the social sciences and are often used in the study of Information Systems.

If one worked with a clear and simple distinction between the natural sciences, which mainly use empirical approaches, and all other sciences, focusing on non-empirical points of departure, the issue regarding the place of IS in the realm of science would be resolved and would not need further discussion. However, the boundaries between these two groups have become blurred, especially after the rise of relativity theory, and the dichotomy is not clear anymore (Monod and Boland 2007:136, 138; cf. Coyne 1998 and Grassie 1997). Jaspers (1960:101-110) already pleaded in 1960 that Technology be introduced at universities as an integrating force that could overcome the division between the natural sciences and the humanities. Making the issue even more complex is the fact that the humanities and social sciences cannot simply be bundled all together (although this is, probably, exactly what is often done when authors refer to IS as a social science) (cf. Klein and Hirschheim 2008:297, who refer to "the inherent differences between the natural sciences and the social/cultural sciences"). According to Kroeze (2009:9), the natural sciences mainly use empirical methods, while the humanities use rational methodologies and the social sciences use both. Although this distinction is not without problems (it suggests, for example, that Mathematics should be regarded as a subject of the humanities), it sensitizes us to the differentiation between one group of disciplines, such as Psychology and Sociology on the one hand (the social sciences), and another group, such as Linguistics and Philosophy, on the other hand (the humanities).

For the past thirty years, much attention has been given to IS as a social science, and much has been published on the application of IS in the humanities, but the other side of the IS-humanities relationship has not received much conscious recognition. This gap in reflection and theory will be the focus of the rest of the paper. Avison et al. (2008:13) say that there is "no valid argument that IS should not benefit from other disciplines" and provide a list of theoretical constructs used in papers published in the *Information Systems Journal* during the past 17 years. A few of these theoretical constructs are directly related to the humanities, such as ethical theory, narrative thinking and theories of meaning, but the average number is limited (more or less eight out of fifty), and the issue is not discussed in depth. No differentiation is made between the humanities and social sciences.

Thinking about the conscious and purposeful adoption of constructs of the humanities in IS may require another "epistemological conversion" by many researchers – like the one many make from positivist to interpretive work, but this could help IS researchers and practitioners to make sense of the "multiple socially constructed word-views" that they deal with and provide "building blocks

which they could use to create legitimate, realistic and coherent worlds" (Shoib and Nandhakumar 2009). "Conversion" may be a strong concept to use in this context, but one has to admit that it is difficult to change the fundamental assumptions on which different software development approaches are founded (Brown et al. 2004:4142). However, the wider trend towards multi-disciplinarity between Information Science, IS Management and the humanities (cf. Chua and Yang 2008:2164) may make this process more acceptable and easier.

Humanities Computing vs. Humanities-enriched Computing

In any scientific discipline, an ongoing reflection about the discipline itself is necessary (Bryant 2008:697). Such a debate about the nature and right of existence of IS has indeed been ongoing for many years (O'Donovan and Roode 2002:26). The debate itself justifies the existence of the discipline because it proves that the discipline is alive and constantly in discussion with its sister disciplines about its place in an ever-changing landscape of research foci and boundaries (cf. Klein and Hirschheim 2008:284; cf. Kock 2009:403). With an apology to Descartes (who said, "I think, therefore I am"), one could say that a discipline exists if it thinks about itself. With more specific reference to the vast amount of research studies done on the essence of IS, one might even say, "IS thinks, therefore IS is." This process of reflection requires in-depth thinking and consideration. According to Roode (2009:13) "[p]hilosophical reflection on the foundations of the discipline of IS and its professional practices require us to raise philosophical questions. Some acquaintance with philosophical works is necessary!" A community of practice and knowledge cannot only provide critical mass, credibility and leadership, but also facilitate the much-needed processes of fundamental and incremental criticism (Klein and Hirschheim 2008:289-290).

Therefore, having established that there is a symbiotic relationship between the humanities and IS, one should also ask the philosophical question of what the nature of the symbiosis is. (A symbiosis describes a reflexive relationship that may or may not be beneficial to both parties). Is it a mutualism where both parties benefit, or is it a commensalism where only one party benefits without harming the other party? One would trust that the relationship is not parasitic or amensalistic where one party is harmed while the other is benefited (parasitism) or unaffected (amensalism)! According to Kock (2009:395), the relationship between IS and other disciplines should, in general, be mutually beneficial, and IS could especially obtain "fresh new insights … in connection with fields that bring in notions yet unexplored in information systems theorizing". Kock draws on Evolutionary Psychology to enrich IS theory, but one could also apply his idea to other groups of disciplines, such as the humanities. Bryant (2008:698) calls for IS to be "permeable" in its relationship to social and humanistic disciplines (including Semiotics and Cultural Studies) so that terms and models may be "pushed" and "pulled" between them.

While examples of this relationship will be discussed in more detail in the next section, the fundamental and theoretical discussion in this part is necessary because the development of disciplines cannot be predicted or managed but takes place through a process of learning, tension and dialogue in an academic community (Roode 2009:27-37). The author hopes to indicate that the humanities are as important as the social sciences in the study of Information Systems and that the time has arrived that proper recognition should be given to the symbiotic relationship as a mutualism.

The wide range of literature and research available on the application of IS in the humanities and the limited (almost absent) range of purposefully reflective work on the use of concepts of the humanities in IS suggest that, although the relationship is indeed symbiotic, it still tends to be more commensalistic than mutualistic (see Fig. 1). Humanities Computing (also called Digital Humanities) is the name of the discipline that studies the symbiotic relationship between Computing and the humanities (Orlandi 2002). However, when one explores literature on this discipline, one mainly finds work on the use of IS (and other branches of Computing) to enhance the study of disciplines in the humanities, such as Language and Literature, History and the arts. Disappointingly few studies are available that purposefully reflect on the other direction of the synergy. This situation creates the impression that only one partner in the symbiotic relationship (the humanities) receives all the benefits of the symbiosis, using Computing to "refurbish" the humanities (McCarty 2002).

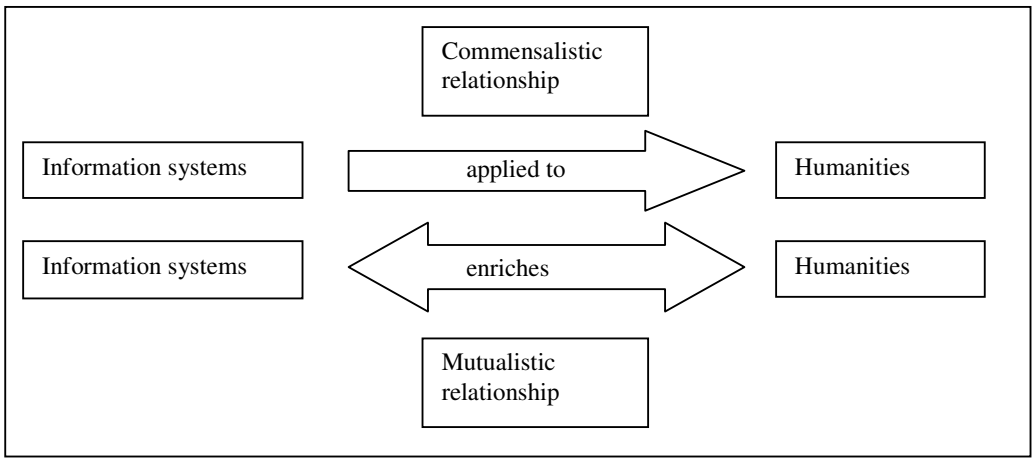

Fig. 1. A Commensalistic Relationship versus a Mutualistic Relationship between Information Systems and the Humanities

However, when one digs a little deeper with this question about the other side of the symbiotic relationship in mind, one finds quite a number of (almost hidden) surprises indicating that Information Systems are very often informed and enriched by the humanities too. A good name that would describe this side of the mutual interrelation would be Humanistic Computing/Informatics, but, unfortunately, this term is also used as a synonym for Humanities Computing (HC) (Aarseth 1997). Although one could not go so far as to suggest that IS is a science of the humanities, this paper tries to correct the imbalance in the reflection on the topic by exploring existing research for solid examples of *Humanities-enriched IS*. In order to be regarded as a discipline or sub-discipline, Humanities-enriched IS should refer to a coherent body of topics that are unique and typical of the subject matter (cf. Roode 2009:26). A panel discussion at ECIS 2010 was a deliberate attempt to group together scholars working in this trans-disciplinary field and illustrated the viability of such a guild (Kroeze et al. 2010).

Below, after giving some examples of the well-recognized Humanities Computing, the paper will bundle together some of the nuggets of Humanities-informed IS uncovered from seas of IS and HC information. To take the mining metaphor further, these pieces of research may be regarded as diamonds that have been spotted and polished by reviewers (cf. Straub 2009:vii), and they could shiningly justify a call for more decisive research endeavors in this area.

Discussion of Humanities Computing

It is impossible to cover the amazingly vast field of IS applications in subjects of the humanities subjects in a short overview. Since that is also not the main focus of this paper, the next section gives a brief overview of some examples with references to the well-established field of Humanities Computing (compare Table 1).

IS and Language

Information systems have been used widely in Computational Linguistics to enhance the quantity and quality of explorations conducted. In studies on literature, the computer is often used to find themes and patterns that would be difficult or cumbersome for people to find. Hoover (2007) provides some examples and guidelines for the use of electronic texts to enrich grammatical and literary studies.

IS and History

Like in most other sciences today, retrieval systems are one of the most important applications of Computing in History. Access to old sources has become much easier and building repositories of historical knowledge for future generations much more encompassing than ever before (cf. Cox 2007 and Ayers 1999).

IS and Art

Many systems exist that assist artists in the visual and audio arts to edit, improve and speed up their creative work. Amongst others, Stone (2009) discusses pros and cons of the use of visualization tools and the visualization of color in art. Murray (2009:60) refers to the creation of virtual worlds to augment the teaching of Art History.

IS and Philosophy

It is rather surprising that this is the one aspect of the symbiotic relationship where the application of IS in the humanities discipline has not received much attention, while the other side has. Such an attempt (Philosophy in IS) is Monod and Boland's (2007:139) brilliant overview of the philosophy and epistemology of IS, in which they conclude that, especially in the US, IS is very much still captured in a positivist mode ("a sociology inspired by out-of-date physics"). Nel's (2007) argument that information technology (IT) may be regarded as an agent of postmodernism is, however, an excellent example of IS in Philosophy. According to Wells (1996), many advances in IT are also a result of postmodernism. The exact reciprocal nature of these two concepts needs more in-depth study.

IS and Theology and Law

Two other fields of the humanities where information systems are used to make research more efficient are Theology and Law. Information systems have been created in abundance to help theologians to study and analyze their sources, including holy texts and libraries of commentaries and reflective work (cf. Kroeze 2008:1-10). Computer programs that help academics in Law to find court cases easily and to assist practitioners to run their law firms also exist.

These ideas are some pointers that may be used to direct future studies to uncover the bi-directional relationship in more detail. In the next section, examples and suggestions will be given of Humanities-*enriched* IS, with reference to Linguistics, History, Art, Philosophy, Theology and Law.

Recognizing Efforts to Enrich IS using Humanities-based Approaches

As indicated above, this paper would like to give recognition to efforts that enrich Computing (and especially Information Systems) using insights and approaches from the humanities. This could indicate a reciprocally beneficial relationship and synergy between these two groups of disciplines and motivate an invitation to interdisciplinary scholars to look for more possibilities to grow the IS discipline even further. According to Monod and Boland (2007:139), embracing conceptualizations borrowed from the social and human sciences is the only way to overcome "the syndrome of refusing to grow" in IS. This may be regarded as an attempt "to accept our responsibility to look out for the vitality of the field", suggested by Grover, Straub and Galluch (2009:vii), who report a general malaise about the field. Shoib and Nandhakumar (2009) also plead for inspiration from the arts to help IS scholars to come to terms with the pluralism that is inherent in the field. The examples and suggestions discussed below are indeed inspiring and indicate that substantial evidence of and for work in Humanities-enriched IS already exists (see Table 1).

Language and IS

Coyne (1998) hinted that the symbiotic relationship between IS and Linguistics is mutualistic with a remarkable statement: "In fact, it is equally valid to say that information technology is the product of the working of language and texts…". Unfortunately, he does not elaborate on this idea. Some examples of interesting applications of insights of the humanities do exist in IS, though. For example, Joubert (2009) uses a linguistic approach to cross the bridge from simplified texts containing business rules to conceptual analyses of the business information systems to be created (Joubert 2009). He combines morphological and syntactical analyses to understand and represent business rules. The application of ten language-based rules transforms the business rules into a table with a fixed format; the table is then rendered in a diagrammatical representation, which, in turn, can easily be converted into an entity-relationship diagram. Semantic roles, identified in functional grammars, may provide a logical alternative for the more formal syntactic analyses. Beynon-Davies (2009:100) uses pragmatic concepts to sketch a holistic picture of the context of information systems, forming a bridge as informative acts between ICT systems (formative acts) and activity systems (performative acts).

History and IS

Since IS is a young discipline, it is not surprising that relatively few attempts have been made to record the history of the discipline. In order to learn lessons from the past and to avoid reinventing the wheel, such histories are important. In an editorial invitation for IS research on the discipline's historical roots, Roode (2008:1-2) states that IS researchers should first know where they have come from before they could move on. This includes reflections on paradigm wars fought within IS as well as other deep issues that transcend mere chronological renderings. An example of this type of historical study, done by Chiasson et al. (2008: 37), is a survey and classification of action research articles in leading IS journals. Galliers and Whitley (2007:26) conducted a similar type of historical study on European IS research, the results of which suggest that the particular characteristic of this body of work is that it uses social theories more often than in the US. A proper history of the use of a specific theory may help to avoid the phenomenon of taking things for granted and a shallow understanding and incorrect use of the theoretical constructs (Shoib and Nandhakumar 2009). Klein and Hirschheim (2008:297-299) also plead for "a shared sense of history and collective accomplishments" to create a sense of belonging and also as a way of orientation and seeing the bigger picture.

A historical project that could be very fruitful is to investigate the contribution made by Operational Research during the history and development of IS. According to Klein and Hirschheim (2008:288), Operations Research, like other disciplines, tried to influence the development of IS by enforcing its approaches on the new discipline. Galliers and Whitley (2007:20) also refer to Operational Research as one of the cognate fields that provided momentum to the growth of the IS discipline. Webster and Watson (2002:xvi) refers to Operations Research as a related area which should be used to find source material for literature reviews.

Art and IS

In a sub-discipline like Human-Computer Interaction, principles from the arts have been used for many years to make systems more user-friendly. Whether enough recognition has been given to this fact is an open question. Gregor (2006:634) suggests that "other disciplines with different traditions", such as Art and Design, should be studied as relevant contributors to the foundations of IS. In website development, for example, artistic inputs are necessary to maximize the visual impact to establish the sender's message and draw attention to essential items. Kock (2009:414) argues that e-commerce sites should build on "human universals" in designing their personalized interfaces for diverse audiences. These human universals should not be limited to social sciences, but should also include inputs from the arts and other humanities.

Philosophy and IS

Much research has been done on IS philosophy, albeit under the umbrella of the social sciences. Philosophy lies at the centre of the humanities, however; therefore, one should give credit where credit is due. A previous section has already referred to the study of the relationship between postmodernism and IT. It is a typical postmodernist idea to claim that ontology is "not a given but a construct" (Patterson 1992:278). This prompts the idea that there could be a plurality of ontologies, which has indeed been explored and implemented in Computing. Therefore, the study of IS ontologies, i.e. taxonomies enhanced by description logics, is one field where philosophical insights come very near to the centre of IS research and practices. The nature of this relation needs to be explored profoundly. Mavetera (2007) and Sewchurran (2008) use the philosophical concept of ontologies to suggest ways to improve IS software development and project management. Kroeze (2010) explores the postmodern shift from philosophical ontology to formal ontologies. Other philosophical points of departure, such as feminism, have been and should be used to enrich IS research approaches and enlighten the understanding of "the historical, social and political perspective of IS" (cf. Richardson 2009:35). Well-trained philosophers are needed to explore the validity of the differentiation between positivist and interpretive approaches in IS. According to Weber (2004), this schism reflects a "naïve, archaic view of positivism", a personal conviction which could have serious implications for IS research where the dichotomy is used often (see, for example, Orlikowski and Baroudi 2002:59, 64; Oates 2006:281, 291).

Theology, Law and IS

Both IS and religious studies have a directedness with regard to texts (sacred texts, business rules, etc.) and the need to analyze and understand these. Therefore, together with Literary Criticism and Law, they share the crucial need for hermeneutic principles and approaches, and could learn a lot from each other (cf. Grassie 1997). Another commonality is the interest in connectedness. Religious studies look at people's relationship with a Supreme Being and with each other. IS looks at ways to facilitate people's connectedness with each other and with organizations by building networks facilitated by computer software like e-mail, discussion groups, social sites, etc. However, this aspect may fall more within the social sciences than in the humanities. IT Law is already studied by legal schools and presented as courses in legal as well as IS curricula.

Table1. Examples of the Reciprocal Enrichment between Information Systems and Some Humanities Disciplines

	IS applied to humanities (Humanities Computing)	**IS enriched by humanities (Humanities-enriched Computing)**
Language	Computational Linguistics; Text Mining	Linguistic approaches in systems analysis
History	Facilitating access to old sources	Reflecting on the paradigms and theoretical approaches used in IS; creating shared understandings of past and future directions
Art	Assisting artists to improve and speed up their work; using virtual worlds to augment teaching of Art History	Using art and design principles in multimedia, websites and e-commerce
Philosophy	Reflecting on Postmodernism as a result of ICT	Studies of the epistemology of IS; using philosophical insights regarding ontology in formal IS ontologies; critique of IS research philosophies
Theology	Improving access to sources	Getting informed about hermeneutic principles and approaches to understand texts (e.g. business rules)
Law	Improving access to court cases and assisting running of law firms	IT Law

The Way Forward

So far, the paper has given some recognition to the humanities-informed work already done and being done by highlighting some of the research endeavors discussed in available literature. Some new areas of research and teaching that could be addressed in future work have also been suggested. When new theoretical gaps in the field of IS are identified (cf. Kock 2009:A11), which may be filled by approaches in the humanities, researchers should integrate these concepts into existing IS theories and test and refine the combined models. Attempts that are not successful should be removed, but the new guild should realize that they could only learn by trial and error (Wastell and McMaster 2008:67).

Of course, this brief overview is not sufficient to appreciate the mountain of work that has gone into this toil. A proper historical work needs to be done in order to attain this goal, and one could only hope that a scholar or postgraduate student would like to take on this challenge in the near future. Ideally, such a researcher will already have both the necessary backgrounds of training in IS and historiography.

Another way in which IS academics could pay tribute to this type of work is by bundling together these efforts as a research focus, maybe initially as a subfield of Humanities Computing, but which could later become a more independent discipline. The least that the IS community could do is to be open and accommodating to research projects that address these matters. Klein and Hirschheim (2008:283) regard the IS field as a "federated set of multiple communities". Such a community of practice and knowledge with a main focus on the humanities discipline already exists in the humanities (Humanities Computing and the Humanist discussion group), and one can only hope that a parallel community will grow within IS with its main focus on IS issues because this could provide impetus and direction for humanities-informed research. "Paradigmatic identities are formed around differing constellations of beliefs concerning the nature of reality (e.g. ontology), what constitutes valid knowledge (epistemology), including principles and values that should guide proper academic inquiry (research methods and ethics)" (Klein and Hirschheim 2008:288). While Humanities Computing should indeed be driven by and accommodated in humanities faculties (McCarty 2002), Humanities-enriched IS should, however, be motivated, directed and housed by schools of ICT.

Academics should create homes for this type of studies, for example by setting up new research niche areas and to establish an "active and welcoming research community" where young scholars will be mentored in order to build a next IS research generation (Vanhoutte 2003). Appointing post-doctoral research fellows may be a way to stimulate research in these areas. The work of these promising young and visiting academics will amplify the community's own efforts. Visiting professors and extraordinary professors may give further impetus. The new community should build a collection of their research outputs, write and read papers and conduct panel discussions to stimulate a debate to determine if and how their ideas resonate in the wider IS community. Researchers and teachers should reach out to colleagues in the information systems industry because their experience, tacit knowledge and wisdom are needed to complement the academics' theoretical and philosophical insights (Klein and Hirschheim 2008:294).

It is important to attract scholars and students who are well informed about the theories of the humanities that they adopt for IS (cf. Currie 2009:73). IT modules may be combined with language modules to form undergraduate programs in language technology in ICT departments, while more and alternative combinations with disciplines of the humanities should be explored. In this way, the community could attract more students and eventually avoid "scant attention" to the conceptualizations that it borrows.

The creation of specific journals and conferences could provide more stimuli for the development of the new sub-discipline. IBIMA has recently created some new open access academic journals, including the *Journal of Information Systems Knowledge and Ontologies (JISKO)*, and another that is even more closely related to this topic, the *Journal of Humanities and Information Systems (JHIS)*.

Since there still are limited publication opportunities for Information System scientists (cf. Straub 2009:v) in comparison with some other older, well-established disciplines, these new opportunities should be embraced and used. Although it will take some time to get the new journals on the accreditation lists, members of the new guild should make use of these new outlets. Editors and reviewers also have a responsibility to nurture newcomers in IS in order to build the discipline. They should be like diamond miners taking a positive view while looking for "exciting forays into new research domains" (Straub 2009:vii). The general aim in the review processes of these new journals should be to be inclusive and developmental rather than to perform "a modern hygiene ritual" – Wastell and MacMaster (2008:64) state that "a high rejection rate implies a collective failure of scholarship not the intellectual prosperity of a field [sic]". The creation of publication opportunities for research with refreshing angles, some borrowed from other sciences, is a conscious effort to share interest and useful research and to counteract rigid procedures that are "stifling the intellectual advancement of our discipline" (Shoib and Nandhakumar 2009).

A guild of Humanities-enriched IS researchers could make a significant contribution to Information Systems if they could act on these and other suggestions to purposefully investigate and explore new avenues opening up for the enrichment of the discipline, as summarized in Fig. 2. According to Grover, Straub and Galluch (2009:iv), IS is "a truly eclectic discipline"; therefore, IS researchers should not shy away from incorporating insights of the humanities that may help to deepen the understanding of IS research problems.

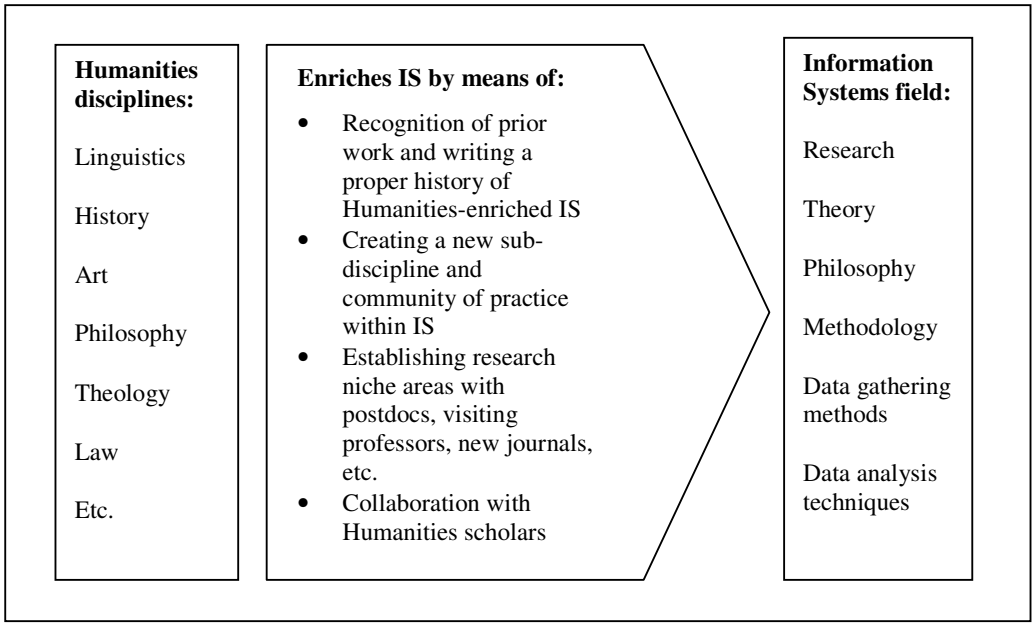

Fig. 2. A Summary of Ways in which Insights from the Humanities Could be Used to Enrich the Information Systems Discipline

Conclusion

The paper reflected on the symbiotic relationship between the humanities and the Information Systems discipline. It found that the current status quo is more a type of commensalism since most work focuses on the application of ICT and IS in various humanities disciplines. Recognition is given, however, to some existing endeavors that enrich IS using humanities insights, for example

from Linguistics, History, Art and Philosophy. The paper pleaded for a more mutualistic relationship that will benefit both groups of disciplines equally. It suggested that, by building on the foundations of existing, pre-disciplinary enrichment endeavors, a new paradigm of Information Systems research may be acknowledged and nursed in order to facilitate further growth of the discipline. Indeed, IS thinks, therefore IS is *and* grows!

Acknowledgements

This article is an edited version of the author's inaugural lecture, read on 13 November 2009 at the Vaal Triangle Campus of the North-West University, Vanderbijlpark, South Africa (*Information Systems and the humanities: a symbiotic relationship).*

References

Aarseth, E. (1997), 'The field of Humanistic Informatics and its relations to the humanities,' *Human IT,* 4. [Online], [Retrieved October 1, 2009], http://etjanst.hb.se/bhs/ith//4-97/ea.htm

Avison, D.E., Dwivedi, Y.K., Fitzgerald, G. and Powell, P. (2008), 'The beginnings of a new era: Time to reflect on 17 years of the ISJ,' *Information Systems Journal,* 18, 5-21.

Ayers, E.L. (1999), 'The pasts and futures of Digital History'. [Online], [Retrieved October 1, 2009], http://www.vcdh.virginia.edu/PastsFutures.html.

Beynon-Davies, P. (2009), 'The "language" of Informatics: The nature of Information Systems," *International Journal of Information Management,* 29 (2), 92-103.

Brown, R., Nerur, S. and Slinkman, C. (2004), 'Philosophical shifts in software development,' Proceedings of the Tenth Americas Conference on Information Systems (AMCIS), New York, 4136-4143. [Online], [Retrieved August 23, 2009], http://aisel.aisnet.org/amcis2004/516

Bryant, A. (2008), 'The future of Information Systems – thinking informatically (opinion paper),' *European Journal of Information Systems,* 17, 695-698.

Buckland, M. (1999), 'The landscape of Information Science: The American Society for Information Science at 62,' Preprint of article published in *Journal of the American Society for Information Science,* 50 (11), 970-974. [Online], [Retrieved October 1, 2009], http://people.ischool.berkeley.edu/~buckland/asis62.html

Chiasson, M., Germonprez, M. and Mathiassen, L. (2008), 'Pluralist action research: A review of the Information Systems literature,' *Information Systems Journal,* 19, 31-54.

Chua, A.Y.K. and Yang, C.C. (2008), 'The shift towards multi-disciplinarity in Information Science,' *Journal of the American Society for Information Science and Technology,* 59 (13), 2156-2170.

Cox, R. (2007), 'Appraising the digital past and future,' DigCCurr2007: An International Conference in Digital Curation, Chapel Hill, NC. [Online], [Retrieved October 1, 2009], http://ils.unc.edu/digccurr2007/papers/cox_paper_4-5.pdf

Coyne, R. (1998), 'Cyberspace and Heidegger's pragmatics,' *Information Technology & People,* 11 (4).

Currie, W. (2009), 'Contextualising the IT artefact: Towards a wider research agenda for IS using Institutional Theory,' *Information Technology & People,* 22 (1), 63-77.

Galliers, R.D. and Whitley, E.A. (2007), 'Vive les differences? Developing a profile of European Information Systems research as a basis for international comparisons,' *European Journal of Information Systems,* 16, 20–35.

Grassie, W. (1997), 'Postmodernism: What one needs to know,' *Zygon: Journal of Religion and Science* (March). [Online], [Retrieved March 17, 2005], http://www.voicenet.com/~grassie/Fldr.Articles/Postmodernism.html

Gregor, S. (2006), 'The nature of theory in Information Systems,' *MIS Quarterly,* 30 (3), 611-642.

Grover, V., Straub, D. and Galluch, P. (2009), 'Turning the corner: The influence of positive thinking on the Information Systems field (Editor's comments),' *MIS Quarterly,* 32 (1), iii-viii.

Hoover, D. (2007), 'The end of the irrelevant text: Electronic texts, linguistics, and literary theory,' *Digital Humanities Quarterly*, 1 (2). [Online], [Retrieved March 10, 2009], http://digitalhumanities.org/dhq/)

Jaspers, K. (1960), The idea of the university, Peter Owen, London.

Joubert, P. (2009), 'Towards a linguistic analysis and representation of business rules,' Advanced Technologies and Techniques for Enterprise Information Systems: Proceedings of the Joint Workshop, ATTEIS 2009, Milan, Italy, Portugal, Camp, O. and Hammoudi, S. (eds), Insticc Press (on CD).

Klein, H.K. and Hirschheim, R. (2008), 'The structure of the IS discipline reconsidered: Implications and reflections from a community of practice perspective,' *Information and Organization,* 18, 280-302.

Kock, N. (2009), 'Information Systems theorizing based on Evolutionary Psychology: An interdisciplinary review and theory integration framework", *MIS Quarterly,* 33 (2), 395-418, A1-A12.

Kroeze, J.H. (2008), Developing an XML-based, Exploitable Linguistic Database of the Hebrew Text of Gen. 1:1-2:3 (PhD (IT) thesis, University of Pretoria, unpublished). [Online], [Retrieved September 30, 2010], http://upetd.up.ac.za/thesis/available/etd-07282008-121520/

Kroeze, I.J. (2009), 'If this is research, where is my lab coat?' Paper presented at a Workshop for Master's and Doctoral Students at the University of Pretoria in the Moot Court, Faculty of Law, August 26 (copy on file with author).

Kroeze, J.H. (2010), Ontology goes postmodern in ICT. Proceedings of SAICSIT 2010, October 12-13, Bela-Bela, South Africa.

Kroeze, J.H., Lotriet, H., Mavetera, N., Pfaff, M.S., Postma, D., Sewchurran, K. and Topi, H. (2010), Humanities-enriched information systems, Panel discussion, June 6-9, ECIS2010, Pretoria. [Abstract online], [Retrieved September 30, 2010], http://dspace.nwu.ac.za/handle/10394/3126

Mavetera, N. (2007), 'A comprehensive ontology-driven software development architecture: A holistic approach to developing romantic software products,' Managing Worldwide Operations and Communications with Information Technology (Proceedings of 2007 Information Resources Management Association, International Conference), Khosrow-Pour, M. (ed), Vancouver, British Columbia, Canada, May 19-23.

McCarty, W. (2002), 'Humanities Computing,' *Essays in Humanities Computing.* [Online], [Retrieved September 2, 2009], http://www.digitalhumanities.org/Essays/

Monod, E. and Boland, R.J. (2007), 'Special issue on philosophy and epistemology: A "Peter Pan syndrome"? (Editorial),' *Information Systems Journal,* 17, 133-141.

Murray, S. (2009), 'Art History and the new media: Representation and the production of humanistic knowledge,' Working Together or Apart: Promoting the Next Generation of Digital Scholarship: Report of a Workshop Cosponsored by the Council on Library and Information Resources and the National Endowment for the Humanities, Council on Library and Information Resources (CLIR Publication, no. 145), Washington, DC, 57-61.

Myers, M.D. & Avison, D. (2002), 'An introduction to qualitative research in Information Systems,' Qualitative Research in Information Systems: A Reader, Myers, M.D. & Avison, D. (eds), Sage, London, 3-12.

Nel, D.F. (2007), IT as an Agent of Postmodernism, Unpublished MCom mini-dissertation, University of Pretoria. [Online], [Retrieved September 30, 2009], http://upetd.up.ac.za/thesis/available/etd-07032008-130105/

Oates, B.J. (2006), Researching Information Systems and Computing, Sage, Los Angeles, CA.

O'Donovan, B. and Roode, J.D. (2002), 'A framework for understanding the emerging discipline of Information Systems,' *Information Technology and People,* 15 (1), 26-41.

Orlandi, T. (2002), 'Is Humanities Computing a discipline?' *Essays in Humanities Computing.* [Online], [Retrieved September 2, 2009], http://www.digitalhumanities.org/Essays/

Orlikowski, W.J. and Baroudi, J.J. (2002), 'Studying information technology in organizations: Research approaches and assumptions,' Qualitative Research in Information Systems: A Reader, Myers, M.D. & Avison, D. (eds), Sage, London, 51-77.

Patterson, D. (1992), 'Postmodernism/Feminism/Law,' *Cornell Law Review,* 77, 254-317.

Richardson, H. (2009), 'Taking a feminist approach to Information Systems research and using the "Thinking Tools" provided by the sociologist Pierre Bourdieu,' *Information Technology & People,* 22 (1), 26-35.

Rockwell, G. (2009), 'Multimedia, is it a discipline? The liberal and servile arts in Humanities Computing,' *Essays in Humanities Computing.* [Online], [Retrieved September 2, 2009], http://www.digitalhumanities.org/Essays/

Roode, J.D. (2008), 'It is time for IS to understand its history (Editorial),' *South African Computer Journal,* 40, 1-2.

Roode, J.D. (2009), 'Current issues and trends in Information Systems theory, philosophy and research,' Seminar presented to the School of Information Technology of the North-West University (Vaal Triangle Campus), Vanderbijlpark, 9 September (presentation in possession of author).

Sewchurran, K. (2008), Toward a Regional Ontology for Information Systems Project Management, Unpublished PhD thesis (Information Systems), University of Cape Town.

Shoib, G. and Nandhakumar, J. (2009), 'Using Social Theory to make sense of IS: What's it all about? (Guest editorial),' *Information Technology & People,* 22 (1).

Stone, M. (2009), 'Information visualization: Challenge for the humanities,' Working Together or Apart: Promoting the Next Generation of Digital Scholarship: Report of a Workshop Cosponsored by the Council on Library and Information Resources and the National Endowment for the Humanities, Council on Library and Information Resources (CLIR Publication, no. 145), Washington, DC, 43-56.

Straub, D.W. (2009), 'Diamond mining or coal mining? Which reviewing industry are we in? (Editor's comments),' *MIS Quarterly*, 33 (2), iii-viii.

Vanhoutte, E. (2009), 'The value of mentoring: Young scholars in IT and the humanities,' *Essays in Humanities Computing.* [Online], [Retrieved September 2, 2009], http://www.digitalhumanities.org/Essays/).

Wastell, D.G. and McMaster, T. (2008), 'Organizational dynamics of technology-based innovation: Diversifying the research agenda (Editorial),' *Journal of Information Technology,* 23, 63-70.

Weber, R. (2004), 'The rhetoric of positivism versus interpretivism: A personal view (Editor's comments),' *MIS Quarterly,* 28 (1), iii-xii.

Webster, J. and Watson, R.T. (2002), 'Analyzing the past to prepare for the future: Writing a literature review (Guest editorial),' *MIS Quarterly,* 26 (2), xiii-xxiii.

Wells, J.D. (1996), 'Postmodernism and information technology: Philosophical perspectives and pragmatic implications'. [Online], [Retrieved February 29, 2004], http://hsb.baylor.edu/ramsower/ais.ac.96/papers/Wells.htm