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Knowledge management for development communities: balancing in the thin divide between tacit and codified knowledge

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In this paper I review the old divide between codified and tacit knowledge in the field of knowledge management for development with the help of a bibliographic approach. In particular, attention is given to the efforts of knowledge sharing communities to bridge the gap between practitioners and researchers. Journals are taken as the common currency between practice and research for the exchange of knowledge. Through this approach the communities of practice although rich in social interaction, shape not only the ways knowledge is being shared but the content of what is being shared. Disregarding social connotations towards codification, knowledge codification implies a transformation process from where the original idea is less idiosyncratic to the person and becomes more systematic to the group. I illustrate this line of reasoning by using the case of the *Knowledge Management for Development Journal (KM4DEV)*. In making the above-mentioned exercise, I use theories on the divide between tacit and codified knowledge, development studies and context-based knowledge and the method of scientometrics are used.

Introduction

While working in Nicaragua, in the 1990s, I was supporting a local non-governmental organization (NGO), Centro de Intercambio Cultural y Técnico (CICUTEC) in sharing experiences in rural areas. Their approach, although it seemed simple, was part of a holistic view on how to reach the peasant. They used a magazine called *Enlace* (2007). Its articles were, in fact, technical instructions that meticulously followed the method, Enlace. Through their network they spotted innovations, recorded and disseminated them.

The example above is rich in codifying efforts by understanding the economics of codification as a diffusion instrument to reach a specific audience and empowering it to replicate these experiences. It is low-tech; it is basic in its formulation but striking in its impact (Belli 1997). The collection is diverse in alternatives; they are rural in essence but go beyond agriculture: food security, income generation, conservationism, health, gender, cultural expressions, etc. The Enlace method, as many other methods used in development work, is successful because it retains many aspects of contextuality. This is a paradox because it is supposed that codifying strips down contextual information.

In the field of knowledge for development, it has long been argued that there is a gap between practitioners (applying and developing knowledge while working in the field) and academic researchers. Added to this, there is the divide between knowledge sharing (KS) and information management (IM). These divides can both be defined as forms of tensions between tacit and codified knowledge respectively as introduced by Hansen *et al*. (1999).

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This is not an article about codifying or not codifying. On the contrary, explicit and tacit knowledge, indeed, occurs in different stages and forms. In the knowledge exchange process, we enable this transaction by choosing a language, a medium. Codification it must be understood as finding a common currency between practitioners and academia.

I will try to illustrate this line of reasoning by using the case of the *Knowledge Management for Development Journal* (KM4D Journal) published by Knowledge Management for Development (KM4Dev), an international community of practitioners. This journal aims to share knowledge among development practitioners and bridge the gap between practitioners' and scientific knowledge. This gap, in the case I am studying, takes the form of the well-known dilemma between tacit and codified knowledge (Cowan and Foray 1997). The codification process is justified in its economy. Codification can reduce costs on knowledge acquisition, knowledge transfer and for sharing knowledge collectively. But most important still is that knowledge codification implies a transformation process from where the original idea is less idiosyncratic to the person and becomes more systematic to the group. It is this systematization that makes knowledge usable and accessible.

The KM4Dev community started in 2000 as a follow-up of two meetings that took place that year at Washington and Brighton (KM4Dev 2005). One of the activities of the KM4Dev is the production of a journal. The journal is only one of the several activities of this network. There is no pretence either that with the tools used the whole picture is captured. Last but not least, something that has to be taken into consideration is that we are looking at the journal as it was during its first three years of life (2005–2007), an electronic-only, open access journal.

I have chosen to study the journal for several reasons. On one hand, it is a concrete effort of this network to codifying its knowledge. Second, journals are a recognized form of exchanging (scientific) knowledge. Third, it might be interesting finding out how a network whose emphasis is on context-based knowledge deals with the conceptuality in a more universal medium. On the other hand, it allows me to study the output of this community from the perspective of scientometrics (Leydesdorff 1986) and display their impact in term of the authors' backgrounds, affiliations, full text analysis, and citations. Before continuing with the main body of this paper, I would like to express my gratitude to Loet Leydesdorff who was engaged with this project as a supervisor.

Knowledge-based aid

Knowledge-based aid emerges as part of the response of many development cooperation agencies to the challenges of globalization, information and communication technologies (ICT) and the knowledge economy (McGrath and King 2004). For example, whether knowledge-based aid would lead to a greater focus on Southern partners' needs or rather on the needs of the agencies. They raised additional questions about whether knowledge-based aid improves in the learning process of these agencies in learning from their partners or leads to a more unidirectional, North–South transfer of knowledge.

In this context, knowledge management has become one of the focal points of the aid strategies in what is known as 'knowledge-based institutions' (King and McGrath 2004). This entails knowledge production with strong emphasis on problem-oriented approaches meant to assist policy-makers in developing countries with technical (action-oriented) knowledge. From this perspective, knowledge-based institutions, acting as agents of change (Ladi 2000), transfer knowledge that instructs the developing countries on how to transform themselves.

At another level, we can appreciate that the interest on knowledge varies in relation to roles and situations. While the institutions were interested in capturing the available knowledge and making it available as codified knowledge, the practitioners were interested in exchanging experiences and learning, on what is known as context-based knowledge or local knowledge. The point of view of practitioners has been very much influenced by schools following the social learning theory and particularly using the concept of 'communities of practices' (Wenger 1999). From this perspective, learning should go beyond acquiring new skills and presupposes a transformation process into a shared identity in the communities of practice.

Communities of practitioners have been growing rapidly in number. The activities of these networks are very much focused on social interaction as a way of contextualizing knowledge in the process of learning. But does the growth of these communities have a direct correlation with a wider presence in this knowledge field? Lewis (2006) raised this point, asking if NGO research was having an impact on its knowledge field? And he presented a study on research in British NGOs as an example. In fact, the amount of NGO research is growing but still it represents only four percent of the total research in the field of Public Action when compared to public and private sector research (Lewis 2006). If the knowledge field is not being substantively improved, I argue that there might be something wrong.

From another perspective, ICT has become a new front in combating poverty, fostering development as well as attempting to fill the gap resulting in the introduction of these new technologies (McNamara 2003). This development has not been unproblematic. In the case of knowledge, technological approaches sometimes have played a menacing role and, at other times, they have enabled environments. Thus, when development organizations embrace ICT as a means to deliver information, facilitate knowledge exchange, provide access to services and enable participation (Hulsebosch *et al*. 2006), it is opportune to reflect on what knowledge and whose knowledge we want to acquire, share and develop.

In other words, the communities rooted in development work are very interested in Knowledge Sharing (KS) potentialities. For practitioners, context-based knowledge is a key element for their work. Understanding the particularities of the local situation are key factors of success when looking for solutions on how to address problems like poverty, sustainable development or social inclusion (Guzmán 2007). How far are these needs of situated-knowledge are being addressed by practices like knowledge sharing (Riddel 2007)?

The emphasis and importance of social interaction seems to be a reaction to earlier attempts (Van Der Velden 2002) to capture knowledge based on information management systems. From this perspective, these systems were supply-driven and failed to cope with the expectations on delivering usable knowledge. At the base of this critique reside the debates on capturing and de-contextualizing knowledge.

This brings us to a paradox. While the discourse of knowledge-sharing communities disregards the use of information management because of all the negative connotations of codifying (and therefore de-contextualizing) knowledge, at the same time, the practice of knowledge sharing relies much on the use of information systems. And this happens not only at a utilitarian level, but it is further understood as a liberating technology, namely Web 2.0. How could it happen that the old identification of de-contextualizing knowledge with ICTs has become the herald of knowledge sharing? And has this helped to produce better or more knowledge? And if so, how has this knowledge been integrated in the scientific world?

In fact, more is being produced. Borrowing concepts from Wenger (2009) we can say that Web 2.0 has empowered participation and has enlarged reification. Wenger explains

reification as thingness of what is learned, either as an object or concept. Codification, in these terms, could be taken as one of the manifestations of reification. Web 2.0 has emerged as the new revolution in social computing harnessing a collective intelligence (O'Reilly 2005). An example often used to illustrate Web 2.0 potentialities is Wikipedia, a huge amount of content self-regulated by users-producers: 'The Web is shifting from an international library of interlinked pages to an information ecosystem, where data circulate like nutrients in a rain forest' (Johnson 2005).

Web 2.0 is a good example of how new tools and new media are being used to expand the diffusion of information and knowledge. The enthusiasm of the knowledge sharing communities towards these new technologies is understandable. But there is the risk of confusing knowledge registration mechanisms (like codifying knowledge) with mechanisms of interaction in the process of building up this knowledge. Web 2.0 is not yet the main channel scientific knowledge for formalizing and discussing. The scientific arena remains in journals and scholarly articles.

The question is not only where do you post the claim, in a journal or in a blog? But what can be posted. The media determines the format too. A 2,000 word article will not fit in a blog. Shorter 'bits' posted in a forum will fragment knowledge and will make it ephemeral. Posting in a forum or blog can engage you in very interesting discussions with peers but how will/can this be re/inserted in the scientific arena (Kelty 2001)? The bottom line is that knowledge that has not been codified cannot interact with other scientific fields in the framework of scientific knowledge exchange and, eventually, this knowledge will be lost.

Development agencies have been producing what has been known as 'grey literature' (project proposals, reports, etc.). This literature is rich in knowledge, particularly in context-based knowledge and know-how. Could we use this literature as knowledge exchange mechanism? Grey literature possesses serious challenges in accessibility but if solved, perhaps, grey literature can be used, as a means for furthering research in a similar way as research on science and technology makes uses of external sources like patents (Hall *et al.* 2000).

Further, from the perspective of the communities for development, knowledge is directed towards action, stressing the specificity of each situation. Thus, one of the aspects to analyze the tension between local and global knowledge is in how much these networks, like the communities of practice, are able to develop situated knowledge and in integrating this local knowledge in a more universal context. The networks, as other groups, generate boundaries. But with the use of the internet and other technologies, these boundaries have apparently decreased. People from different corners of the world are communicating and exchanging experiences. Internet blurs the actual physical/geographic/cultural contexts of their members in the virtuality of their community. But this comes with a price; the actual contexts are being replaced by virtual ones. For example, a common language has to be established; a set of priorities has to defined, etc.

We can agree with King and McGrath (2004) when they argued that this virtuality is not colourless either; there are biases in how knowledge is shared as well as what knowledge is shared. And there is the risk of preference for universal, global knowledge rather than local knowledge. Therefore it seems relevant to study this shift towards the global North, which we call it 'latitudity' (North–South) and this 'locality' (universal/local), using with similar approaches as when centrality is measured in social networks analysis.

Another aspect to consider in this discussion about contextualization can be appreciated from the knowledge perspective of Tsoukaas and Vladimirou (2001) as the 'ability to draw distinctions within a collective domain of action, based on an appreciation of context or theory, or both' (Tsoukaas and Vladimirou 2001: 974). Context is, from this perspective, a

necessity for knowledge and not an inconvenience. And universal knowledge can be understood as a wider context than, for example, the local. From this point of view, the question whether codification deprives knowledge of context becomes less relevant.

On studying the cognitive appropriation of the knowledge domain, I take as reference Leydesdorff's (1986) study of the development of frames of references. In that work it is proposed that steering mechanisms of science should not only focus on the effects of allocating resources or changes in the social processes but in assessing developments at the cognitive level. If we go a step further than the steering processes of knowledge sharing and production, it seems pertinent to focus, too, on what is the significance of this knowledge for the field. Quoting Leydesdorff, 'any study of science as *only* a social process becomes unsatisfactory: the substantive outcomes of processes are as important as the processes which lead to them' (Leydessdorff 1986: 104).

Until now, the role of knowledge in development remains problematic, both in terms of its role in organizations and policy formation and its impact on the lives of poor people. King and McGrath are very specific in this respect pointing out that too much knowledge-based aid is grounded in the questionable assumptions that better knowledge makes for better policies; and that better policies lead to better lives. This denies (World Bank 1998) both the agency of aid beneficiaries as well as the structures that impact upon them, arguing that their ignorance is the key factor in their poverty.

For probing further into this issue, I took the Journal KM4Dev network as an illustrative case. The KM4Dev network is active in international cooperation; and as mentioned before, in their discourse there are recurrent references to the practice/research gap, to the tacit/codified dichotomy and to the North/South divide. In their vision, they are very optimistic on the potentials of the communities of practice theory. Their relation with technology is problematic because although, on the one hand, they are critical to the technological approach (which is very much linked to knowledge codifying efforts); on the other hand they are very enthusiastic about new developments on the internet, particularly what now is being called Web 2.0 (Web 2 for Dev 2007). This ambiguous position towards technology seems to have settled with the introduction of 'technology stewardship' (White *et al*. 2007); that is the use of technology from the perspective of the communities of practice. At first sight, technology stewardship seems solely to respond to the need to differentiate from the traditional technological approach and the forthcoming Web 2.0. At its core a massive codification effort (through tagging, syndication, filtering, etc.).

Connecting the dots

The content of the KM4D Journal can be considered as the scholarly output of the network. Who are the authors? How do they work? What do they use as input? What are they talking about in their writings? What impact do the articles have? The tests I made give some clues to answer these questions. In some cases, they are only 'circumstantial' evidence and this should be taken into consideration.

KM4Dev Journal is a rather new journal. It was produced online with the help of open source Software Open Journal Systems produced by Public Knowledge Project (PKP 1998). Only its first three years were sampled (2005–2007). With seven issues, it compares to around 90 articles and cases. By the date of the sample (December 10, 2007), the journal was not yet included in the *Social Science Citation Index* (Thomson 2007). For the collection of citation information, therefore, we used Google Scholar (Google 2007).

Each issue of the journal has a fixed structure: editorial, articles, cases, interviews, books reviews, community notes, announcements. Only bibliographic relevant items were

included in the tests. For this research I made use of social network theory and scientometrics theory, which is based on statistical framework sets related to co-wording and citation analyzes (Leydesdorff 2001).

Centrality is a term defined in social networks analysis and Graph Theory (Izquierdo and Hanneman 2007). There are three measures of centrality (also known as power): degree, closeness and betweenness. Degree is basically the counting of linkages, the more linkages, the greater the 'power'. Closeness stresses the fact that closer links have more value than far away ones (in geodesic distances). Betweenness, augments the power when an actor is in between other many actors.

When using co-word analysis there is a tendency to highlight the higher occurrence of both words and linkages, represented, respectively, as concentrations both of vertices and vectors. For example, this was used for finding latitudity. But when looking for a thematic contextuality (like specific topics against general issues), it was necessary to find out variations at the low end. In order to achieve this, it used techniques inspired by the field of photography (darkroom), dodge and burning.

For this case study, in both cases (centrality and latitudity) the 'simple degree approach of centrality' has been used. In other words, the direct counting of linkages but with sets of data adjusted for each circumstance.

Authors' background affiliation

Using the Index of Authors and the section 'About the authors' it was possible to map the authors' background affiliations per country.

The outcome of this test is displayed in Figure 1. In this representation, the data is shown as a network. The circles represent vertices. The bigger the circle, the more times the country is being mentioned. The lines represent relations between the countries, for example, when two countries appear in the same text they are displayed connected by a line. For visualization purposes repeating lines have been omitted. Isolated circles represent backgrounds where no other country was mentioned.

The resulting picture displays a strong presence from the North. The high occurrence of a small group of countries of the North may mirror the KM4Dev network's originators (Canada, UK, United States, and the Netherlands). Almost all the roads lead to the North, which implies a low South/South relationship. Even when there are connections between countries of the South, it seems they are displaying the pathway of practitioners from the North that have been working and living in the South. This could explain connections between Latin America and Asia. To illustrate this we can see in one case: Laos–El Salvador–Peru–Egypt–Chile–Dominican Republic. Another explanation could be that people with affiliations in the South have backgrounds in Northern institutions.

Author interaction

Interaction or forms of collaboration within the network can be found by looking at co-authorships. This network privileges working together and this is visible in the amount of articles written in groups:

- 38 papers with one author
- 18 papers with two authors
- 8 papers with three authors
- 5 papers with four authors

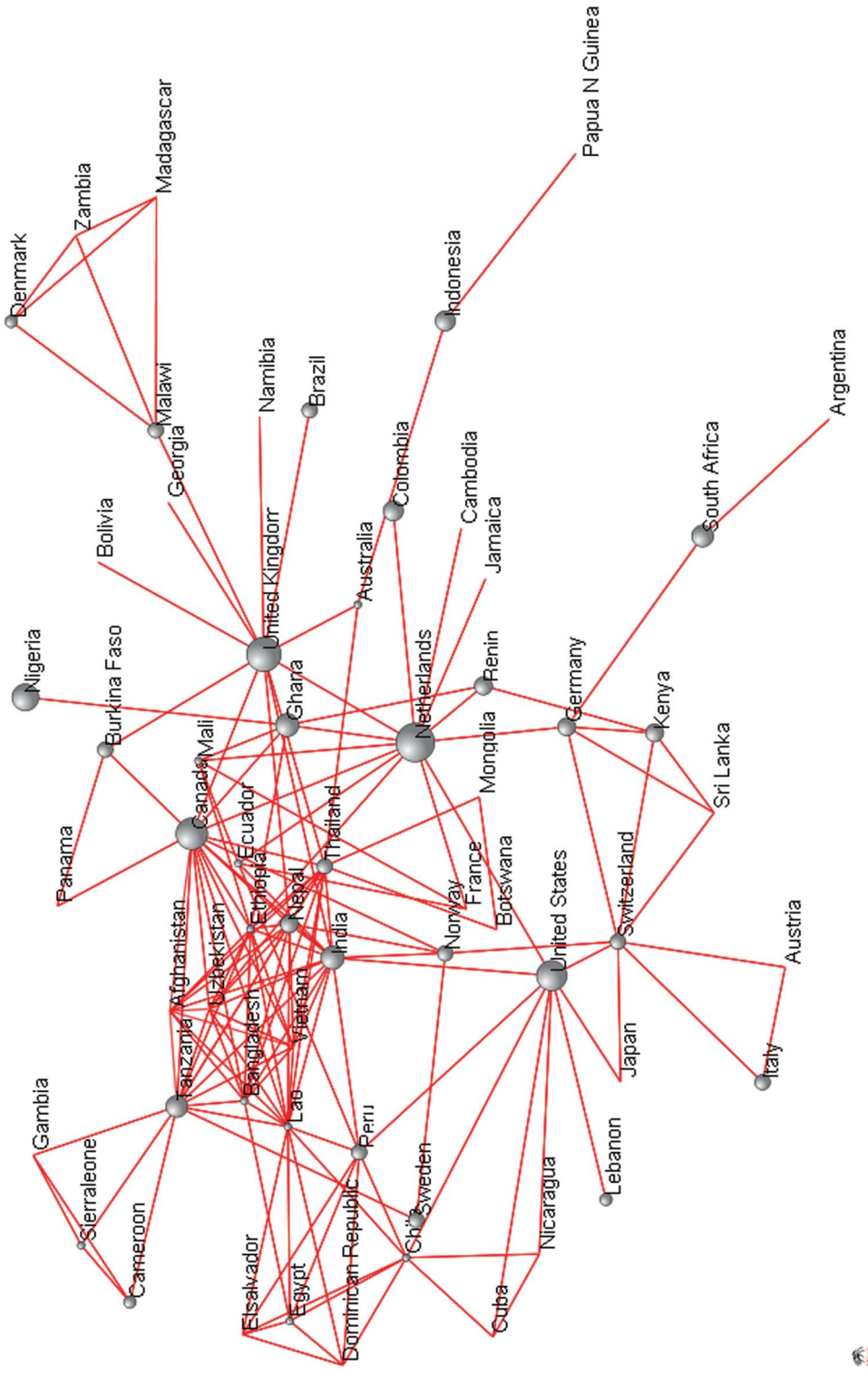

Figure 1. Authors' background filtered by country.

- 4 papers with five authors
- 3 papers with six authors

From a total of 73 items, 35 were authored by more than one author.

One interesting aspect to take note of is that the co-authorship involved often people affiliated to the same organization. This can be understood as internal collaboration but not as cross-bordering interaction. Interaction could be exploited more between agencies and between fields of expertise.

Citing: mapping the literature being read

By looking at the references in the articles common sources of input are supposed to be found. This could give us clues to what knowledge is being shared (McGrath and King 2004). Do they use literature from the North? Are there institutional relationships between actors of this network and the source? Is it possible to map recurrent topics?

It is not a surprise that the most read author is Etienne Wenger who is one of the leading figures of the communities of practice, learning and knowledge sharing approach (Figure 2). It is interesting to note also that most of the literature could be signaled as originating in the North.

The following is the list of the most commonly cited authors:

- Wenger, Hall, UNDP, Parcell, Biggs, Collison, Cummings, Soeftestad, World Bank, Engel, King, Mcgrath, Nonaka, Rogers, Sivamohan, Taylor, Bockett, Brown, Chambers, Court, Creech, Sulaiman, Takeuchi, Tirdo.

Metrics of cited articles from 69 citable items:

- 66 percent of them (46 texts) used less than 10 citations
- 50 percent (34 texts) made use of five or fewer citations
- 15 items did not provide references at all

Citations should be understood as input for the theoretical exploration. When citing, the author is describing the body of knowledge on which his or her investigation is based. And therefore the outcome of the metrics is puzzling because it displays a lower than expected number of sources. It is known that citations vary per discipline, e.g. as a general rule of thumb, citation indexes are much higher in natural sciences than in social sciences and humanities (Harzing 2007). One possible explanation is that because the articles are reporting experiences directly from the field, it is difficult to match theoretical framesets with the practice. Or that there is an involuntary omission of sources found in diverse reification forms. If this is the case, it could be an interesting learning experience to incentivize reporting the use of these sources as it happens in modern formats such as the American Sociological Association (ASA) or the American Psychological Association (APA) guides to bibliographic and electronic content.

Local topics or general issues

Co-word analysis tends to highlight a higher number of word occurrences. If we apply this method directly, we get the general issues but not the local topics. Therefore I used a method inspired in darkroom techniques (dodge) to retain detail in the dark areas (Johnson 2006). With this approach, I expected to make variations at the lower end visible.

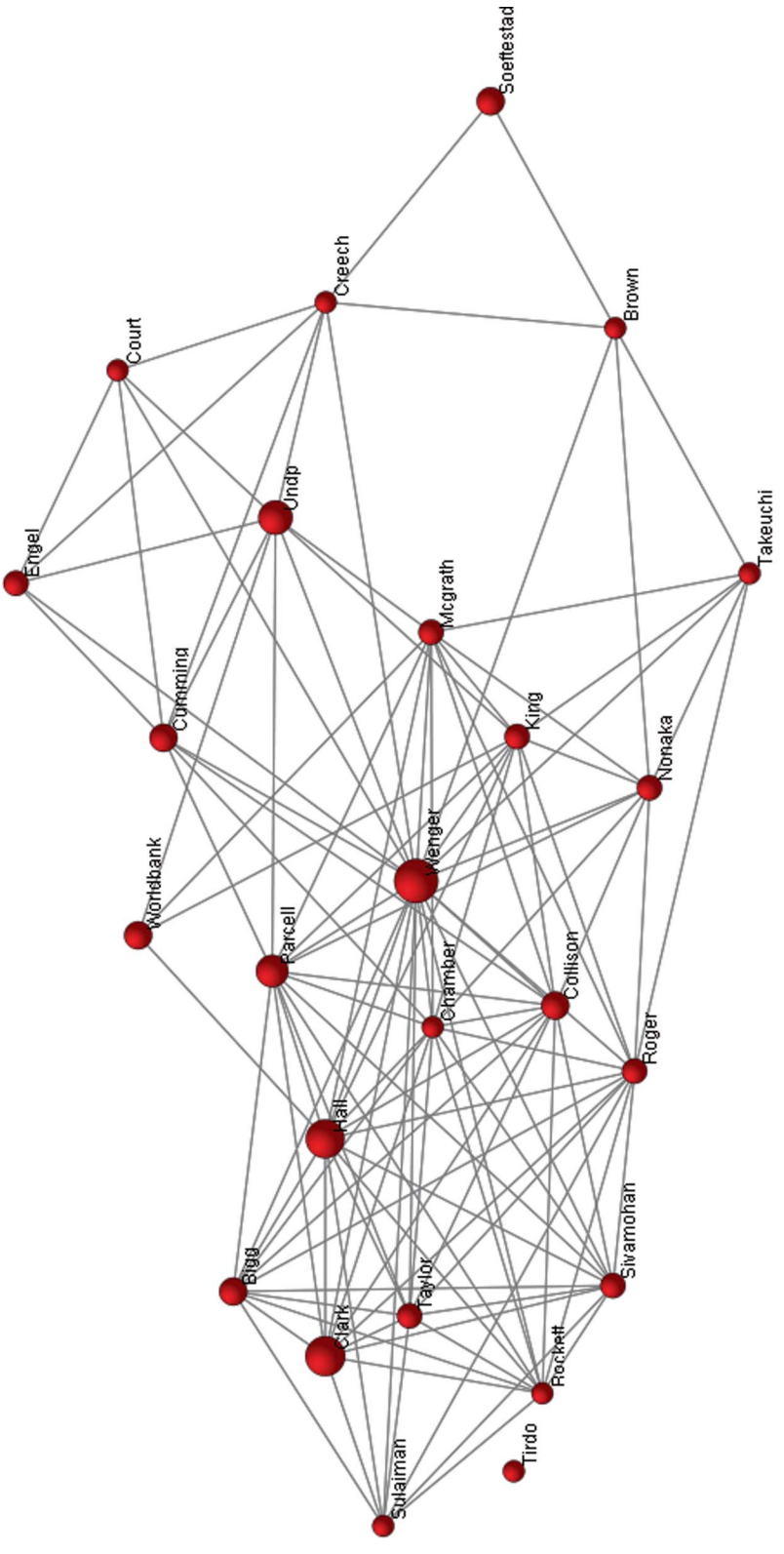

Figure 2. Mapping the literature cited.

Usually a master wordlist is created from all the text. In this case, additionally to the master list, I used individual master lists per article and after combining and filtering them, I obtained a list comprising 60 words that contained both general and local topics.

The force-based Kamada–Kawai algorithm (Kamada and Kawai 1989) was used for automatic layout generation. In this model, relationships are assumed as forces and they are represented as distances. Therefore, similar sets of relationships are represented as equilibrium of forces, producing similar distances and generating a regular pattern. At the core, the words represent general issues like 'ownership', 'facilitate', and 'promote'. At the periphery, some of the words identified with local topics were 'cbnrm', 'shea', 'conflict', and 'malaria' (Figure 3).

Let's take a look for example to the words 'shea' (at the bottom center) and 'market'. Shea occurs in four articles while 'market' is present in 14 articles. 'Shea' *and* 'market' occur only in two articles. But it is in fact in only one where these two words are continuously repeated (Elias *et al.* 2006).

There is a particular kite-shape construction that pops up at the top right of Figure 3. This group consist of the following words:

- (6) tacit (86)
- (10) explicit (77)
- (14) extension (126)
- (15) expert (25)
- (24) expertise (86)

The numbers on the left indicate the number of articles in which these words were present. The numbers on the right indicate the total number of occurrences of these words. A possible explanation for this grouping is that in the discourse of this journal, general issues like explicit/tacit knowledge remain a subject of discussion.

Titles – looking for thematic patterns

Title analysis is widely accepted in co-word analysis as a way of mapping the topics of articles (Figure 4). Often there is the intension of specifying the content of the article in the title and it was expected to map the topics being discussed (Figure 4).

Vertices sizes vary according to the frequency of occurrences. At the core of the occurrences are the words Sharing, Knowledge, Research, Learning, Development, Management. Accompanying these are the words Agriculture, Local, Network, Communities. With the exception of Agriculture, there are almost no references to sectors. Health is also mentioned but at a relatively much lower frequency. Traces of learning elements, policies and organizational terms are also found. But they do not emerge as clear topics.

One possible assumption of this result is that because of the early years of the Journal, it does not display, yet, the variety of topics that are discussed in the network through other means (wikis, blogs, etc.).

Full text analysis – North–South

A test was run to illustrate latitudity by signaling references to countries in the articles' content (Figure 5).

This test shows an interesting view because the North, with the exception of the Netherlands, practically disappears (compare this with Figure 1). There is no doubt that the focus of the network is on the South, the developing countries. Furthermore, the relationship between the developing countries increases in number of connections.

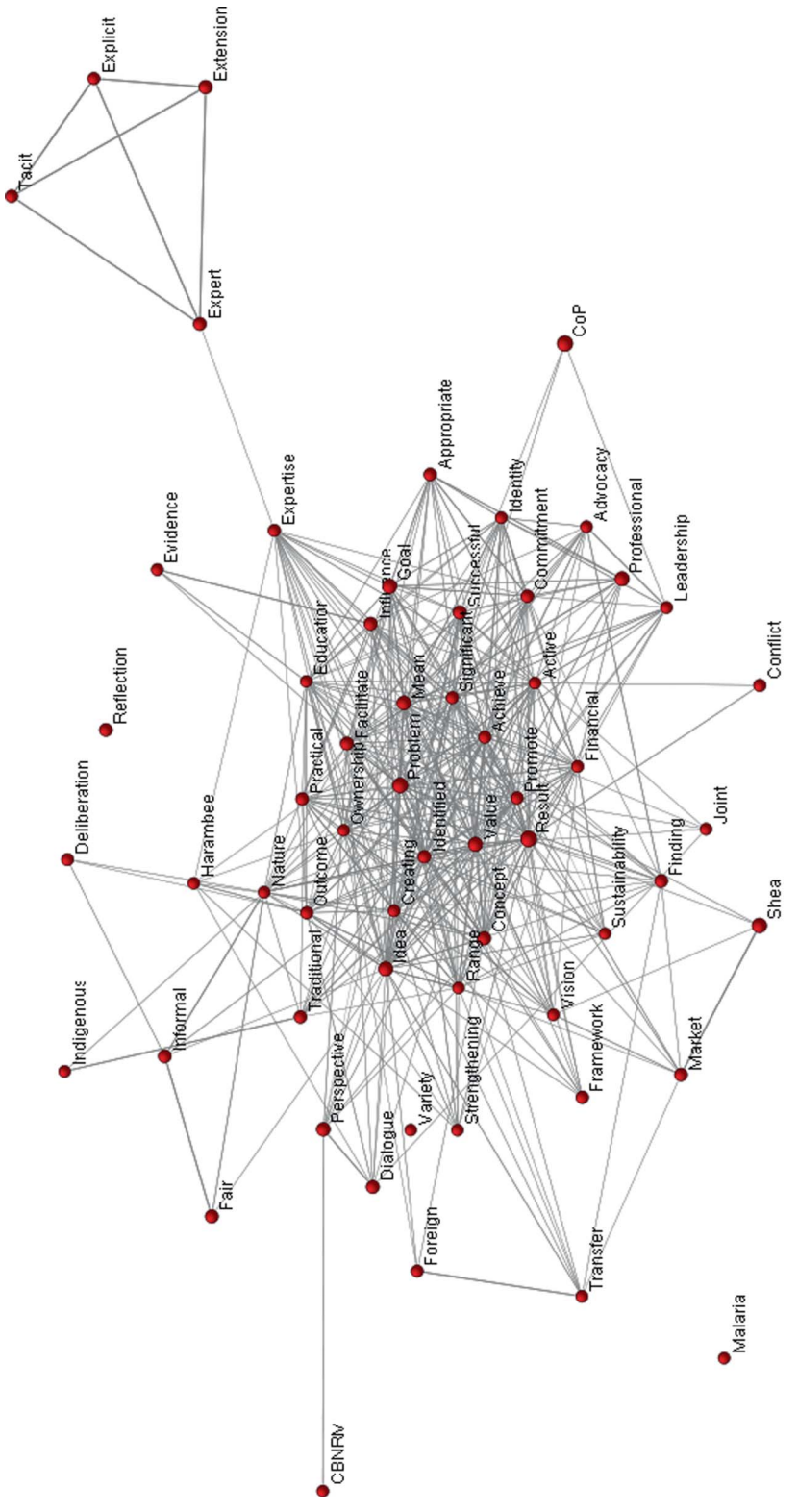

Figure 3. Looking for local topics.

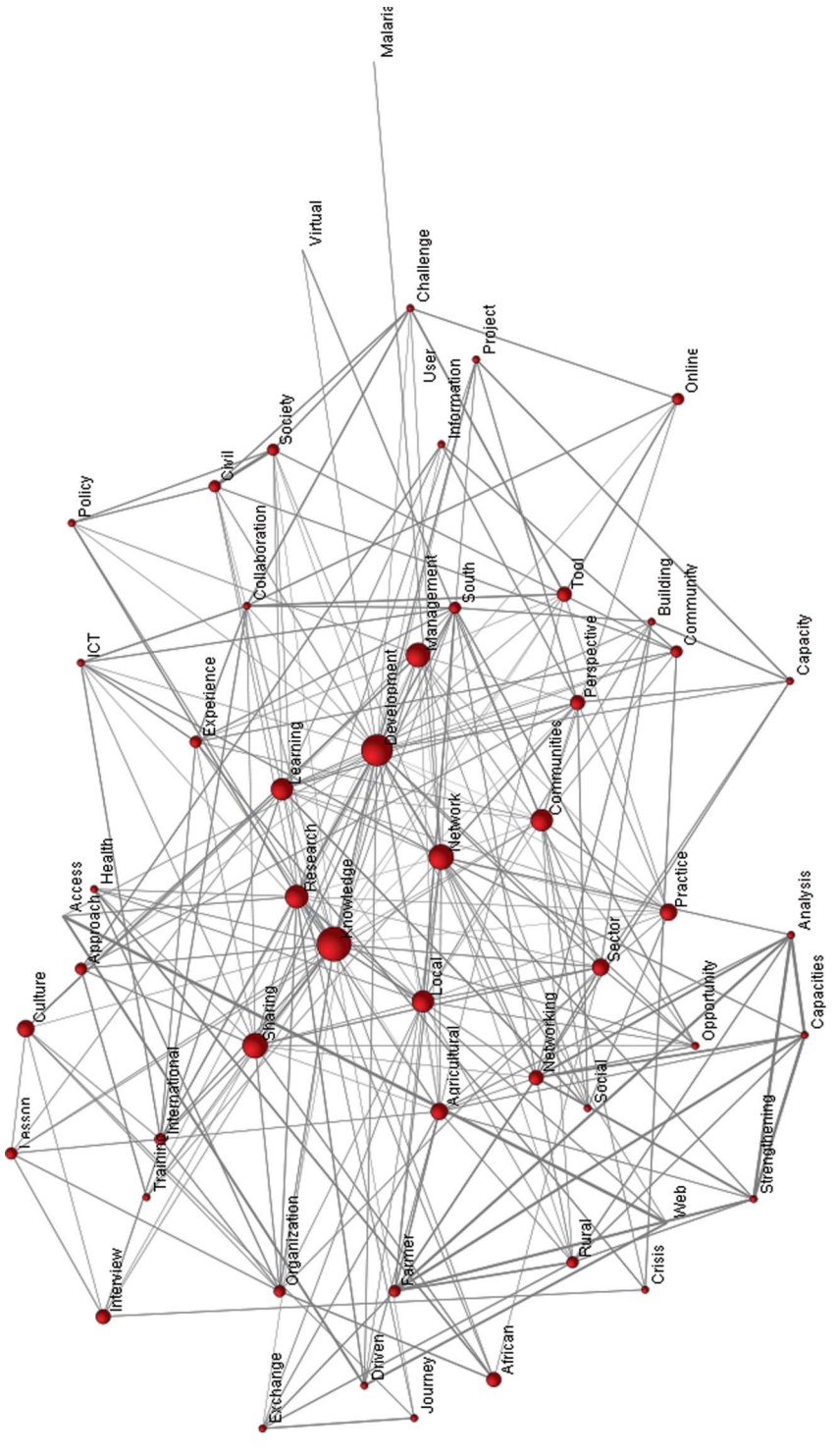

Figure 4. Looking for thematic topics in titles.

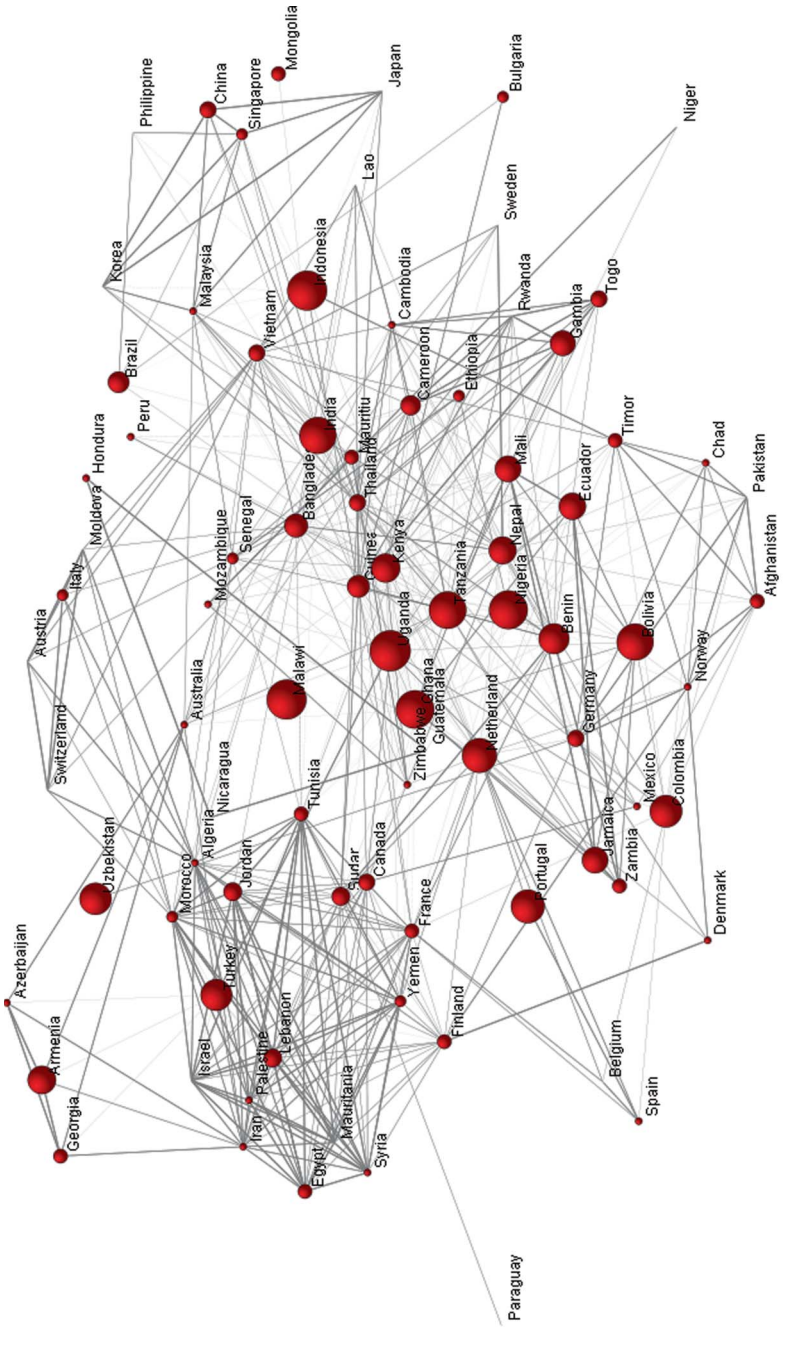

Figure 5. Contents filtered by latitudity.

Table 1. KM4Dev Journal metrics.

Knowledge Management for Development Journal (by 1 November 2007)		
Papers	76	Total number of papers
Citations	8	Total number of citations
Years	3	Total number of years
Cites/year	2.67	Average number of citations per year
Cites/paper	0.11	Average number of citations per paper
Cites/author	6.08	Average number of cites per author
Papers/author	0.52	Average number of papers per author
Authors/paper	2.05	Average number of authors per paper
h-index	1	Hirsch's h-index: metric of an academic's impact, combining quality with quantity
g-index	2	Egghe's g-index: improve on the h-index by giving more weight to highly-cited articles
hc-index	2	Contemporary h-index: improve on the h-index by giving more weight to recent articles
hI-index	1.00	Individual h-index: reduce the effects of co-authorship
hI-norm	1	Normalized h-index

We have to remember that these results are displaying the references to countries, for example, as when participating in networks, making allusion to foreign projects, past experiences, regional initiatives, etc. These are articles that signal the locations where development is being applied. Thus interacting South–South scores are high, both for countries and in terms of the number of relationships.

The absence of countries of the North might imply that the organizations in the South do not find counterparts in the North for the exchange of content and experiences. It can imply, too, that the counterparts are seen as international organizations (FAO, UNDP, etc.) and therefore there is no direct linkage to a country. Further tests could have given more clues, for example, by names of institutions. This could have helped clarifying the relationships and exchanges of content.

Being cited

Analyzing the articles being cited might indicate the impact of the journal in the knowledge for development. Citations can be seen as the communication on the research activity (Garfield 1973). In this context, to publish is to make available the author's claim to others. When being cited, this can be taken as one of the measures of how much others are using this piece of work or, in other words, the impact of the author's work in a field of knowledge.

The results, by 1 November 2007, showed fewer than 10 citations for any of the Journal's articles between 2005–2007. An overview of the metrics and statistics rendered by Publish or Perish are listed in Table 1.

Software

The present work would not have been possible without the help of the following tools and software. In alphabetic order:

- Concorde Pro: word concordance software (Fahrenbacher 2002)
- FullText: matrix tool for full text analysis (Leydesdorff 2007)
- Google Scholar: Journal search tool (Google 2007)

- Pajek: social network analysis software (Batagelj and Mrvar 1998)
- Publish or Perish: author and journal citation analysis software (Harzing 2007)
- SPSS: statistical software

Summary

By using latitudity, it was possible to visualize as input (author's background and affiliation) a high presence of the North. Whereas, in output, references to the North disappeared and strong South–South relationship were displayed. This might indicate that this network privileges the exchange of nearby experiences but does not have an active role in transforming the local knowledge globally: South to North. It might also be the case that there is no interest in the North.

The citation analysis displayed low number of cites which might be evidence of the problematic distance between theoretical and practical frameworks.

If journals are seen as codification efforts, the communities of practice although rich in social interaction affect not only the ways knowledge is being shared but the content of what is being shared. In the KM4Dev Journal the diversity of reification that the community produces is not yet visible. But most important still is that de social connotations of codification are disregarded. Knowledge codification implies a transformation process from where the original idea is less idiosyncratic to the person and becomes more systematic to the group.

Technology stewardship (White *et al.* 2007), appears as both, a response to the 'technological approach' very much associated to knowledge codification and as an alignment to Web 2.0. If we look at the core of the technologies, both approaches have many similarities. There is a natural evolution where not only structured bits but unstructured ones are stored, managed, searched and retrieved. As an example, we can look at the activity of leading Web 2.0 organizations like Google, Delicious, Flickr and Amazon: Web 2.0 is the largest codification effort ever.

But the use of all this technology seems to be preventing learning from being formalized. Or better said, knowledge is kept in a flux where it cannot age and mature to a systemized body. Knowledge is being fragmented and distributed in bits. The new technologies become an enabling medium for interaction but without providing it with a theoretical frame or other embodying structure or reconstituting environment. This unnecessarily reinforces the divide between tacit and codified knowledge. The new technologies are great tools for collaboration and formulation of claims but are less effective as formalizing mechanism.

Note on contributor

Alfonso Acuna, born in Lima-Peru, has been working in development work for the last 15 years and graduated in Science and Technologies Studies, from the University of Amsterdam, the Netherlands. He has lived and worked in Peru, Costa Rica, the Philippines, Nicaragua and the Netherlands. His current interest is in knowledge management/knowledge sharing – its social implications, the technology behind it, and the innovation and innovative use of current technologies in the context of developing countries. He is currently working at the International Institute of Communication and Development (IICD), The Hague, Netherlands.

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