

Nurturing information landscapes: networks, information literacy and the need for a critical phenomenography

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Abstract

The aim of this paper is to explore theoretical developments in the field of information literacy (IL), and their relevance to networked learning. The paper is a work of theory, but the implications for practice are not only explored, but are essential to the theoretical point being made. This is that although the promotion of information literacy is an essential element of networked learning, as it permits members of the network to create and sustain their own information landscapes, in an autonomous way, there exists in this field a damaging theory-practice gap. Different forms of information literacy exist, which reflect different forms of thinking and approaches to knowledge formation. At the present time, the exploration of variation in IL has best been done by scholars influenced by phenomenography, but this paper argues that this work, valuable though it is, has not as yet dealt properly with the question of authority and how this can be used to retard learning, as well as promote it. The network is identified as a location for learning in which the experience of variation can be best undertaken, but what is required is a critical phenomenography, and concomitant methods for learning that are attuned to the nature of authority and how this can be manifested in information exchanges. This would counter the tendency of modernity to separate intellectual capital from the communities that have created it, imposing the negative effects of cognitive work upon the network while draining off the positive benefits of this work.

Keywords

networks, groups, information literacy, critical, phenomenography, information landscapes.

Introduction: information landscapes

Any learning community requires a healthy and diverse set of resources to sustain its learning. These resources will take many forms, including digital technologies -- Wenger, White and Smith (2009) have called these the community's *digital habitat*. But more broadly than this, communities are sustained by informational resources that are collectively maintained. These will include web sites, books, stories, and other *texts* in which the collected experiences and memories of the community are embedded; along with resources that are non-textual including ways of thinking and collective matrices of interpretation (Wellmer 1991, p.197).

To describe these collected resources, Lloyd (2010) suggested the term *information landscape*. This is a very useful metaphor. Landscapes are comprised of similar elements, but arranged in unique configurations. Even landscapes of the same general type (mountainous regions, coastal regions, etc.) are different from each other when examined and explored in detail. A landscape will shape practices, architecture, culture and even language. A landscape can be managed in sustainable ways, or can be mined and exploited, damaged and polluted. The resources within a landscape may be kept for the common good, or become enclosed and private. All these characteristics are shared by information landscapes, which are comprised of "the signs, symbols, artefacts, sayings and doings that define these spaces to... members and identify the boundaries of the environment to outsiders" (Lloyd 2010, p. 10); they are "the communicative spaces that are created by people who co-participate in a field of practice" (*ibid*, p. 2). Can a community or network use the landscape as a resource for learning, without damaging their (or future community members') ability to draw on the resource in the future? How can these resources stay relevant to the needs and desires of a community?

The effective, sustainable management of information landscapes requires the application of *information literacy*, but this is a term that gives rise to contrasting tendencies in the literature and, in particular, suffers from a theory-practice gap. Writings on IL practice and pedagogy have largely been drawn from library and information science (LIS), and are concerned with how IL can be taught in universities by way of developing competencies and skills in students (Whitworth 2014, chapter 4). On the other hand, theories of IL draw on

broader theoretical traditions including phenomenography, critical theory and theories of knowledge formation. This paper will explore how the theory-practice gap might be closed through the development of methods that are not only sensitive to the experience of variation within particular landscapes, raising learners' awareness of the variety of resources and different interpretations of information within their landscape, but also to the authority structures that ensure not all experiences of variation will be considered equal in these contexts. A *critical phenomenographical* approach to learning is required, but this notion has been little explored in the general academic literature, or with reference to networked learning more specifically.

The historical development of information literacy

Approaches inspired by LIS

Zurkowski (1974) was the first author to use the term 'information literacy' (IL), noting that the rise in electronic "information banks" -- databases, indexing services, etc. -- had produced a need for the working population to acquire the skills needed to access and use these banks for commercial reasons, to maintain US economic primacy. "Information literates" were defined by Zurkowski as people who had acquired these skills, but he offered little detail on what they actually entailed or how they were in fact acquired. With Burchinal (1976) comes more explicitly the notion that IL was a set of skills that could be *taught*, and which were related to the effective and efficient retrieval of information. He called for this educational project to begin in universities, but noted that it should rapidly move to schools.

The involvement of libraries with IL was never explicit in the work of these early authors (and see also the discussion of Hamelink (1976), below), but this changed in the 1980s, when the library profession, led particularly by Breivik (1985), began advocating for it. IL was considered the added value that the library could offer within educational institutions. The advocacy of Breivik led directly to the development of the first IL standards in 1989, under the auspices of the ALA (American Library Association). These standards defined the information literate person as someone who could recognise a need for information, find and evaluate relevant information effectively and efficiently, and use information ethically and legally.

Kuhlthau (1993) attempted to account for less systematised aspects of information searching, those which could not be captured in generically applicable standards. She was particularly concerned with affective and emotional factors, recognising that in the early stages of a search, many users suffered from "information anxiety", which could lead to the search being abandoned, or never starting. Via observations and surveys of student library users, she noted that there needed to be a period of exploration, after the general information need had been established, in order to find a focus. It was this lack of focus that tended to cause information anxiety.

Neither the ALA standards, nor Kuhlthau's work, properly account for community- and network-based -- thus, *intersubjective* -- forms of knowledge formation (Harris 2008, p. 249):

The discussion of community is almost completely removed from the IL standards. The only direct mention of community as an influence in information literacy development appears in Standard Four: 'The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.' The conscious inclusion of 'as a member of a group' in the standard (it is not included in the competency standards or performance indicators to follow) does little to suggest that the group vs. individual situation does not *completely change* the information literacy event in and of itself. It turns the collaborative and social character of the event into an option instead of a requirement of any situation involving communication. Furthermore, placement suggests that it is only in the process of *using* information that groups of individuals, communities, are involved...

Also, these LIS-inspired views of IL focus on a very specific type of information search -- HE students engaging in queries as part of finding work for assignments. These searches take place under conditions which are not replicated in the majority of everyday information searches, whether for individuals or within networks. However, Kuhlthau's point about the need to *explore* a topic is useful, anticipating the discussion of critical phenomenographical methods to follow below.

The phenomenographical approach

Bruce (1997) has made the most significant attempt to transcend a unitary, standards-based approach to IL, recognising that depending on the view of information and education in play, different perspectives on IL would

be developed. Her investigations were based on phenomenography, a research methodology designed to elicit the *experience of variation* from informants. In essence, phenomenography is a way of learning about variation in people's experience of some aspect of the world (Marton 1981), and through doing so, building a picture of a phenomenon as a whole. Its area of exploration is not how the individual makes meaning and learns, but how these take place collectively, building on but transcending individual perceptions. Experience, and thus meaning, are seen not a characteristic of individuals but as formed within the relations that exist between people and their experienced world. Thus, it can help develop views of IL that are more relevant to networked learning than the LIS-based, more individualist approaches.

Bruce's key insight was to take the phenomenographic research methodology and, through applying it to IL, establish how revealing variation in information to learners can also be an IL *pedagogy*. Edwards provides the best summary of how this can be done (2006, 49):

At the core of variation theory, and its influence on learning then, we must understand all the aspects or elements that are possible to be discerned in an experience, and understand the varying ways of experiencing the object of learning. Having done this we can then restructure the learning environment to encourage students to experience all the possible variations. If we wish to do this in our learning environments then phenomenography is the approach needed. We need to use phenomenography to understand and draw out the variation in the categories, and then we use variation theory to apply the identified variations in practice in our learning environment. Phenomenographic categories reveal the space of the variation, or, the varying ways of seeing the phenomenon. They also reveal the central focus of each experience and the different dimensions within the experience that are simultaneously noticed, or ignored. Having found the variations, and having identified the varying aspects in the group awareness, we can use them to identify ways to encourage people to discern another aspect of the experience, an aspect they have previously not discerned.

Each "phenomenographic category" reflects a particular structure of awareness of the phenomenon: one derived through concrete experience, things that have actually happened in the world rather than theoretical constructs. A phenomenographic study can therefore answer questions such as: What is in particular focus for participants? What is at the margins (but still within awareness, and could become more central)? What are informants' key categories of description? These different categories of experiencing a phenomenon within a community of participants are manifested in the *outcome space*, a key aspect of phenomenography: a tool for exploring and revealing variation. An outcome space may be a textual artifact, such as a table or bulleted list, or visual, such as a diagram. Edwards' (2006) was an interactive digital space (<http://www.netlenses.scitech.qut.edu.au/>). Outcome spaces are therefore *texts* which map the variation in awareness of whatever aspect of the world is involved in the phenomenographic inquiry. The reference to maps is not metaphorical. An outcome space becomes a map of the collective experience of the phenomenon: *one possible map of the information landscape*. Like maps of physical landscapes, they will vary in form depending on who the audience is for the map, will focus on certain features rather than others, and can suggest new directions for exploration or familiarisation with the landscape: as suggested by the last sentence of Edwards' quote, above. At the same time, phenomenography has not passed without criticism as a research methodology (e.g. Säljö 1997, and below), so is not the final word in theories and studies of IL.

Critical views

Another author contributed to the definition of IL in the 1970s, this being Hamelink (1976). Hamelink's view of IL was inspired by Freire (1970), who noted that *literacy* could be used as a tool of oppression as well as of emancipation. Colonisers would impose their language, literature and views of literacy on a colonised population, thus "pushing" their own matrices of interpretation at the oppressed. A "pedagogy of the oppressed" (Freire 1970) therefore involves not just instruction in the technical aspects of reading and writing, but raising awareness of the value of one's own culture, history and associated stock of information. Hamelink transfers this view to information literacy, stating that it is (1976, p. 120): "necessary for liberation from the oppressive effects of the institutionalized public media." Hamelink describes how individuals acting in the world do not do so in an informational environment that is egalitarian and free. Information is instead pre-selected and filtered by dominant interests in society:

"information" functions as an oppressive tool since, by its manner of presentation, it keeps people from shaping their own world. The incoherent fragments preclude the wholistic perspective which enables insight into the interdependence between happenings, into the involvement of one's own

context, and into the possibility of acting upon the challenge thus posed. The ready-made explanations preclude the insight of the world as something problematic and changeable. Whereas the technicist, LIS view of IL considers it should be developed *in* populations to help assimilate them to the emerging ICT- and information-driven society, Hamelink sees IL as having to be developed *by* populations so they can defend themselves against certain consequences of that society (1976, 120-1):

If, however, people are to be given the chance to intervene in their reality, then information channels have to be created that do permit the coherent organization of information.... [This] would require (a) the presentation of perspectives otherwise suppressed, (b) user orientation (in the sense of relating to genuine needs (c) the generation of information (the sharing of insights). “Information channels” exist throughout society, but to meet these three goals, they must be understood in specific contexts. Hamelink writes (1976, 122) that “the first step toward ‘information literacy’ is to recognise that access to information starts from where the information users are”. Therefore (ibid), “their situational context... is central”. Information is not merely something to be given to people, or retrieved by them, but formed and then shared by them, as a response to people’s felt needs and through their own efforts. This is how connections are made between “unrelated fragments” offered by the media (ibid). Ultimately, maintaining one’s own information landscape is a directly political act, challenging hegemonies (Gramsci 1971) and ensuring that the skills and awareness needed to sustain informational landscapes are not lost to a community.

Network effects on authority and objectivity

The phenomenographical and critical views of IL draw attention to the fact that the idea of an information literate *individual*, freely selecting from the range of available information with reference only to their personal information needs, is difficult to sustain. There are collective (network and community) effects on cognition that must be accounted for. Members of a community, as well as drawing on their own subjective perspective, make judgments with reference to a “collective matrix of interpretation” (Wellmer 1991, 197) that arises within a particular information landscape, the creation of which has been a collective effort. Thus, even individual cognition has a profoundly intersubjective character. In addition, “information literacy” is not generic, but context-dependent. Its specific form varies depending on features of the information landscape (Lloyd 2010).

Authors who have investigated the importance of intersubjective communication in knowledge formation include the Russian theorist, Mikhail Bakhtin (1986). Dialogue is the key driving force of change in Bakhtin’s epistemology. (1986, p. 110): “Truth is not born nor is it to be found inside the head of an individual person, it is born between people collectively searching for truth, in the process of their dialogic interaction”. Thus, *objectivity* -- the generic applicability of a rule, a statement (in Bakhtin’s terminology, an *utterance*) -- cannot be asserted by one voice alone. Power and authority in Bakhtin’s work are manifested in the very assertion that there can be ‘objective’ knowledge in the realm of human affairs. Instead, Bakhtin sees authority as essentially intersubjective. Whether this authority can be considered legitimate or illegitimate depends on the context, but that does not mean the question is relativist and has no meaning. Bakhtin develops normative criteria by which we can judge the legitimacy of authority: thus, be literate in a given context. These criteria -- polyphony (multi-voicedness), dialogue and an openness to transformation -- can be shown to be true of ‘objective’ scientific knowledge, which has processes for claiming authority that open this claim up for scrutiny; but not of those forms of ‘objectivity’ which are claimed through the exercise of power, and close up channels of scrutiny.

Such channels for critical attention are, in principle, built into the structures of scientific knowledge-formation within society. That is, the genre of science itself, and its various devices and characteristics which include publication; peer review; presentation of one’s methodology; open discussion at conferences; freedom of speech and reply; intellectual independence; and so on. Crucial points here are made by Carr and Kemmis (1986, 121-2) when they discuss the constitution of scientific knowledge:

...scientific ‘objectivity’ is not something that can be secured by mechanically applying some logical proof or by appealing to a realm of uninterpreted neutral ‘facts’. ‘Objectivity’ involves not a naive belief in neutrality so much as a shared intersubjective agreement about the sort of norms of enquiry and standards of rationality which will ensure that theories can be critically assessed without the undue intervention of subjective bias and personal prejudice.... ‘objective’ reality is itself that which corresponds to the intersubjective agreement of a community of enquirers whose deliberations are conducted in accordance with shared standards of rationality. ‘Objectivity’,

therefore, is achieved when participants reveal a willingness to make their views and preconceptions available for critical inspection and to engage in discussion and argument that is open and impartial.

Critical attention to objectivity is not a threat to the validity of a particular discourse or text. In fact, it confirms it. The value -- the authority -- of the scientific genre arises exactly because it permits such scrutiny of its own validity claims, through its methodologies and methods, and as a result requires the maintenance of “a critical community of enquirers which is open and pluralistic, where all are free to criticize the thinking of others and everyone can actively participate on equal terms” (Carr and Kemmis 1986, 122). This is akin to Harding’s (1993) notion of “strong objectivity”, and see also Wilson (1983).

Radical information literacy

If information literacy can be defined as the practices which help sustain a particular information landscape, then *radical* information literacy consists of the subset of those practices which scrutinise, and if necessary transform and redistribute, claims to authority within that landscape (Whitworth 2014). As Bruce noted (1997), teaching in the “relational frame” of IL, and facilitating the experience of variation in learners, offers the broadest and most effective approach to raising the level of *collective* information literacy. But a critical approach to IL must additionally recognise that because of the operations of power and authority, not all experience of variation will be welcomed or treated equally. Some experiences of variation, certain categories of description or particular structures of awareness may be actively challenging to authority structures within an information landscape. Säljö (1997) goes so far to argue that the phenomenographic research interview itself imposes an authority, of a sort, on the experience of variation that the interviewee is able to express.

Bearing this last observation in mind, it is surprising that the notion of *critical* phenomenography has not gained more currency in the literature. The only reference found was by Russell (2003, p. 128), and that in passing. The reflective process that she is describing helps the researcher become aware of the ideologies that lie within a context; a social system, a particular tool, or any other phenomenon open to phenomenographical enquiry. Thus, critical phenomenography could be based around questions such as: What power structures are revealed within the phenomenon? How can the experience of variation be used to shed light on what is valued and what is not valued, and how does this understanding affect the usefulness of the outcome space (the map of the information landscape) as a subsequent resource for network or community learning? Investigating these questions would prevent the products of phenomenographic investigation (the texts that are the outcome spaces) becoming concealed, and treated as ‘objective’. A critical phenomenography would not only seek to reveal these hidden assumptions and authority claims to learners, but also to investigate how such operations become embedded into texts and artifacts such as technologies, standards, procedures and so on, how they affect information exchange, and how authority structures built around them may be transformed. Such an approach would not necessarily be introduced by some external voice, a researcher or staff developer for instance (though it could be), but could also emerge from within the community, driving its process of democratic will-formation, as the discourses which govern the work of that community are raised into conscious awareness and, if necessary, challenged and transformed.

Radical IL therefore fully embraces the possibility of transformation in any social setting, and the information landscapes, dialogues and personal constructs which underpin these settings. It is not about designing practice, but learning to see the practices that exist in context, and understanding their consequences, experiencing their variation and facilitating transformation. It is not relativist; certain practices can be viewed as information illiterate, if they contribute to a reduction in learning capacity by closing off the exploration of alternatives and the experience of variation, or if they exclude certain communities from participation in information-processing activities (decisions) which affect them. Critical theory must be premised on these kinds of practices, ones that diminish the negative effects of authority (such as coercion, alienation, surveillance) in workplaces and communities. Ultimately radical IL is a guide for small-scale decision-making, decolonising forms of organisation and community-building, with a particular focus on the importance of the information landscape to these endeavours. It counters the tendency of modern, industrialised forms of knowledge-formation to separate capital from the communities which have generated this capital.

“Strong objectivity” (Harding 1995) therefore becomes not just a philosophical position, but a practical one, and critical phenomenography offers methods that permit such scrutiny over dominant cognitive schema that are both practice-based and pedagogical. Such a view is questioning and critical, and, emphatically, not anti-scientific; instead, it strengthens and spreads valid scientific practice, while still permitting (indeed, compelling)

critiques of the colonisation of science by the steering media of money and power. Angus (2001, 10) writes that: “When understood radically, democracy is about the processes of public decision-making to which economic, social and cultural institutions must be subjected in order to be legitimate and binding upon citizens. Such a radical concept of democracy is concerned to judge social, economic and political institutions, not presuppose their legitimacy.” And (ibid, 48): “To confuse democracy with institutional arrangements is not only to put the cart before the horse, it is to miss the essence of the process altogether -- which is movement and creativity, the desire for change, for inclusion.” Strong objectivity is not monologic, an attempt to impose a consensus: it is adversarial, polyphonic, dynamic and challenging (ibid, 55).

In practical terms, some have seen much value in the offering of narratives to raise consciousness and become aware of other experiences of variation. Purdue (2003) sees narrative as a useful tool to use at the beginning of a self-reflective session; offering stories and experiences, seeing parables as a kind of extant collective map of a landscape. Whitworth, Garnett and Pearson (2012; see also below) similarly helped communities tell stories through helping them create “Cabinets of Curiosities”, video-based presentations of technological artifacts in which were encoded information that was relevant to communities or individuals, for the purposes of creating resources that were relevant to subsequent community learning. Reflection can also be promoted by encouraging learners to develop their own narratives, either in an ad hoc way or systematically, perhaps through writing a journal or, more publicly, creating a blog. These are valuable tools in reflective practice (Loughran 2002) and also can become texts, through which narratives can be shared with colleagues and discussion ensue.

Some might see this as all contributing to “information overload” (e.g. Keen 2007). But if the material is published in an information literate way, particularly by attending to metadata and other aspects of information management, then this criticism can be effaced. Libraries and other information professionals can assist with this micro-production process, as well as with the retrieval and use of knowledge stored in such spaces, by recognising their potential value within information landscapes. Narratives like these draw attention to how the image of the author is constructed, and thus, the image of authority present in the narrative.

In radical IL there certainly remains a role for the expert. Some professional groups do have a grounding in forms of knowledge that are suited to the promotion of IL, but one can be members of multiple communities, and in radical IL it is the role of “experts” to promote dialogue and the experience of variation, not to instruct. Scoble calls for “Pro-am” [professional-amateur, as in golf] links, as a direct response to the criticism of Keen (2007); he recognises that collaborations like these (Scoble 2011, 241):

are obviously nothing new, but the ways in which the relationship is conducted and supported is radically new, and both parties can now take advantage of the following:

- share the same data sources;
- use similar tools that were once too expensive or difficult to use; and
- communicate much more easily with each other through new media tools.

Scoble notes the added capabilities here offered by Web 2.0 technologies, also noted by Špiranec and Zorica (2010), though the differences between the landscapes and cognitive schemata of the “Pro” and the “Am” still need to be accounted for, as in other critical pedagogies.

Radical IL work can focus directly on creating community-generated, alternative information banks in the sense described by Hamelink. The “cult of the amateur” (Keen 2007), a deterioration of the quality of the online information landscape in toto, is not an inevitability. Communities who wish to create online spaces or “digital habitats” (Wenger et al 2009), and use these to store and present elements of their information landscape, can be helped to learn the necessary technical skills, communicative competence and reflective, dialogic practices needed to keep these spaces of good quality, dynamic and open to new inputs. This objective drove the MOSI-ALONG project which took place in Manchester, UK in 2011 (Whitworth et al 2012). Bruce’s work with the Puerto Rican community of Paseo Boricua in Chicago (Bruce and Bishop 2008) is a more involved, longer-term version of MOSI-ALONG.

Critical phenomenography is not being offered in this paper as a specific method of teaching or professional development: rather, it is presented as a theoretical framework which can be used to analyse existing learning experiences or programmes. MOSI-ALONG can be used as an illustration of this. Alongside their discussion of the “Cabinets of Curiosities” referred to above, Whitworth et al (2012) presented two detailed case studies of how the project tried to develop links between the informal learning communities and networks of Manchester, UK, and various formal learning providers in the city including the Museum of Science and Industry (hence, MOSI), social media and video production consultants, the BBC and the University. One of these case studies

was the webmaster of a community information resource, who, through contacts brokered by the project, was helped to enhance the site by, for example, including a Twitter feed that immediately *redistributed the authority* over the web site from her alone (as she had previously entered all relevant news stories manually onto the site) to the community as a whole, who could now much more easily ‘push’ news onto the site and thus have it better reflect the full experience of variation in the community. The web site was also critically oriented, inspiring participation and the autonomous creation of content by community members, including videos of council meetings. This case is contrasted by Whitworth et al with that of another webmaster, responsible for the city council’s ICT teaching for unemployed and low-skilled adults. These resources were held within Moodle, and not freely accessible to the communities they were intended to serve; thus, they were not being validated by these communities in the same way as the first example. They were not reflecting the experience of variation in these communities, and had lost relevance for them. Whitworth et al’s “Aggregate-then-Curate” framework, proposed as a model for the collaborative creation of good quality online content by a range of learning providers working together, can be considered one (but not the only possible) example of a critical phenomenographical approach to analyzing learning networks, in that it attempts to capture the full experience of variation within a community (bringing together subjective, objective and intersubjective criteria, and focusing on alliances between the formal and informal), and attends to ways in which this experience of variation can be limited and/or distorted by organisations, and/or by hegemony.

Conclusion

All theories of education only acquire value when they are applied, and this process of application requires the educator to understand a context, and reflect on the process (Carr and Kemmis 1986). With radical IL this process is explicit: rather than practice, or theory, it is *praxis*, practice and theory in a dialectic (*ibid*). Writers such as Lloyd and, earlier, Hamelink have explored the need for communities and networks to nurture and sustain their own information landscapes, but each only tentatively explored the *method* by which this can be done: and while phenomenography, as explored by Bruce and Edwards among others, does potentially offer such a method, the operations of power and authority within landscapes are not directly accounted for without some use of critical approaches, in which the eliciting of the experience of variation is used as a way of exploring why different views of a subject are differently valued in a given landscape.

Ultimately, radical IL is a democratic view of knowledge formation, one in which any claims to authority -- including the notion of “expertise” -- are scrutinised by members of a community or network, and if necessary, authority is challenged and redistributed within a landscape. It is an ideal, but as with all other philosophical ideals, one that can be used as a check on actual practice. The systems and structures of modernity have a tendency to extract from communities and networks the benefits of the cognitive work they undertake, while imposing upon them, in return, negative effects of this work such as stress, alienation, a lack of accountability and so on (Blaug 2010). Radical IL demands that without putting in cognitive work, communities and networks cannot expect to sustain and nurture the informational landscapes on which they depend -- but it is also a way by which the benefits of this work can be retained in the community, rather than be colonised by unaccountable authorities.

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