Vickery's late ideas on classification by phenomena and activities

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Abstract

Classification was always a major interest for Brian Vickery. In his last years he contributed to the theoretical debate on classification with original ideas that are not well known yet, as some of them were consigned to ephemeral Web pages or private discussion. This paper attempts to report them and to discuss their implications for the current theory of knowledge organization. Vickery's proposals especially concern: application of the theory of integrative levels to classification as recommended by the Classification Research Group; the various dimensions of knowledge that are involved in the steps 'from the world to the classifier'; progressive identification by science of phenomena within reality; interplay between the phenomena studied and the human activities providing the context and purpose for studying them; identification of facets of activities as well as facets of phenomena. It is concluded that these ideas offer a substantial contribution to the theory of knowledge organization, and thus should be known, discussed and further developed.

Dear Brian, I am writing this on the occasion of an ISKO UK conference on topics that have long been of interest to you.

It was a great fortune for me to get in touch with you personally in March 2007, on the occasion of asking you to contribute a paper to a journal special issue devoted to facet analysis. Having you as an invited author was an obvious choice, given the influential works that you had previously produced on that subject. You answered by reporting that you had resumed thinking about facets recently, also stimulated by their revival in Web information architecture. So you were readily able to convert your notes into another precious synthesis of facet analysis techniques (Vickery 2008a).

Since then our correspondence has been a great stimulus for me to develop ideas on classification theory, which was only reinforced when I could enjoy the pleasure of visiting you in Oxford together with Aida Slavic. I carefully keep the books that you generously gifted me with a simple gesture on that occasion.

Here I would like to report on ideas which we have discussed in the last years. As in this moment you happen to be unable to reply, I must commit to report your thoughts as faithfully as I can. To this purpose, I will take the freedom to quote from your emails at various points. I hope you will forgive any inaccuracy on my part.

Scientific classification, that is, listing the wind where it blows

Knowledge organization (KO) was always a major interest for Brian Vickery. He saw classification and indexing not just as specialized techniques of cataloguing, but as basic functional components in information service in general. As users have to find information on the subjects relevant to them, an effective classification should be integral to information systems.
As an early member and secretary of the Classification Research Group (CRG), from its formation in 1952 until 1960 (when he moved out of London), Vickery participated in the reception and development of Ranganathan's ideas concerning a faceted approach to classification.

> 'I met Ranga on several occasions. He was a fascinating personality, highly organised, a tireless worker, a fierce enthusiast, a charming man. Speaking of his passion for work, he told me once how his young son had stuck a notice on his study door: "Librarianship is unfair to families". […] It really was a privilege to have known him.' (email to the author, 31 March 2008)

Indeed, it was Vickery who stated the principles of facet analysis and their application to the construction of special classifications in very clear and accessible English books (Vickery 1960; 1966; 1975). His 1960 guide to the creation of faceted schemes was also translated into other European languages.

Each member of the CRG developed his or her own ideas and works on classification; however many of them, including Vickery, shared a scientific approach to information. This often happened in the framework of materialist worldviews, under the influence of prominent English scientists like J.D. Bernal and Joseph Needham (Justice, 2004). To them, the task of classification was to list the entities of a real world in such ways that users can easily find them at an appropriate place in a scheme. This approach was especially expressed by CRG member Jason Farradane (1950) in his notion of 'place of unique definition': each real entity should be listed at its natural place, that is the place corresponding to the definition of its own nature, rather than to other classes of entities with which it interacts only occasionally.

> 'You mention Farradane on place of unique definition. You might like this anecdote. In the early days of the CRG, Farradane was defending this idea. Someone said "but the wind bloweth where it listeth" [Gospel of St. John, 3, 8]. Jason quickly replied "I want to list the wind where it bloweth". We loved it.' (email to the author, 11 August 2007)

> 'I agree with Jack Mills, Jason [Farradane] always trod his own path – he was never a whole-hearted "faceteer". Nevertheless, in response to a challenge, he and I collaborated to produce a faceted classification of aeronautics for test in the first Cranfield study by Cyril Cleverdon. [Douglas] Foskett and I used to say, that the more Jason expounded his ideas on his "operators", the more we disagreed with him, and the more we liked him.' (email to the author, 13 August 2007)

Integrative levels

Views of those CRG members on scientifically-oriented methods of classification can be ascribed to the ontological approach to knowledge organization, as opposed to the epistemological approach (Gnoli 2008; Dousa 2010): in other words, the primary criteria for ordering subjects have to be found in the objects of knowledge themselves – usually known in KO literature as the *phenomena* – rather than in the ways by which humans know them.

Adoption of the ontological approach naturally leads to the need for some principles according to which phenomena can be arranged. This was especially the case when, around 1960, the CRG interests switched from the construction of special classifications to a vast enquiry on the possibility of a new general classification. The ordering principle could not be found any more in the traditional orders of disciplines, which would have rather involved epistemological assumptions; it should rather be found in the real objects themselves.

To this purpose, CRG members looked at the theory of integrative levels, as presented by biochemist Joseph Needham and psychologist James Feibleman (Foskett, 1961). Indeed, this theory allows one to arrange natural phenomena in an order of increasing organization, or complexity, from elementary particles through atoms, molecules, cells and organisms, until the most organized structures of human societies and civilizations. Each level is said to have *emerged* from previous ones, but also to have its own properties not

possessed by lower levels.

Vickery mentions this kind of idea very early in his writings (Vickery, 1957; see also Vickery, 1975), as did another CRG member, Barbara Kyle (1958). However, he credited Douglas Foskett as the main person responsible for pursuing its application in classification:

> 'On "levels", I would imagine that most "emergentists" are materialists, though not necessarily the reverse. I was much closer to Douglas Foskett than to Barbara Kyle, and so cannot speak of her views with any certainty. She may also have had the concept of levels, but certainly Douglas was on to the idea very early. It was already being aired during the nineteenth century.
>
> My sketch of levels in the website paper [Vickery, 2005] is intended only to indicate the pattern, which of course is in actuality much more intricate. I wanted to show, on the one hand, the atoms-molecules-macromolecules-cells sequence, and on the other hand, the galaxies-stars-planets-rocks etc sequence. The horizontal lines running from rocks, soils, etc to join the vertical from planets are meant to suggest the derivation from planets.
> As you mention, I had left London (and hence regular attendance at the CRG), before Austin started on his work in general classification, but I have always been sympathetic to the possibility of having a "substance" superfacet based on levels.' (email to the author, 6 April 2007)
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> 'I have used a rough, impressionistic sketch of cosmic levels [...]. I have not tried to use this as the basis of a classification.' (email to the author, 2 August 2007)

While continuity between such levels of aggregation as atoms, molecules, cells and organisms are widely acknowledged, other transitions are often seen as more radical, and requiring a different modeling: this is the case with the emergence of minds from brains, or of whole cultures from individual minds. Ontologist Nicolai Hartmann distinguished the transition between such macro-levels ('building above') from that between micro-levels ('overforming') (Poli, 2001). It has been suggested that transitions between macro-levels correspond to mechanisms of memory, that is reproduction of patterns of lower levels in the higher ones. However, Vickery did not see any special requirement for the explanation of macro-transitions in the framework of his materialistic views:

> 'I understand your thinking about how a level can "represent" or be a "trace" of its lower level, but this is different from my thought.
>
> Any transition may seem mysterious when we understand very little about it. How electrons and protons could hang together to form an atom was a mystery before Rutherford and Bohr. Quantum theory, though it works, is still a mystery to most. We are beginning to understand how chemicals can hang together to form a cell. We are still almost wholly ignorant how the cells of the brain interact to produce conscious behaviour, so this remains a mystery.
>
> The relations between the levels of entity are complex, and are a matter for science to investigate. Lower-level entities are constituents of the higher, they form its basic structure and are the mechanisms that implement its behaviour. They themselves behave in accordance with their own natures, but are "constrained" by the higher-level structure into which they fit.' (email to the author, 2 August 2007)

Vickery's acknowledgment of levels as a basis for classification was that of an objective source, not just of a philosophical theory:

'I have been meaning to suggest to you that the concept of levels of phenomena is today well beyond a philosophical idea: I believe that it has been clearly demonstrated by the collective agencies of science, and may be accepted as a "reliable" fact. We still have very much to learn about how the levels interact, particularly at the steps inanimate-to-animate, animate-to-minded, individual-to-social.' (email to the author, 8 January 2009)

'From the world to the classifier'

In August 2007, Vickery reacted to the publication of the León Manifesto, which gathered ideas from several participants at an ISKO(Spain) conference on the theme of interdisciplinarity of knowledge. The Manifesto claims that classification should encourage interdisciplinary research, by being based on the phenomena studied rather than on disciplines; and by allowing combination of phenomena with the theories and methods adopted to study them, by means of analytico-synthetic techniques like those already available for faceted classification (ISKO Italia, 2007; Szostak, 2007).

This prompted Vickery to propose a scheme of the steps 'from the world to the classifier', including phenomena, disciplines, documents, subjects, and classification. His scheme and related considerations are published, together with comments by other authors, after the online version of the Manifesto (ISKO Italia, 2007). Later, in early 2008, Vickery organized the same ideas in the form of a paper, originally published on his own website and also considered for publication in print. As the website was closed after the author's death, the paper has been republished online by ISKO Italy (Vickery, 2008*b*).

> 'I would just like to give some recent thoughts that relate to the background of classification.
> *From the world to the classifier*
> 1. The world (nature, people, human artefacts) = Phenomena.
> 2. People's activities = Disciplines (better, Fields of activity).
>   (1) practical, directly on the world (e.g. agriculture, education, engineering).
>   (2) theoretical, intellectual study of
>   (a) the world (natural, social and applied sciences)
>   (b) our activities in it (philosophy ?more).
> 3. Reports of practical or theoretical activity and its outcome, each within the viewpoint of its own discipline (field).
> 4. Subjects of reports and of topics within them – including information on phenomena.
> 5. Classification of subjects – which will need both disciplinary and phenomenal aspects.
>
> Which should take preference? Most people write about phenomena from their own disciplinary viewpoints, so the overall subject of a report may be (sub)disciplinary. But the same phenomena can be used or studied by many disciplines, which will need information on the phenomena wherever they are reported. So to represent the originating context of a report we need disciplinary classification, but to reveal its detailed content we need phenomenal (??)' (email to the author, 2 August 2007)

Such a scheme has great epistemological interest, suggesting that several dimensions combine to form the subject of a document, and that each of them could be represented by a 'modal' facet. I was in turn stimulated to develop these ideas in a draft paper, recently reorganized and published (Gnoli, 2011), proposing to list the first three entries in Vickery's list as the major *dimensions* of knowledge organization, labelled respectively *phenomena* (1), *perspective* (2), and *carrier* (3).

Reality and phenomena

To the dimension of phenomena (1), I have proposed to premise another dimension (0 or α) for reality as such (Gnoli, 2011). This dimension corresponds to what Kant has called the *noumenon*, that is the original reality which is known by humans not directly, but only through the mediation of their sense organs and intellectual apparatus. The subsequent dimension of phenomena would then be the result of a cognitive analysis of such undifferentiated reality into distinct concepts. Since reality as such is not directly attainable, it is phenomena that provide the actual basis for knowledge organization.

However, Vickery found that dimension α does not deserve to be treated separately from phenomena:

> 'You have made ingenious use of my little table. I am afraid that I have a different conception of level 0 or α from that which you suggest. You say that "what we actually know is only reality as filtered through our sense organs and intellectual apparatus". I entirely agree: we learn to "know" the real world by acting on it, reacting to it, interacting with it, speculating about it and testing our speculations in practice. This implies that "reality" is something with which we can interact sensually and thus "know". So to me α, at first largely unknown, is an entity that gradually becomes more widely known and more reliably known, both in each lifetime and in history. By "reliable" I mean that, if we act on knowledge, and the results of the action are as predicted, to that extent the knowledge is reliable. I find no basis for postulating a *noumenon* to which we have no access: if it is "unknowable" (i.e. through our senses) with what are we interacting when we learn about the world through our senses? And if we cannot "access" it, it cannot access us, and can have no affect on us. To me, the *noumenon* is a useless and needless postulate. For me, level α is a world of reality which we gradually get to know and within which we gradually learn to recognise phenomena.' (email to the author, 29 June 2008)

This comment suggests that reality may have the same substance as phenomena, in as much as phenomena are simply the part of reality already discovered by humans. Again this seems to be part of a materialist view. Vickery's words leave unclear whether, in his view, models of knowledge organization could still list α as the 'entity that gradually becomes more widely known', or should skip it at all, as an inappropriate hypostasis.

In any case, as α cannot be represented in practice, Vickery's view agrees with the model of the León Manifesto in concluding that phenomena can be the taken as the primitive unit for classification.

Activities

The ontic dimension of phenomena has then to be combined with an epistemic dimension, which will include the traditional disciplines as well as theories, methods, approaches, cultural perspectives, intended applications. Here comes another original contribution of Vickery's thought. Indeed, he prefers to describe this epistemic dimension as one of *activities*:

> 'There are innumerable kinds of productive action that men and women now carry out. [...] Thus in the world today we may make a broad characterisation of the main activities carried out by people, as below (spheres or fields of activity):
> - Economic (production, commerce, finance)
> - Technological (innovation)
> - Welfare (medical, social benefits, charities, information provision)
> - Cultural (arts, sport, entertainment, the media, hobbies)
> - State (government, law, police, military)
> - Political (to change aspects of society, the struggle for state power)
> - Religious activities
> - Educational activities (general, and within any of the above)

- Specialist intellectual (theoretical studies of any of the above)
- General intellectual (e.g. philosophy, logic, dialectics, mathematics, linguistics, the sciences)
- Consumption (everyday use of the products or services of the others)'
(email to the author, 2 August 2007)

In Vickery's view, many disciplines actually correspond to such activities, so that *activities* or *fields of activity* would be direct and useful labels for this dimension:

'General documentary classifications are organised into main classes that are often called "disciplines", perhaps because we think of them as the knowledge domains studied in an academic setting. But such classes as Mining and Education are, in the first instance, not domains studied but activities pursued, by the mining industry and by teachers. Only secondarily do they become objects of academic study. I find it helpful to replace the idea of disciplines with that of "fields of human activity", activities in which people engage practically and are then led to study and write about.' (ISKO Italia, 2007)

Fields of activity thus become a second dimension that can be combined with that of phenomena, as in the model of the León Manifesto:

'My feeling is that phenomena should indeed be separated out, but that parallel to that listing there could be a second listing of human activities. Phenomena I take to be (our knowledge of) entities, their properties and interactions, that exist in nature (from elementary particles and forces up to the world ecosystem, or the cosmos), in society (from individual people up to the human community), and as human artefacts. But the human activities of investigating natural and social entities, of undertaking personal and social actions, and of manufacturing artefacts of all kinds, are equally needed in a documentary classification.' (ISKO Italia, 2007)

Here, Vickery is suggesting a slightly different strategy than that of existing classifications by phenomena, like the Integrative Levels Classification (Szostak & Gnoli, 2008). Indeed, the latter treats even technologies, economies and cultures within the dimension of phenomena: as emerged from human capabilities, these domains would belong to integrative levels higher than those of the natural world, still without any fundamental separation from them. The levels of human artifacts and 'mentefacts' (in Kyle's terms) simply come after the levels of matter, life and mind as a continuation of them. Vickery's model contrasts with this: according to it, while a natural topic like a plant can be represented as a phenomenon, a cultural topic like cultivation should be represented as an activity, hence in a separate dimension:

'Clearly, such activities are in some sense also phenomena of the world, but I think we can distinguish them from the phenomena already defined, as being a set of human points of view from which other phenomena may be approached. Any given documentary report, although it usually deals with phenomena, does so from the viewpoint of a particular activity, so both aspects are needed in order to state its "subject". Each listing can then be searched independently, and any phenomenon can be linked to any activity. That is to say that, potentially, the viewpoint of one particular activity can be directed to any or all phenomena, and any one phenomenon can be the object of attention from many or all viewpoints.' (ISKO Italia, 2007)

Each of these two dimensions, phenomena and activities, will have its own facets. Facets of phenomena can be identified according to the classical general categories described in KO literature, like Ranganathan's PMEST. Facets of activities have to be different, but Vickery was optimistic about the possibility of identifying a set of general categories (a 'facet formula', in Ranganathan's term) also for them:

'Whatever our interpretation of α, we are agreed that we must start with β, the "object of

knowledge", what we currently "know" about reality, and I think we are broadly in agreement about these phenomena (as in your list of ILC main classes).

Next we come to γ, for which I continue to prefer the label "activities". I find it useful to distinguish between the activities of "intellectual study", undertaken with a view to understanding the nature of phenomena, and what (for want of a better name) I call "practical activities", interacting with phenomena for a myriad other human purposes.

The outcome of intellectual studies is to discover the properties, internal processes, external behaviour, structure, parts, constituents, place and time of occurrence, etc, of phenomena: these can be expressed in classification as the facets of phenomena classes.

But then we come to the activities themselves, whether intellectual or practical: here we are concerned with the actions of men in pursuit of innumerable human ends. [...] These various "actions" may be represented as facets of the Activities classes in a classification. In themselves, they may be very diverse, but it may be possible to reduce them to a standard "facet formula". I find that a useful beginning here may be Tom Wilson's "process model of activity". [Wilson, 2006]." (email to the author, 29 June 2008)

Reference to Wilson's paper, which also shows how Vickery was remaining curious and updated on recent literature, connects his views on classification by activities with activity theory. This is a psychological theory developed in the Soviet Union, especially by A.N. Leontev and S.L. Rubinshtein. Its basic notions, called *motivation*, *goal*, *activity*, *tools*, *object*, *outcome*, *rules*, *community* and *division*, would be 'all directly applicable to the conduct of information behaviour research' (Wilson, 2006). Both Vickery and Wilson thus propose activity theory as an additional source for modelling in information science and knowledge organization.

The notion of activity is given a material sense in activity theory, after its use by Karl Marx: activities are performed by subjects, with the aid of some tools, in order to achieve some goals. These – activity, subject, tool, goal, etc. – could then be candidate categories for the facet formula of activities envisaged by Vickery. In this perspective, the practical and intellectual activities reported in documents can be seen as the intended applications in which context described phenomena are investigated.

Conclusion

The discussions and references reported above show how Brian Vickery was very active in the theoretical debate about classification in his last years. He supported ideas not yet absorbed in standard classification theory, like integrative levels and classification by phenomena, and reacted to contemporary discussions in creative ways by proposing original contributions. Unfortunately, d he did not always have occasions or energy enough to publish them in academic journals.

'I do not move much from Oxford these days. Occasionally I go by coach to London and see a good play with my daughter. Otherwise, I rely on people coming to me. I now have a big brood of descendants: daughter, son, step-son, two grand-daughters, a grandson, two step-grand-daughters, two great-grandchildren. All have their busy lives, but I see them pretty regularly.' (email to the author, 2 July 2009)

Vickery's views also pick out some theoretical problems that remain to be addressed: is dimension α necessary or not in modeling the dimensions of knowledge organization? Should the epistemic dimension include only theories and methods by which phenomena are investigated, or even all topics that are usually covered in applied and human sciences, such as agriculture or the arts? How could disciplines be treated in the framework of activity theory?...

In any option, Vickery's late ideas look relevant for the study of new classificatory structures not based on traditional disciplines anymore; several contemporary authors also consider such structures to be needed for the organization of knowledge collections integrating different domains, forms and media (e.g. Jacob, 1994; Beghtol, 1998). This seems to be an additional reason why these ideas, as I have tried to report them, deserve to be considered, discussed and further developed by the knowledge organization community, as another precious heritage of Vickery's great contribution to the field.

Acknowledgments

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