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Trying to Please Everybody – Taxonomies, Politics, and Objectivity

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Abstract

This presentation illustrates a framework for analysing the objectivity of taxonomy projects and shows how it can illuminate the political nature of practical taxonomy work as mediation of differing viewpoints, or as a balancing of subjectivity and objectivity.
*Theoretical background***.** The US philosopher Helen Longino proposes that the subjective/objective distinction is a false dichotomy in a scientific inquiry, arguing instead that objectivity depends on a process of intersubjective creation of meaning (Longino, H. (1990) Science as Social Knowledge). Similarly the creation of a taxonomy depends on negotiating an agreement on terminology choices and categorisations within a particular socio-cultural context. Longino asserts that for scientific inquiry to be objective, it must satisfy four criteria: *openness to criticism*; *responsiveness to criticism*; *public accessibility of standards*; and *equality of intellectual authority of contributors*. These criteria can be used as a framework for assessing the essentially "political" process of mediation that a taxonomist must undertake, illuminating the degree of "objectivity" of a taxonomy project.
Methodology and results. Fourteen taxonomy professionals were interviewed about 15 diverse taxonomy projects and their responses scored against a set of five questions exploring each of Longino's four criteria. The projects were ranked. Large-scale public projects scored higher than projects in the commercial sector and small-scale or specialist projects scored lowest.
Conclusions. This research intends to show that Longino's framework is a useful way of highlighting the degree of "objectivity" of a taxonomy project, and that the level of "objectivity" is related to the political nature of the project and how the role of "taxonomist as politician" is formally supported. There would also seem to be a similarity between established industry best practice (especially for well-resourced projects), and satisfaction of Longino's criteria for objectivity.

1. Introduction

This paper describes a framework for analysing the "objectivity" of taxonomy projects and illuminating the political nature of practical taxonomy work. Gathering, assessing, and managing user feedback is a key part of many taxonomy projects, but this inevitably involves the taxonomist in mediating "user-specific" demands, judgments, and choices, and creating a taxonomy that is more or less "objective".

A brief summary of relevant current research and theoretical background is given, followed by an argument for applying the framework to taxonomy work. The argument is supported by original research demonstrating the results that can be obtained by application of the framework to 15 taxonomy projects.

In conclusion, it is suggested that the framework could also be used by practitioners as a checklist to support professional best practice.

2. Overview of related literature

Although the political and mediatory aspects of taxonomy creation are widely described in practitioner literature (Lambe, 2007; Orna, 2000, 2004; Tredinnick, 2004), they are generally treated in terms of obtaining user buy-in for effective change management (Gilchrist and Kibby, 2000; Gilchrist and Mahon, 2003). There is much written about how users' viewpoints can be collected – often framed in terms of compiling a set of formal information system requirements (Dumas and Reddish, 1999; Kuniavsky, 2003; Preece, Rogers, and Sharp, 2007; Rowley, 1990; Yeates, Shields, and Helmy, 1994) and on the political nature of organisations in general (Bratton et al., 2007; Brown and Duguid, 2000; Knights and Murray, 1994). The

importance of taking into account socio-cultural or political factors in designing systems (Avgerou, 2002; Barnes, 2005; Checkland, 1993; Strassmann, 1995) has also been widely considered. Far less has been written about what taxonomists in particular should do to examine political or cultural assumptions, to balance conflicting viewpoints, or to take into account issues of subjectivity and objectivity in practical work, nor on the links between established best practice and philosophical theory.

Philosophical and epistemological investigations in information studies have tended to focus on broad issues of classification or on issues related to library classifications rather than to smaller-scale knowledge organisation projects (Hjørland, 2002). Theories of scientific knowledge (Feyerabend, 1978; Kuhn, 1962; Popper, 1972) have developed as a separate academic tradition to epistemological theory within information studies, but useful insights can be gained by drawing connections.

The nature of objectivity and knowledge in general is perhaps one of the oldest themes in western philosophy, having been considered by Plato (e.g. *Phaedrus*), following in the tradition of early Greek philosophers such as Parmenides (Barnes, 1987). A full discussion of the debate is beyond the scope of this article, but in very brief overview, during the 20th century a hermeneutic paradigm, especially in the social sciences, began to challenge the dominance of the traditional/classical positivist paradigm. In many fields, there was a growing recognition that the realms in which immutable laws exist to be discovered were limited to fields within the "hard" sciences (such as physics and chemistry), with quantum theory raising additional challenges (French, 2008). The nature of objectivity in scientific enquiry consequently became the focus of renewed interest especially amongst sociologists of science and information (Bowker and Star, 1999; Suchman, 1987).

Research in information studies has followed a similar pattern. The classical or traditional Linnaean (ultimately Aristotelian) view was that categorisation was a process of recognition and recording of "objective" properties of entities, with classificationists such as Ranganathan (1959), treating classification and categorisation as a process of perceiving, uncovering, and analysing "facts" as the basis for dividing and ranking subjects and concepts. However, Bliss (1935) recognised the importance of consensus, and of classifications designed to serve specific communities, foreshadowing the "user-centric" view that rose to prominence in the later 20th century.

Epistemologists such as Putnam (1975) countered the notion of the existence of an objective ideal Platonic realm that underlies reality and argued that knowledge is "situated" in a particular context. Political philosophers such as Foucault (1970, 1972) claimed that what is considered true by any community at any time is dependant on a dominant discourse influenced by socio-political or cultural factors, such as power. The Weberian tradition of sociology emphasised the changing nature of human society and the impossibility of formulating laws about human society that can be validated by the positivist methods of classical scientific experimentation (Giddens, 1976).

Work in psychology (Lakoff, 1990; Rosch and Lloyd, 1978) has shown that categorisation depends on "subjective" physical and cultural constraints. So, although categorisation appears to be a very basic cognitive capacity of human beings (Feigenson and Halberda, 2008), the nature of human categorisation is firmly rooted in human physiology, and is then modified by specific socio-cultural environments. Categorisation choices are therefore "subjective" in that they vary from culture to

culture and from person to person, suggesting that "objective" categorisation is not possible.

This implies that there can be no single "correct" taxonomy, but that taxonomies can be more or less useful and usable by specific individuals or groups, such as "communities of practice" (Wenger, 1999). However, this raises the problem of relativism – can any single system be useful to more than one individual or a very narrowly constrained group? Can the taxonomist reflect individual subjectivity while producing a taxonomy that can be considered valid in general?

The problem of reconciling subjectivity and objectivity in knowledge organisation systems has been considered by classification theorists such as Hjørland (2004, 2008). He asserts that no knowledge organisation system is free of bias, and that librarians and other custodians of information have a moral duty to ensure that minority viewpoints are surfaced and minority voices are heard. Feinberg (2007) also argues that biases are inevitable, but that they may even be necessary, so the information professional need not attempt to be an advocate for minority voices but should instead make explicit who the target user group is and how those users are privileged in the particular system.

In Feinberg's view, the stance taken in defining a classification should be made transparent, so that it is open to challenge and criticism. This places an emphasis on making clear the decisions and the decision-making processes involved. Such transparency of procedure is asserted to afford non-dominant groups the opportunity to construct their own classifications suited to their specific needs, or, at least, appreciate that they are being required to take on the additional cognitive work of adapting themselves to the dominant system. Biases can affect not only the overall structure of the classification scheme, but also the quality of data (Bowker and Star, 1999), "encoding" – and potentially obscuring – specific viewpoints even at the data collection stage.

Some taxonomy practitioners (Gilchrist and Mahon, 2003; Lambe, 2007) and library and information theorists (Buchanan, 1979) also argue that bias is not a negative issue to be avoided but is the explicit goal of designing a knowledge organisation system to meet specific needs – i.e. a taxonomy *ought* to be subjective. This view appears frequently in the professional Knowledge Management literature, where the importance of providing tailored information is emphasised (Bukowitz and Williams, 1999).

These contrasting views are related to different ethical positions. For Hjørland, who is concerned primarily with public resources such as library collections, the exclusion of minority groups is a curtailment of their rights as citizens to access national records, to access education, etc., and therefore not ethically aligned with the purpose of a public library. The right of groups to gain access to resources without having to compromise their culture or identity (e.g. by learning a majority language) is significant. An objective classification is therefore seen as a more accessible classification. For Lambe and Gilchrist and Mahon, working within a business or commercial context, the exclusion of minority views may be a necessary consequence of producing a taxonomy that best caters to the needs of the target group and therefore a subjective classification will be more specifically usable and hence meet its business goals more effectively, albeit by being less broadly accessible.

This tension between accommodating as many viewpoints ("objective") as possible, and designing for a single world view ("subjective") runs parallel to the universalist/relativist divide. However, Longino (1990, 2002) proposes that

contextually situated knowledge complements rather than negates universalist principles.

Longino argues that the subjective/objective distinction is a false dichotomy and that for a scientific enquiry to be objective, it must depend on the intersubjective creation of meaning. She develops an essentially Wittgensteinian (2001) and social constructivist position (Hjørland, 2002; Tredinnick, 2008), arguing that meaning is a negotiated social contract. Such a reconciliation of the dichotomy has epistemological as well as ethical implications. Only knowledge that has been established though an open and intersubjective process of criticism and challenge, amidst background assumptions that are themselves subject to challenge, is asserted to be epistemologically sound. Knowledge established within the perspective of a closed group that is not open to challenge is – if taken to the logical conclusion – not just relativistic, but effectively mystical, unknowable, and unverifiable externally.

In classification terms, this mirrors the difference between the major library classifications (Dewey Decimal Classification, Universal Decimal Classification, etc. – Broughton, 2004) and the way an individual chooses to label the folders on their personal computer, which cannot be considered "wrong" but could conceivably make no sense to anyone else (although whether a system so idiosyncratic as to be theoretically impossible to explain to another person would count as a taxonomy, rather than a something more akin to a private language, is debatable—Candlish and Wrisely, 2008; Wittgenstein, 2001). The major classifications – although not necessarily created by the most "objective" of processes – have since become more open instruments with mechanisms for accepting and considering criticism and challenge (e.g. via the Online Computer Library Center (OCLC) Inc. website, via the UDC Consortium, etc.).

A fully open intersubjective process of taxonomy creation would permit not only the choices of terminology and categorisations to be challenged, but also allow open discussion of the assumptions and socio-cultural context in which the decision-making process was framed. Such a taxonomy building process would therefore be considered "objective". A process taking place entirely within the mind of the taxonomist (or within a small group that does not reveal the reasoning behind its decisions) tends towards the "subjective".

4. Longino's framework

If taxonomy building is compared to a process of scientific enquiry, Longino and Feinberg's positions can be brought together. It is worth noting that this comparison does not imply that classification is like a scientific investigation to discover properties of things that objectively exist (i.e. a series of experiments to establish the truth of any given categorisation – Feinberg, 2007), but that building a taxonomy is a social process of construction of shared meaning, so can be compared to the social process of conducting scientific enquiries in general.

Longino asserts that objectivity is created intersubjectively within a community when subject to four key conditions:

I. Openness to criticism.
II. Responsiveness to criticism.
III. Public accessibility of standards.
IV. Equality of intellectual authority of contributors.

These criteria can be used as a framework for assessing what takes place within taxonomy projects, and used as a way of illuminating the essentially "political" process of brokerage and mediation that a taxonomist must oversee in order to create an "objective" taxonomy. The degree to which any enquiry fulfils or fails to fulfil these criteria is taken as a measure of its objectivity, answering Bowker and Star and Feinberg's call for open and transparent decision-making processes. It also follows the situated knowledge theory of Haraway (1988), who emphasises a need for "well-defined engagement" in order to exchange situated knowledges.

As taxonomy projects are not necessarily scientific – in that objectivity need not be their aim – the analysis also highlights those situations where a taxonomist may need to reject criteria of objectivity for pragmatic or political reasons, especially in commercial contexts, such as lack of time or money. However, Longino's framework need not be taken as prescriptive, merely descriptive. A taxonomist working alone could use the framework as prompt or checklist for rendering transparent and recordable their decision-making processes.

In order to assess whether applying Longino's framework would indeed help formalise and make explicit this process, it was used as a lens through which to view a number of diverse taxonomy projects.

5. Methodology

Fourteen taxonomy professionals were interviewed about fifteen separate taxonomy projects ranging from large-scale corporate projects to small-scale specialist library and indexing work. The interviews were conducted between November 2007 and April 2009, nine in person, four by telephone, and one by email. Five other information professionals provided background information. Seven projects were UK-based, six were for global organisations based in or with significant business in the UK, one was based in Europe, and one based in the USA. Supporting evidence was derived from documentation supplied by the interviewees, publicly accessible information (such as company websites), and from a study of practitioner literature.

The interviewees' descriptions of the way the taxonomy projects were undertaken were coded and scored against a set of five closed questions under each of Longino's four criteria. A score of 0, 1, or 2 was allocated for each question, giving a maximum of 10 points for each of the four criteria for each project. The questions were designed as a way of comparing the degree to which each of the criteria was fulfilled in each case. The number of questions was limited to simplify analysis.

In order to apply Longino' framework to taxonomy work, her four criteria were adapted and elaborated.

I. Openness to criticism

Longino cites as examples of openness within the scientific community the peer-review process and open conferences, where ideas can be challenged and debated in public. An equivalent to the peer-review process in taxonomy work was taken to be a process of consultation and review, and an equivalent of conferences to be open meetings.

Other evidence that openness to criticism was significant in the taxonomy projects included:

- Mechanisms for soliciting and accepting feedback and comments (e.g. through online forms, focus groups, user surveys)
- Open discussions (e.g. via wikis or company newsletters)

- Regular or formalised review and discussion meetings.

The five questions asked were:
i. Was criticism accepted during the process of building the taxonomy?
ii. Was criticism accepted on an ongoing basis, after the taxonomy was finalised, for example in order to update and modify it?
iii. Was criticism accepted from anyone (e.g. members of the public, external taxonomists not involved in the project)?
iv. Was criticism accepted only from within the organisation involved?
v. Was criticism accepted only from within the project team?

The last three questions were taken to be cumulative – so a project that accepted criticism from anyone was by default taken to accept criticism from within the organisation and project team as well.

A subtlety not explored was that some projects might have different levels of openness at different stages – for example if a taxonomy were built entirely within a project team, but then opened up to public criticism once it had been made available to public users.

II. Responsiveness to criticism

Longino includes responsiveness as a separate criterion to openness, although they are related. She emphasises that a community may appear open, allowing comments and challenges, but must also react to challenges as a whole and have clear criteria for deciding which challenges it accepts and which it rejects. In addition, the process of criticism itself must be valued as highly as originality. Longino emphasises the need to alter background assumptions that govern the process of theory building, as well as challenging specific hypotheses.

In taxonomy projects, this was taken to mean that responsiveness should include the possibility of challenge to the underlying decision-making processes and criteria, as well as to the structure of the taxonomy, rather than just to specific words or labels. In addition, projects where there were formal methods of collecting and assessing feedback from different sources scored highly, as did projects where records of the response process were open and widely available.

The five questions asked were:
i. Were there structured or formal feedback/response systems in place during taxonomy creation?
ii. Were there structured or formal feedback/response systems in place on an ongoing basis, after the taxonomy was finalised, for example in order to update and modify it?
iii. Did the response process take place as an open debate in public?
iv. Did the response process take place as an open debate in the organisation?
v. Did the response process take place as an open debate in the project team only?

Again, the last three questions were cumulative.

III. Public accessibility of standards

Publicly recognised standards, according to Longino, help ensure that background assumptions underpinning enquiry are made explicit and so remain open to criticism and challenge.

In taxonomy projects, this can be taken to mean several different things. Firstly, the public accessibility of project documentation, such as style guides and policy documents, was taken to be an indication of public accessibility of standards. Secondly, the use of publicly created vocabularies (e.g. The Integrated Public Sector Vocabulary – IPSV) was considered use of a publicly accessible and recognised standard. Thirdly, use of accepted public standards in professional information practice (such as ISO standards) was also considered relevant.

The five questions asked were:
i. Are standards/policies available to anyone without request (e.g. available to download from a publicly accessible website)?
ii. Are standards/policies available only to people within the organisation without request (e.g. available to download from a company Intranet)?
iii. Are standards/policies available only to people within the project team without request (e.g. available from a limited access repository)?
iv. Are standards supplied to anyone (e.g. a member of the public) but only in response to a specific request?
v. Are external public vocabularies, classifications, etc., used?

The questions were designed to favour transparency of standards over and above use of external standards. So, a project in which policies and guides were made widely and publicly available would score as "more objective" (openly intersubjective) than a project that relied on external standards, but placed less emphasis on making transparent what had been used. For example, a medical taxonomy that utilised some World Health Organisation (WHO) vocabularies but had no other publicly available documentation would score lower than a media company that had created its own vocabularies, but then published documentation about how those vocabularies had been created.

IV. Equality of intellectual authority

This criterion appears to be the most problematic to interpret. Longino's rationale is that contributions of equal intellectual value should be treated equally, in order that minority voices are not arbitrarily excluded. However, she also recognises that the contribution of a schoolchild and a senior professor need not be taken as equivalent, but the key issue is that there are clear criteria for determining equivalence. In scientific communities, there are seemingly transparent systems for establishing intellectual authority (e.g. the academic career structure, international ranking of universities, established peer-review processes, etc.).

In taxonomy projects, the equality of intellectual authority criterion was taken to mean that there were clear standards and policies for balancing contributions from different sources (e.g. user feedback considered more significant than feedback from the project team, subject specialist feedback considered more important than public comments). Projects where authority was not well defined, or was variable (for example, when political power shifted within an organisation) scored low.

The five questions asked were:
i. Are there clear processes for assessing the intellectual authority of any and all commentators/contributors (i.e. is it clear what is taken to be an indication of intellectual authority – academic qualifications, membership of target user group)?

ii. Are there clear criteria for weighting these assessments of intellectual authority (i.e. is it clear when academic expertise should be considered to outweigh membership of a target group)?
iii. Are there clear criteria for weighting intellectual authority of contributors within the organisation (e.g. people working in different departments or different levels of seniority)?
iv. Are there clear criteria for weighting intellectual authority within the project team itself (e.g. between lead taxonomist and indexers)?
v. Are there clear criteria for weighting intellectual authority between the project team/organisation member/anyone (e.g. is it clear when the project team can disregard contributions from the public)?

These questions emphasised the openness and formalisation of procedures and metrics, rather than attempting to determine how well any such procedures may in fact function. However, the questions were also intended to elucidate power relations between the taxonomy project team and other stakeholders in the projects. The weighting of opinion, in practice, may be the most highly politicised aspect of a taxonomist's work. For example, in an organisation where one department is more powerful than another, such power may be used to influence taxonomy development for political reasons, at the expense of intended end users, such as public users of a company website.

The last three questions were not necessarily cumulative, as it would be possible for there to be clear hierarchies within the organisation but by which an outsourced taxonomy consultancy would not necessarily be defined or constrained. Similarly, there may be a clear demarcation of authority within a taxonomy project team, but a far more fluid negotiation of power and influence amongst other departments.

6. Limitations

There are many limitations to this method and much potential for its development by future researchers. The rankings can only be taken as a rough guide, to be read in conjunction with the qualitative data obtained from the studies. Although two projects may score similarly, the nature and context of the projects and the way in which the scores were produced may be very different. The results in the figures become meaningful only when such additional contextual detail (as outlined in section 8) is taken into account.

For example, a number of taxonomists expressed that they would have liked to have used public standards (such as vocabularies) but were unable to find any. The fact that such standards were not used, therefore, does not provide any explanation of why standards were not used, and certainly cannot be taken as an indication that using public standards was actively avoided.

The formulation of the questions also affected the results obtained. There are many possible ways of formulating similar questions and of evaluating each of Longino's criteria. The questions presented here were intended to illustrate the potential of the framework to be adapted in this way, rather than as an end-point of extensive investigation. Further research and study could define and refine more appropriate and thorough assessment questions and methods of analysis.

The small size of the data set limits the power of the correlations found. The use of statistical methods is intended only to highlight potentially interesting areas for more detailed investigation and as a supplement to qualitative analysis.

7. Results

Firstly, the scores under each criterion were added and ranked to show an aggregate score for "objectivity" (open intersubjectivity) of each project.

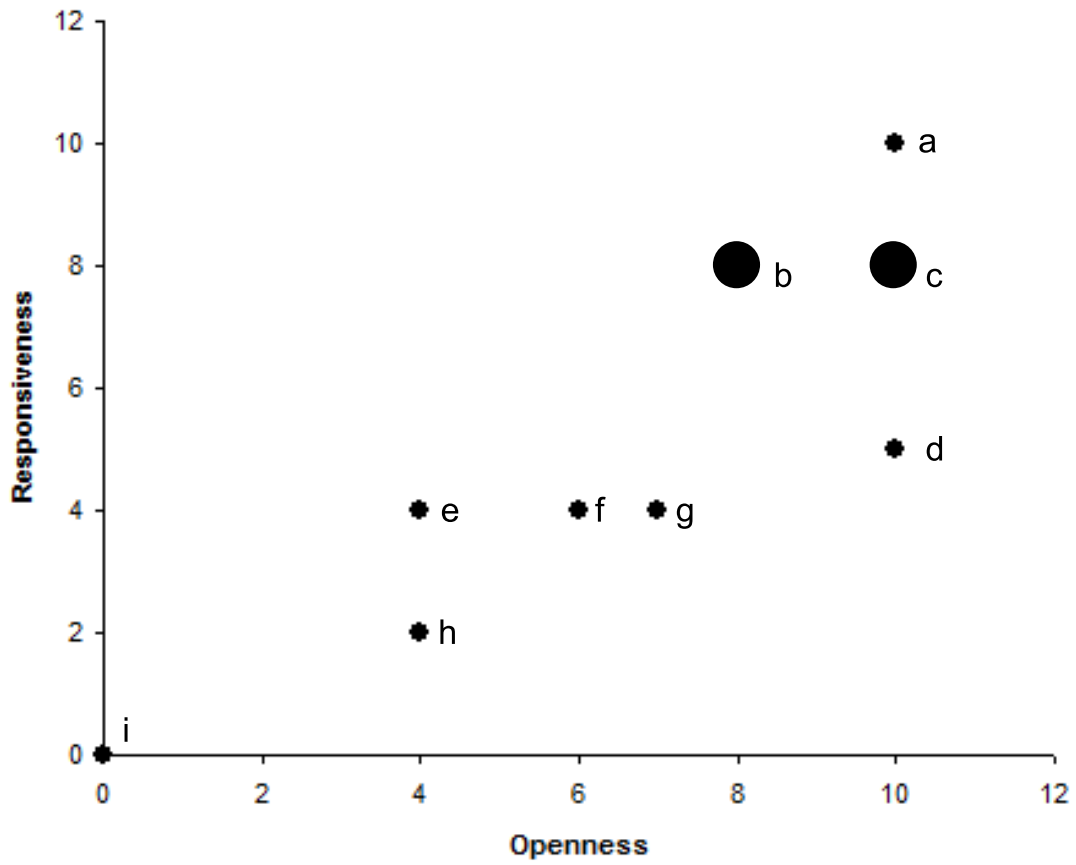
Ranking the taxonomies by these scores produced the following order:

1st Biomedical
2nd Academic library
3rd National parliament
4th (equal) Legal publisher; IT company
5th (equal) Bank; law firm; commercial medical
6th (equal) US-based media company; UK-based media company
7th News publisher
8th Local council
9th Specialist medical
10th Lone librarian
11th Lone indexer

Secondly, the scores for each criterion were compared in pairs with each other and plotted on scatter charts (e.g. the score for openness to criticism was plotted against the score for responsiveness to criticism) to investigate whether any of the criteria were more likely to occur in association with any of the others and to ascertain whether certain criteria were more likely to be met in particular taxonomy projects than others and in which combinations.

A bivariate correlation analysis for non-parametric data (using Spearman's rho) was run as a way of highlighting apparent trends (although the caveats outlined in section 6 apply). Of the set of six comparisons, interesting apparent patterns emerged in two sets: openness with responsiveness to criticism (figure 1), and openness of standards with equality of intellectual authority (figure 2). Although there appeared to be some link between other criteria (e.g. openness to criticism and public accessibility of standards), any correlation was less pronounced.

Figure 1. Scatter chart showing project scores for openness and responsiveness to criticism.

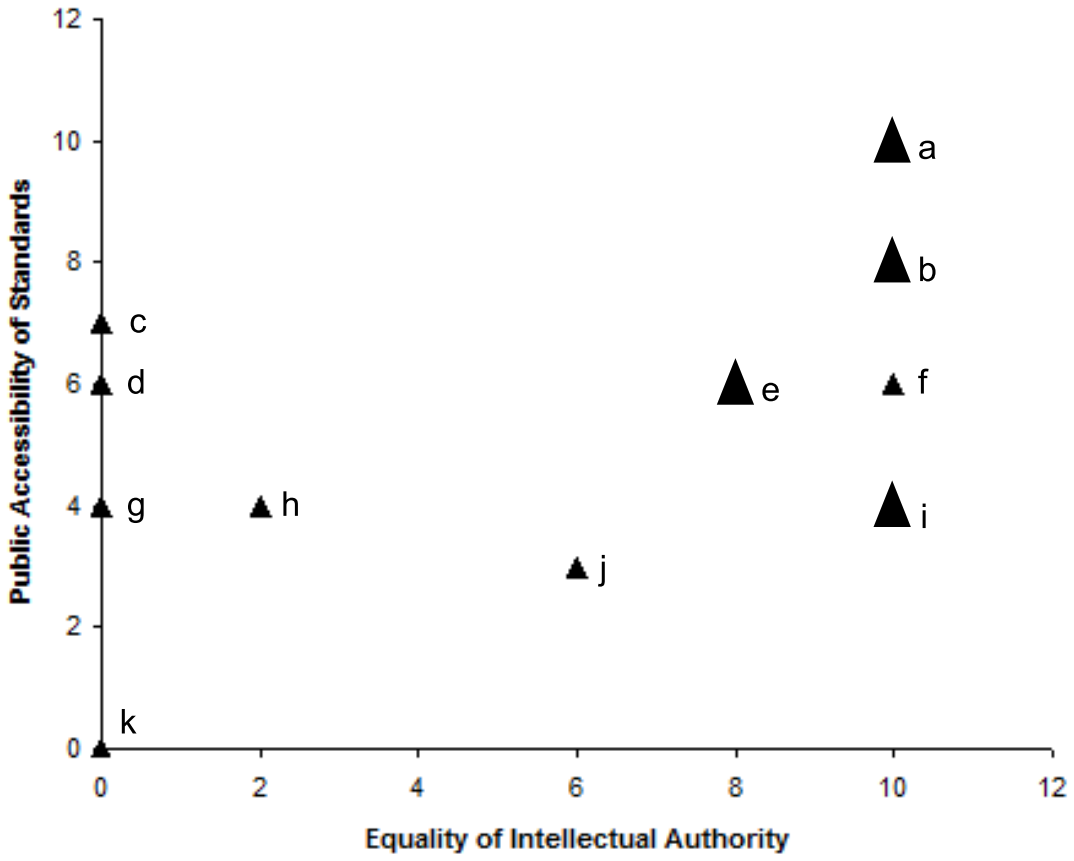


Key to figure 1.

a Biomedical
b Bank; IT company; commercial medical; law firm
c National parliament; academic library; US-based media company; legal publisher
d News publisher
e Specialist medical
f UK-based media company
g Local government
h Lone librarian
i Lone indexer

Figure 1 appears to show a correlation between openness and responsiveness to criticism, with the large-scale projects appearing to be more open and responsive than the smaller-scale ones (a Spearman's rho correlation coefficient of 0.79, considered significant, could be calculated, although due to the interpretive nature of scoring, this should be taken only as a suggestion of a potential trend). It is not surprising that project teams which take seriously the collection of feedback should also have considered how that feedback should be used nor that creating an intersubjectively open taxonomy would apparently be easier in a large organisation than for a lone practitioner.

Figure 2. Scatter chart showing project scores for public accessibility of standards and equality of intellectual authority.



Key to figure 2.

a Biomedical; academic library
b National parliament; IT company
c Local government
d Lone librarian
e Bank; commercial medical
f Legal publisher
g News publisher
h US-based media company
i UK-based media company; law firm
j Specialist medical
k Lone indexer

Figure 2 does not show a statistically significant correlation (Spearman's rho 0.476) between publicness of standards and equality of intellectual authority, but does show an interesting distribution of results. Equality of intellectual authority scores tended to be high or low, with few middling scores. Low scores do not necessarily indicate that contributions were not assessed, merely that no formal procedures appeared to be in place to make assessments. Six projects scored low for use of public standards, perhaps indicating lack of availability of suitable standards.

8. Discussion

The three projects that scored the highest for overall objectivity (biomedical, academic library, and national parliament – ranked 1st, 2nd and 3rd) were all large-

scale projects, staffed by numerous specialised staff (both information professionals and subject specialists). All had access to public standards – the biomedical and academic library drawing on the work of the wider scientific and library communities and the national parliament drawing on international standards (such as ISO standards). They were also all produced within organisations with clear hierarchies and standards of expertise (e.g. professors of biochemistry, formally trained research staff), formal and established structures for holding meetings and discussions (e.g. regular and formal editorial reviews), and a culture of consensus-building and consultation or peer-review.

Using the metaphor of taxonomist as politician, these projects appear to have the most comprehensive, formalised, and well established "political systems" for negotiating and achieving consensus – perhaps akin to "bureaucratic" in the Weberian hierarchy (Weber, 1919). The taxonomist therefore operates as "politician" within a well regulated and open process, with public and transparent standards and procedures to ensure that different voices are recognised and taken into account, or at least, that there is a clear record of which voices have dominated.

The projects ranked 4th to 7th were all within the commercial sector. These were arguably less well resourced, in that commercial pressures to limit staff input and time spent on projects were perhaps more acute than in the academic and scientific sector (the biomedical taxonomy project itself, for example, was subject to commercial constraints, but drew on the vast combined resources of the entire international scientific community, where such constraints were far more diffuse). The commercial projects were also less well resourced in that public standards, such as specialised vocabularies, simply did not exist in all cases, meaning that the taxonomists had to create them. In addition, in commercial companies, the effects of interdepartmental politics appeared to be stronger, and procedures such as systematic peer-review more flexible. For example, in one company, a division was able to "pull rank" and simply opt out of the taxonomy building process. Some private company projects were not open to public scrutiny for commercial confidentiality reasons, which would inevitably lead to lower scores, regardless of the robustness of internal consensus-building processes.

These projects may have "political processes" and well-established and defined systems in place for negotiating agreement (e.g. set out within project management procedures), but these appeared to be especially influenced by external factors, such as fixed budgets. The taxonomist as politician has not only to mediate diverse voices within the project, but may also have to defend the project itself from external pressure (e.g. in one company, a budget for taxonomy work could not be secured directly, and was only obtained when the work was included as part of a wider information technology project). The political nature of the taxonomist's work is therefore twofold – consensus building within a "political process" and negotiation of the external political environment within which the taxonomy project takes place (perhaps akin to Weber's feudalism).

The projects ranked 8th to 11th were smaller-scale projects, either conducted by very few or single members of staff, or catering to a very specific audience (e.g. the specialist medical project), or with no, or limited, formal policies and procedures. The most "subjective" (closed) projects were those undertaken by single information professionals working essentially alone.

The taxonomist as politician in these projects can be compared to a pioneer (or Weber's charismatic leader). Without the support of established consensus-creation processes, the taxonomist is sole arbiter of whose voices are heard. Any systems or

processes to formalise taxonomy work have to be created by the taxonomist alone. The taxonomist's relationship to the external political environment, such as the company culture, may be that of a new, perhaps even ephemeral, presence, with little power as a consequence. The surfacing of diverse voices and the championing of different user groups in such circumstances depends on the skills and resources of the individual practitioners (e.g. the lone librarian talking informally to potential users).

9. Related questions

A related question is how the notion of open intersubjectivity ("objectivity") relates to concepts of accessibility and usability. If seen as a parallel to universalism/relativism, any division between accessibility and usability would presumably be a false dichotomy in Longino's terms. An objective taxonomy would be both accessible and usable in that the decisions taken in its construction would be transparent, and it should be possible to devise user tests to establish this. The advocation of specialisation in business contexts could perhaps be read not as a call for obscurity and secrecy, but for open intersubjectivity within a specified community.

How the framework applies to questions of subjectivity/objectivity and usability/accessibility in folksonomies is another possible area of investigation.

For business use in general, it is possible that Longino's framework could be adapted to analyse other business projects where the mediation of different stakeholder viewpoints is significant – e.g. collaborative processes of product development. It could perhaps be adapted for use at project level to follow broader analyses of organisation culture (e.g. a soft-systems methodology analysis) where differing stakeholder viewpoints have been identified and need to be brought to a consensus via the use of relevant public standards, etc.

Finally, more detailed analysis of taxonomy work using such a framework could provide examples of real-world social construction of meaning in well-defined contexts, possibly interesting to epistemologists, moral and political philosophers, sociologists, anthropologists, linguists, and psychologists.

10. Conclusions

Assessing taxonomy projects using Longino's framework produced a ranking of projects that highlighted a trend that appeared to link greater resources, commitment to open and public accessibility, and formalised processes with greater objectivity (open intersubjectivity). The projects that ranked the highest using the framework also seemed to conform to standards of best practice described in practitioner literature. The analysis using Longino's framework therefore suggests that best practice is also epistemologically sound.

However, the framework does more than indicate that bigger projects may be more "objective" than smaller projects. It shows the ways in which the small-scale projects struggle to match the standards of the larger-scale projects. As a guide for a lone taxonomist attempting to create an objective taxonomy, the framework could therefore be used to highlight aspects that might need particular care and attention (e.g. finding ways of soliciting external criticism). For more established taxonomy teams, the framework could be used as a checklist to ensure that existing processes and procedures are functioning to promote objectivity, should that be required.

There is clearly much work to be done to refine and tailor the framework in order to create a useful set of guidelines for monitoring the political nature of taxonomy work and bringing together epistemological theory with professional best

practice, but this preliminary investigation suggests that such work would be both possible and useful.

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