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The Reflective Information Literacy Educator

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Abstract

The shift in perception, from librarians as providers of information to librarians as educators in the effective use of information, requires the profession to become aware of differing approaches to the development of teaching and of the professional consciousness of educators: also of the way certain forms of teaching and continuing professional development are privileged over others within higher education institutions, and why. This paper reports on and synthesises a range of theoretical works in this area, to explain how becoming an effective information literacy educator requires not just an awareness of practice, but developing it, through a continuous interaction between theory and practice. The librarian-as-educator must engage in professional development practices which, ultimately, require the continuous questioning of the very foundations of IL, and work actively towards raising awareness of these processes throughout their institutions.

Keywords: information literacy, IL, continuing professional development, CPD, informed learning

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Introduction

This paper draws on and synthesises a range of prior, theoretical discussions of educational practice and what it means to be an educational practitioner. This is done with the intention of raising awareness in readers, interested in information literacy (IL) education, about models of continuing professional development (CPD), and constitutes a response to the declared need for a shift in the way the library and information science profession is perceived. This shift is one of perception: from librarians being seen as *providers of information* to being seen as *educators in the effective use of information* (Andretta, 2010, pp. 18-19):

> (...) this profession faces the challenge of playing the dual role of information provider and educator. Sundin et al (2008) claim that the role of provider is determined by the perception of the users who see the library in terms of a 'self-service' environment, with little scope for active interaction with the librarian. At the opposite end of the professional spectrum the view of the librarian operating as an educator is drawn from the librarians' perception that information literacy education entails primarily the teaching of information skills and knowledge about discipline-specific information environments, determined by the 'genres' of the information sources (Candy 2000; Sundin et al 2008).

IL education thus requires both learners and practitioners to deal with "two interrelated learning dimensions - learning information literacy whilst learning about a subject" (Lupton 2004, p. 29). There are generic IL skills which can be taught, essentially independently of context: but there are also context- and discipline-specific ones (Grafstein, 2002). Indeed, the one type requires the other, in order to be effective. This suggests that effective practice in this area requires connections to be made between librarians, with expertise in information management, and academics (teachers/researchers), the creators of new knowledge. Yet this is a difficult enterprise. The importance of IL is largely now acknowledged and yet, typically, librarians are granted only limited access to teaching and learning environments (e.g. Kakkonen & Virrankoski, 2011). Andretta (2005, p. 139) observed that there was "institutional hostility" towards IL pedagogies, and Lupton (2004) noted that when librarians adopt the educator role, academics can feel challenged. Little has changed in the last few years, according to the observations of Pope and Walton (2011, pp. 6-7) when they point out that in the current "retrenchment" of HE in the UK, provoked by harsh government spending cuts, academics and librarians may be put into a state of conflict with each other over their IL responsibilities. The "added value" (ibid., p. 8) that IL provides needs better promotion in the HEI, to avoid the risk of "previously well-attended and successful embedded teaching sessions" being "removed or reallocated" (ibid.).

When successes are "invisible" to the wider institution it is a sign that criteria of success and failure are not shared by different stakeholders within it (Whitworth, 2012). Stakeholders whose criteria of success go unacknowledged lack *capital*, as Bourdieu (1988) observed after investigating the sociology of universities (1988). He describes capital as the resources an interest group can bring to bear in order to have its views accounted for in decision-making (see also Cervero & Wilson, 1998). It seems that the librarian-as-educator lacks such capital at the present time. I argue in this paper that *continuing professional development* (CPD) is one way of acquiring it, as long as it is oriented in particular ways. CPD processes for the librarian-as-educator must develop an educational *praxis*: a dynamic between theory and practice, and subject to continuous reflection. They must, in other words, become *reflective practitioners* (Schön, 1991). As Schön (1973, pp. 28-29) says:

> The loss of the stable state means that our society and all of its institutions are in continuous processes of transformation. We cannot expect new stable states that will endure for our own lifetimes. We must learn to understand, guide, influence and manage these transformations. We must make the capacity for undertaking them integral to ourselves and to our institutions.

> We must, in other words, become adept at learning. We must become able not only to transform our institutions, in response to changing situations and requirements; we must invent and develop institutions which are 'learning systems', that is to say, systems capable of bringing about their own continuing transformation. The task which the loss of the stable state makes imperative, for the person, for our institutions, for our society as a whole, is to learn about learning.

Becoming an effective IL educator means not just establishing practice, but continuing to develop it; learning through an ongoing dynamic between theory and practice. Reflecting on pedagogy is central, but alone is insufficient for the librarian-as-educator to acquire capital within the higher education institutions (HEI). It must also be the librarian-as-educator's task to constantly critique the foundations of IL itself, including how it is presented and perceived within the HEI.

The importance of reflective practice with respect to both IL and ICT education was briefly stated in the concluding chapters of my book *Information Obesity* (Whitworth, 2009), but this paper is a much fuller development of the ideas, which are justified through a discussion and synthesis of, in particular, the following writers' work:

* Wilfred Carr and Stephen Kemmis's *Becoming Critical* (1986);
* Christine Bruce's *Informed Learning* (2008);
* Rose Luckin's *Redesigning Learning Contexts* (2010);
* and Etienne Wenger, Nancy White and John Smith's *Digital Habitats* (2009).

The paper's argument is a general one, rooted in theory, and not intended to reflect the situation pertaining in any particular context. However, I hope that it can provide insights and guidance for readers when they reflect upon their own situations.

I conclude that further research - oriented towards the transformation of practice and, thus, undertaken in real-world contexts - is required into how the librarian-as-educator can build capital within HEI. Otherwise, CPD will take place in a void, permitted to occur, but not to change practices or the overarching culture of the HEI, when it comes to information literacy.

Different views of information literacy

Ideas of what constitutes effective practice with information have changed over time. Arguably, Vannevar Bush (1945, §1) was the first writer to really address the problems arising from the observation that the rate of "publication has been extended far beyond our present ability to make real use of the record". His proposed solution was technical: the "memex", a mechanical device to assist with information retrieval and cataloguing of connections.

This technical approach persisted through the next two or three decades, and has been excellently summarised by Saracevic (1975). He describes how in this period, fixes to the problem of excessive information involved the development of indexing, abstracting, documentation and retrieval systems (Saracevic, 1975, p. 324). As he points out (see also Saracevic, 2007a; 2007b), the key indicator of an effective information retrieval system is that it delivers *relevant* information to the user. Relevance is, in very broad terms, "a measure of the effectiveness of a contact between a source and a destination in a communication process" (Saracevic, 1975, p. 321) and "it has been accepted explicitly or implicitly that the main objective of an IR [information retrieval] system is to retrieve information relevant to user queries" (ibid., p. 326).The ultimate aim of such a system was to deliver maximum efficiency, that is, a system that does not offer the user anything irrelevant. In such an endeavour, attention must therefore be paid to refining inputs and processes. The model of information in use was transmission-based.

But such work could only be taken so far. As the discipline developed and was tested (Saracevic, 1975, pp. 327-8), "the thinking that the notion of relevance is most connected to user judgment, or the *destination's* view of relevance, was born". The user brings "a host of cognitive and social dimensions, and interaction into the model" (Saracevic, 2007a, p. 1925). The retrieval of relevant information is therefore a value-laden and relativistic process, rather than a matter of perfecting the delivery, or transmission, of the information. Relevance cannot be assigned by external interests alone, as it depends in large part "on what we already know and on what is generally known" (Saracevic, 1975, p. 325). It has an affective dimension as well as a cognitive one, depending on personal preferences and subjective assessments, emotions, feelings and so on (Kuhlthau, 2005).

On the other hand, relevance cannot be established by an individual alone, with no reference to standards and needs established within communities and organisations. As Saracevic says (1975, p. 326):

> Communication of knowledge and information systems (…) operate by means of, and under constraints imposed by their environment (…)The same knowledge communication process, the same information system, can be related to a number of realities of an environment, to a number of environments and can perform many functions. Knowledge, information, communication, information systems - all are embedded in, all reflect some system of human values - ethical, social, philosophical, political, religious and/or legal values.

Relevance, therefore, is not an *objective*, technical quality of information but is assigned; and this is done both *subjectively* by an individual recipient or user of information, and *intersubjectively*, by negotiations that occur within the systems and organisations within which an individual is embedded. The user of information is not just a recipient of it, but exists in a dynamic interaction with an informational environment (Bruce, 2008, p. vii) which requires both conscious judgments about relevance, and unconscious responses to a range of cultural, social and technological means of pre-assigning value. An information literate actor *reacts* to information needs, established by themselves or others, but also *learns* about the informational environment and, ultimately, helps to maintain it, through processes which produce and disseminate information. Taken to its ultimate end, therefore, information literate actors are positively influencing, or *optimising,* the informational environment, enhancing not just their own capacity to learn from that environment but helping them (and others) transform the environment in order to maximise this capacity. There is thus a need for information literate actors to be aware of the *impact* of their (and others') information use; that is, how criteria for judging relevance are continually evolving as a result of all these dynamic processes.

These manifold views of information - retrieval, learning, impact; and objective, subjective and intersubjective measures of value - are summarised in the "six frames of information literacy": a model developed by Bruce, Lupton and Edwards (2006) and subsequently enhanced by Bruce (2008) into the framework of "informed learning". There is here also a connection to the model of literacy developed by Egan (1990), who called the elements of the triad conventional, comprehensive and emerging literacy; and Whitworth's (2009) discussion of positivist, interpretive and critical views of social science and how these apply to information literacy and ICT skills education. The table below summarises these various triads.

View of social science	Positivist	Interpretivist	Critical
Form of literacy (Egan)	Conventional	Comprehensive	Emerging
Forms of value	Objective	Subjective	Intersubjective
Basis of value	Scientific	Personal	Negotiated
Level	Macro-level	Micro-level	Meso-level
Practice	Generic	Situated	Transformational
Structures of support	Scientific method	Individual cognition	Organisations, technologies, cultures
Frames of IL	Content, competency	Learning to learn, personal relevance	Social impact, relational (see below)
Key word	Conforming	Informing	Transforming

It is in Bruce et al. (2006)'s sixth frame, the *relational* frame, that these various informational relationships intersect; thus, it is in this frame that practice is most effective. To be aware of one's agency as an optimiser of an informational environment requires more than just being technically skilled at retrieving information and, thus, learning how to manipulate search engines, follow 'correct' procedure, access the 'right' information sources and so on. Such skills do matter, being covered by Bruce et al.'s "content" and "competency" frames. But if a user *only* has those skills, they can only react, not be proactive and optimise the environment. An information literate actor working in the relational frame is therefore making judgments between the relevance of, not just information, but the *methods used to evaluate and filter it*; in other words, they are aware of when it is necessary to bring functional skills to play, but also when to transcend them, and make judgments based on personal or intersubjective criteria. They are aware of how all criteria for evaluating the relevance and value of information can be limited, or change over time, and thus can reflect on, revise and review approaches when necessary.

Yet research undertaken by Andretta (2007, pp. 7-8) suggests that as the complexity of the relationship with informational environments increases, the necessary outlook is less likely to be found within the formalised HEI. Andretta's survey was a simple one, but the results are telling. She asked 157 practitioners to rank the approach to IL education which best described that adopted by their institutions: 124 out of the 157 offered responses to the survey. Two choices were permitted each respondent, to be ranked first and second. The results were as follows:

Frame	Ranked first by:	Ranked second by:
Content	8	55
Competency	94	27
Learning to learn	5	17
Personal relevance	4	15
Social impact	0	0
Relational	13	16

There are various interpretations of these results: they should be seen as representing respondents' assumptions about what their institutions' policies and practices are, rather than as a reliable measure of what policies and practices actually exist. Nevertheless, assumptions are a significant driver of practice as they help indicate the cognitive schema, or ways of thinking, which shape the actual work going on within an institution, which also will be explored in the section on "stewarding and filtering" below. That being the case the dominance of competency-based approaches must be considered significant, as is the near-total absence of the social impact frame being, at best, implied as part of the relational frame which ranks a distant third behind the two functional approaches.

Why are the different frames of IL so unequally represented in higher education institutions? To answer this question it is necessary to address not the nature of IL practice, but the way such practices are instilled in learners and other users of information environments. In other words, we must address the nature of teaching in IL, and investigate why particular approaches to IL education have more capital within HEI than others, as implied by Andretta's results.

Views of teaching

The Commission on Higher Education (CHE, 1994, p. vi) have recognised that IL goes beyond just instilling information retrieval skills and has a pedagogical element. It is a "pedagogical glue" (Andretta, 2007, p. 6). The aim of IL education is, generally, to create an environment from which information literate behaviour is more likely to emerge than it was before the education took place. But the features of this environment - the pedagogical approach, the supporting resources - depend on one's interpretation of information literacy (Bruce et al., 2006). Particular pedagogical moves, supported by appropriate resources, could help a learner become an efficient information retriever, but at the same time, block their agency when it comes to optimising the informational environment within which they must work.

Pedagogy is itself, in some ways, a technical tool: better still, it should be seen as a mix of pure technique, personal preferences and knowledge about how learners learn, whether this has been developed through scientific study or through intimate knowledge of a specific discipline or group of learners. Just as there are images of IL which drive the selection of strategies for information retrieval, use and production, so these images also connect to different pedagogies; ways of helping and encouraging learners (or oneself) to adopt these IL strategies (Bruce et al., 2006; Bruce, 2008). In order, then, to understand what constitutes professional practice in IL education, it is necessary to discuss the competing views of pedagogy, and how the different

types of knowledge - of technique, of learning, of learners, and of oneself - help a teacher develop their skills in different ways.

To do so I turn to the work of Wilfred Carr and Stephen Kemmis, particularly their 1986 book *Becoming Critical*. In this book, Carr and Kemmis engage in a detailed argument against what they call "scientific" approaches to the design of learning environments. In such an approach, the designer is adopting what they, drawing on Aristotelian philosophy, call *technē. Technē* is design guided by an *eidos*, a guiding image or idea "providing a perfect model of the performance or the product" (Carr & Kemmis, 1986, p. 32). The *eidos* is effectively context-independent, being an ideal which could be attained anywhere. The context, or "situation within which the production took place (…) [is] only significant to the extent that it furnished materials for the act of production" (ibid, p. 32).

Taken to its ultimate conclusion this results in a positivist view of education. Positivism, broadly, is characterised by (Whitworth, 2009, p. 110):

- objectivity through the application of scientific method;
- the privileging of these forms of value over others such as subjectivity, philosophical speculation, bargaining and so on;
- a will to control.

Thus, positivistic study of a particular context, situation or problem would aim at control over all relevant variables in order that the context can be engineered to attain the desired goal, or *eidos* (Carr & Kemmis, 1986, p. 67). A positivist view of education, when mapped onto the views of information literacy outlined in the previous section, would be likely to result in a training-based approach, designed to instill in students the correct *response* (competent retrieval) to specific *stimuli* (information needs), just as in the behaviourist approach of B. F. Skinner (1954). Success would be measured through seeing how well the learner's response corresponded to standards and rubrics, measured against checklists. Was relevant information retrieved (cf. Saracevic 1975)? How quickly?

Rubrics and standards can be very useful (e.g. Gratch-Lindauer & Brown, 2004), but if this is the only way that IL is taught and assessed, there are grounds for criticism, clustering around two main themes. First, that the approach is ineffective due to its attention only to certain aspects of IL. That point is dealt with in the remainder of this section of the paper. The second is that the approach deskills teachers and neglects their professional competence; this is discussed in the subsequent section.

The behaviourist, functional approach is a limited way of approaching IL because a "transmission" approach to IL education, with a set idea (an *eidos*) of what IL behaviour should be, must by definition have "a short life-span" as it is "unsuitable to explore a constantly changing information-rich environment" (Andretta, 2010 p. 27; Bundy, 2004). In the functional view, "information literacy is conceived in an objectified way as a set of skills belonging to the person and applied to information in order to achieve other ends" (Andretta, 2010, p. 34). However, a more flexible and dynamic view is to see information literacy "as if from the person's own point of view (…) [this] includes an awareness of, and engagement with, diverse elements of his or her 'information universe'" (ibid, see also Bruce, 1997, p. 41).

As argued clearly by Schön (1974) (see the quote above), if the key to success in a diverse and rapidly-changing environment is learning and adaptation, "competence" in such an environment becomes "the individual learners' ability to engage with complex problem-solving conditions and their capacity for independent learning at the outset" (Andretta, 2010 p. 30). As also noted earlier, studies of IR have long shown that relevance cannot be assigned objectively, but must be determined by the user, acting in a complex relationship with their own prior knowledge and skills, other people, and rules and procedures. Teaching that tells students which information sources they must use, and sets generic, standardised criteria for what constitutes valid information, is not worthless, but must be complemented by work in other frames of IL

and, especially, the relational frame, in which learners "develop new and more complex ways of interacting with information" (Bruce, 2008, p.13).

IL education for such ends cannot, by definition, be undertaken by librarians acting alone. It involves creating an environment which would help learners reflect upon not just the information that is available information, but the search process by which they found it, the impact of their use of that information, and how their subsequent information needs change as a result. It must, therefore, be an integration of generic and context-specific information skills, as called for by Grafstein (2002) among others, and consequently, involve some form of academic-librarian collaboration. In the subsequent discussion, therefore, I use the neutral term 'educator' (or sometimes, where it appears in the works of others, 'practitioner') without distinguishing between those in HEI who have traditionally adopted the educational role and for whom it is an obvious (though not uncontested) part of their professional identity - *viz*, the academics - and librarians, with whom the role is not typically associated.

Seeing information literacy as *problem-solving* gives it an iterative aspect (Whitworth, 2009, p. 170). Problem-based learning requires learners to do more than follow set patterns of information retrieval. They must learn about the potential deficiencies of these patterns, "in order to implement a revised and improved process of enquiry" (Andretta, 2010, p. 31) if such revision becomes necessary to solve a given problem. This pays homage to the "phenomenographic principle of second-order reality which states that any phenomenon is understood through the person's reflection on the experience" (ibid., p. 37). In the end the learner must make what is learned their own (Fazey & Marton 2002, p. 235), rather than following principles dictated by an external source, without reflection on them, and thus without being able to apply them to one's own particular environmental context.

Over time, a range of pedagogies have been proposed which help learners *construct knowledge* rather than simply respond to stimuli, including constructivism, enquiry-based learning (EBL), problem-based learning (PBL), discovery learning, experiential learning and so on (Kirschner, Sweller & Clark, 2006, pp. 75-6). In such a view the teacher changes from being an expert whose role is to transmit knowledge to the learner, into a facilitator, a "more able partner" whose role is to provide *scaffolding* which will support the construction of this knowledge (Vygotsky, 1978; see also Luckin, 2010). The role of the more able partner can be taken on by a teacher in the formal sense, but also by a friend, colleague, a web page, instruction or guidance manual, TV programme: in short, any element of the "ecology of resources" (Luckin, 2010) within which the learner exists, and which is shaped, in a dynamic and continuous way by their activity. (See below for a more detailed discussion of Luckin's work and its consequences for IL education.)

In some views of constructivist education, the educator is exhorted to take a minimalist role (Kirschner et al., 2006). But the criticisms of Kirschner et al. should be noted. Limitations in the cognitive abilities of novices in a field make it pedagogically risky to allow them to proceed through it with minimal guidance. The educator - the more able partner - should certainly be *present*, therefore, but their aim is to facilitate *independent* work by the learner at a later date. This is highlighted clearly by the metaphor of "scaffolding". Scaffolding supports the building of some kind of structure - but once the structure is self-supporting, the scaffolding must be removed.

The role of the IL educator is therefore to take an active role at first but then to develop in their charges the ability to become independent, and information literate, learners. The relational approach demands an awareness in educators of their students' information environments and practices, but also their own (Bruce, 2008, p. 18): "reflection is integral to the experience of informed learning" (ibid., p. 79), and (ibid., p. 3): "Once we recognise what information is and how we are using it, we can be more in charge of the information environment and how we encounter, source, control, engage with, and use information…. The

learning experience that prepares today's students for tomorrow's professional practice brings such practices into the curriculum and encourages reflection upon them."

However, as suggested by Andretta's figures, reported earlier, there seem to be significant institutional biases towards particular images of IL, based around adherence to standards and norms rather than reflecting on context- and person-specific practices. I suggest that this bias arises not because of limited approaches to pedagogy, that is, failures by the IL education establishment to accommodate a broader view of the subject than these two functional frames. I believe that, more pertinently, the deficiencies arise because of a failure to *measure* - even to *see* - the alternatives. Bruce (2008, p. 186) points out that:

> Researchers who see informed learning and information literacy as quantifiable and measurable are likely to adopt observable and measurable behaviour as their research object. Researchers who see informed learning and information literacy as contextualized and deeply embedded in professional, academic and disciplinary practices are likely to adopt lived experience as their research object. Both approaches, and different positions in between, will contribute to our unfolding understanding of informed learning.

Marton and Booth (1997; see also Bruce, 2008, p. 11) use the term, "pedagogy of awareness" to describe the approach to teaching which Bruce (2008) believes is most appropriate for the relational frame of IL. Edwards (2006) points out that particular views of the world, or of a phenomenon under investigation, lead the learner (researcher, educator) to view the world through a set of "lenses" which establish what will be attended to, or focused on, and what is more in the background of awareness, not being attended to closely. Learners occurs when learners can be made aware of these different lenses and changes thereby take place in perceptions and worldviews.

This has two consequences, the first of which I can attend to only briefly as it lies outside the scope of this paper: this is that it is essential for IL to transcend the boundaries of the educational institution, and make connections with workplaces, the informal learning taking place in communities, and so on. Bruce (2008) is clear about this in *Informed Learning*, and the work of Lloyd (e.g. 2010) supports her. The second is that educators must themselves "learn how to see" (Blaug, 1999) the alternative approaches which exist - and which learners are using - through processes of active enquiry into the assumptions which underlie their professional practice. They must, in short, become not the passive instruments of a standardised, organised approach to IL education, but *reflective practitioners* (Schön, 1991) in their own right. It is essential to raise awareness of alternatives in learners, but also in educators - *and throughout the HEI themselves.*

Such an approach reflects Elmborg's call for a "critical information literacy" which involves "learning to ask questions about the library's (and the academy's) role" in the IL enterprise (Elmborg, 2006, p. 198); but it is still necessary to establish how such a critical and reflective approach could become embedded in the professional consciousness of IL educators.

The reflective practitioner

The creation of an environment which can facilitate relational and constructivist approaches to IL and IL education, and ultimately transform how IL is valued and defined, is a more complex task than engineering an environment to transmit limited views of "competency". This is one reason why it happens less frequently, as suggested by Andretta's figures, quoted above. This complexity arises because the approach demands more than a single *eidos* of IL (Andretta, 2005, p. 136). Just as learners must be guided towards seeing multiple possible interpretations of concepts such as "information need", "relevance", "effective use" and so on, so teachers of IL need to be prepared to adapt to different contexts (Lloyd, 2010; Bruce, 2008), moving between images of IL as appropriate. But this added complexity is not the only reason why such

approaches are rarer. More significant, for the present discussion, are the links made between the lack of reflective practice among educators, and observable trends in how education is organised, with increasing systematisation and a reliance on procedures, standards and technologies over the professional competence of the educators, a competence developed with reference to their own intimate knowledge of their learners, their subject matter, their own abilities and skills. From a more library-specific perspective it also suggests the lack of academic capital possessed by librarians-as-educators.

Carr and Kemmis's principal critique of the positivist approach is that it deskills and devalues the teacher, failing to acknowledge their own professionalism (1986, p. 2) and placing them in a role of "passive conformity" (ibid., p. 70), excluded from the decision-making which shapes the principles and the practice of the education profession and the HEI. These authors do not dismiss completely the role of educational 'science', recognising that there is some justification for seeing learning environments as amenable to scientific evaluation, producing generalisable, refutable statements in the best tradition of scientific enquiry, and that there subsequently be activities which draw on these as resources. Practice is not *all* important: one cannot engage in practice without some guiding theory, some sense, expressed in generalised principles and backed up by scientific study, of what education is (Carr & Kemmis, 1986, p. 113). However, it is Carr and Kemmis's point that even if these insights can be, or have been, developed through scientific research, to become educational *practice* they still need to be *applied* by educators, 'on the ground':

> (…) practitioners tend not to be experience their expertise as a set of techniques or as a 'tool kit' for producing learning. They can identify some 'tricks of the trade' and techniques, certainly. but these are employed in complex patterns, in overlapping sets, in combinations dictated as much by the mood or climate of the class, the particular set of aims being pursued, the kinds of subject matter being considered, the particular image which governs the teaching/learning exercise at hand… and by all sorts of other factors which shape the situation moment by moment … (Carr & Kemmis, 1986, p. 37)

Guiding principles must therefore be shaped in turn by *continuous* (Brookfield, 1995, p. 42) reflection on practice, informed by theory and in turn generating further theory: that is, *praxis*. Such an approach strengthens both theory and practice alike, and as Bonnacorsi and Pammolli (1996, p. 18) point out that knowledge develops "only (...) insofar as the producer and the user of knowledge share their contexts." Therefore, scientifically-valid, or *objective*, insights have value, but only when aligned with the *subjective* preferences, understandings and experiences of the educator and the *intersubjective* values established through the educators' membership of a community or organisation and their interaction with the learners. The triad is the same as previously presented with respect to information literacy itself.

To summarise Carr and Kemmis' view, every enquiry into education ultimately consists of, first, learning about the environment; secondly, transforming it as a result. However, for these writers, and others such as Mezirow (1990) and Shor (1996), the maintenance of professionalism in education depends on *who undertakes* this enquiry. These writers see it as essential that it is the autonomous professional, fully aware of their local context and sensitive to its needs: in addition, Shor sees the students as having an essential role here.

However, mapping pedagogical development, and thus, professional development of educators, onto the same triad as IL might suggest that subjective and intersubjective approaches to the development of such knowledge may be less valued within HEI than objective ones. This is exactly Carr and Kemmis's point, in fact (as well as Mezirow, Brookfield and other writers quoted in this section). It is necessary to explore these institutional biases in more detail, and look at the mechanisms by which such biases come to influence the learning environments available to learners and educators - and how their ability to transform them, in response to the learning they have undertaken, can become blocked.

Stewarding and filtering: moving from the ecology of resources to the digital habitat

It is when questions about *responsibility* arise that some attention must be given to the organisational structures within which IL education takes place. The question of who is permitted to construct educational environments, whose values come into play and what criteria of success or failure are used to judge them is a political question (see Whitworth, 2012). Informed learning is termed by Bruce a "new direction" (2008. p. 163), but if it really is one, then it will challenge anyone with vested interests in the status quo and could expect to face barriers in the path towards its institutionalisation. Bruce (2008, pp. 170-1) does hint at this, and it is important to investigate these issues further. It is all very well exhorting librarians to develop themselves as professional educators - but if their ability to transform their institutions' teaching and learning remains blocked, regardless of how much or how well they develop - if, in other words, they lack capital (Bourdieu, 1988) within the institution - what, ultimately, is the point? I hope here to show that one does not need to take a fatalistic view of the issue: the development process *does* have value in itself - even if only to show the librarian-as-educator where such blockages reside and how they might be negotiated. As is the case throughout this paper, I discuss these matters generally, with reference to theory, but with the aim of suggesting to readers ideas that could be more thoroughly investigated in real-world settings, and addressed by context-specific CPD practices.

The idea that educators and learners alike create an "environment" for learning has underpinned this paper thus far without these processes being fully explored. This is a discussion developed by Rose Luckin in her book *Redesigning Learning Contexts* (2010). Luckin interprets the learning environment as an "ecology of resources", which similarly pays homage to the idea that the elements of the environment/ecology are interdependent and the whole is not static, but in a state of flux and evolution. The ecology of resources contains everything that is required for learning: information, technology, other people, prior knowledge and more. In principle, a learner could search the ecology and draw on anything within it - which means, anything at all - in order to learn. In practice, the ecology is filtered in various ways, which reduce the abundance of available resources and turn it into a manageable learning environment. Learners can generate and reflect upon their own filters, making conscious selections about which technologies (here see Luckin et al., 2010), informational resources, people and so on will be useful in following their learning need. Learner-generation of context is thereby an optimisation of their personal learning environment. Through the learning which takes place now, learners build resources, and the filters, which the learner can draw on in the future.

This view of the learner making conscious selections from a very broad range of possible resources is one that accords with the standard view of IL (ACRL, 2000). But it is important to realise that filters can be imposed on learners as well as generated by them. For instance, when undertaking a formal course of study, curriculum and assessment are filters: they direct the attention of learners towards specific resources within the ecology - particular topics, books or papers, patterns of thinking, and ultimate learning objectives. This is done for positive reasons, but can also constitute a restriction on creativity or, at least, the learner's inclination to explore other aspects of, say, the literature on a particular topic. These are not filters generated by learners, but imposed upon them, through the operations of the educational (or other) organisations in which they are located. Filtering therefore works both ways. It can be something done *by* a learner - or done *for* them.

Just as importantly, filters can also be imposed unconsciously, through habit and routine. Blaug (2007) describes well how organisations come to affect the way we think, learn and use information by pushing "cognitive schema" - meaning mental models, ways of thinking, 'scripts' for action - at their members. These schema:

> … become embedded into the sociotechnical systems which we use to organise activity. Scripts and schema are products of prior knowledge and are stored, thus favouring certain activities, ways of thinking, and filtering decisions. Even an information literate actor is not free to determine for themselves the grounds on which they are filtering information, particularly not as much of this may take place before they start conscious cognitive work. (Whitworth, 2009, p. 146).

The recent book by Pariser (2011) describes how the users of information management tools such as Facebook and Google now reside inside a "filter bubble", the boundaries of which are now tailored, by these applications, to match interpretations of users' preferences: interpretations calculated from data gathered about their previous searching or social networking activity. The result is that a Google search on, say, "global warming" will return different results for different searchers. If the user has previously looked more at results which take a sceptical view of the problem, they will be directed towards more scepticism - if a sympathetic view, the opposite will occur. This is, in fact, a technologisation of the "confirmation bias" - the cognitive process by which we are more likely to take account of information if it accords with our prior beliefs (Blaug, 2007, p. 31, via Evans, 1989, p. 44) - only now, there is less ability for us to overcome this by self-reflection and awareness of our cognitive processes. (See Fernandez, 2010 for a very full, albeit evolving, list of other cognitive biases.)

Filters are very necessary to our engagement with information. Without them, we would begin every information search, every learning journey, every decision from very first principles. Efficient behaviour would be impossible. This is why the conformist aspect of information use - represented by Bruce et al.'s "content" and "competency" frames - cannot be neglected. We must be aware of what filters exist already, and why they are generally judged effective and desirable. But as well as *conforming* to these pre-existing filters, such as procedures and standards, we must also *inform* ourselves about alternatives and, if necessary, *transform* these filtering practices when review is required. We "need to be able to critique the resources we use for learning, understanding their intended audience and the purposes of the authors or designers, or understanding the drivers, the motivations (…)" (Bruce, 2008, p. 129). Through such critique, the filters in use are transformed, and the dynamic relationship with one's learning and informational environment, necessary for informed learning, is undertaken.

However, because many filters are unconscious, and therefore applied without the full awareness of the subjective individual, and still other filters are imposed upon the individual learner or information user rather than having been developed by them, this ongoing critique and transformation cannot be undertaken by a practitioner acting alone, however much reflection they might undertake. Unlike the implication of IL standards, such as the ACRL's (2000), which focus on the individual, subjective learner navigating their way through an informational environment, learning of this type is as much a social activity involving groups - or "communities of practice" (Wenger, 1998). These communities collectively establish "learning agendas worth pursuing" (Wenger, White & Smith, 2009, p. 10). Through fulfilling these agendas, the ecology of resources which the learner(s) have available are filtered - and, ideally, optimised.

Wenger et al. use the term "digital habitat" to describe this dynamic environment which, ideally, is transformed and optimised by the learning community as learning takes place. They define digital habitats as constituted by the collection of communications media which help members of communities share information and thus learn from each other (2009, pp. 14-17), but I suggest that Luckin's work shows that these insights can be applied to the entire ecology of resources. That is, not just its technical elements (e.g. software applications), but the social and cultural structures which shape understanding through pushing certain cognitive schema towards members of the community. *Who filters the ecology of resources* is the key political

question that arises from Luckin's worldview: *who shapes the digital habitat* is the equivalent for Wenger, White and Smith.

These latter authors point out that, in real-life situations, the skills, knowledge and motivation required to optimise the digital habitat rarely spread uniformly through communities of practice. A more common pattern is that *stewards* emerge. Stewards are individuals who "take responsibility for a community's technological resources for a time" (Wenger et al., 2009, p. 24). Stewarding does not depend on an "absolute expertise" with technology (ibid., p. 25) but involves an awareness of both the affordances of a technology and the needs and structures of the community (ibid., p. 26). It is a "creative practice" and a "critical part of community leadership, facilitating a community's emergence or growth" (ibid., p. 25).

Ideally, a responsive digital habitat would evolve through collaborative learning processes. The community as a whole would be reflecting on its practices, and an environment created which would build the capacity for transforming the digital habitat - stewarding - in a broad range of stakeholders, something called for by Wenger et al. (2009, p. 27). The digital habitat should therefore not just facilitate *use* of the habitat, but *participation* in the ongoing learning processes which continuously shape the resources available to the community.

However, these learning processes are not always retained within the community. The development of the necessary forms of knowledge is often externalized, with community members turned into objects of change, rather than its drivers. Instead of the direct involvement of the community in the range of practices which shape the resources available to them, responsibility for stewarding passes outside the community, to technologists, planners, analysts and the like: knowledge about new systems is then instilled through training, or other means of championing new approaches. The filters used by a community are thereby imposed upon them or, at least, are less open to transformation as the result of the learning processes taking place in that community. The filters - cognitive schema, technologies, 'approved' practices and so on - come to direct activity, rather than respond to it: the user is "expected to adapt their practices and define their roles in response to the demands placed upon them by the artifact" (Stoodley, Bruce & Edwards, 2010, p. 381). It is not that such direction is always undesirable, but Wenger et al. point out (2009, p. 28) that it must be subject to ongoing scrutiny by the community; thus, externalization of responsibility becomes a choice that is consciously made and open to review.

Therefore, there may be a tension between the way different professional groups internalize the process of adaptation through reflective practice (Schön, 1991), and how organizations try to direct practice. The increasing codification of practice, the reliance on standards and generic measures of IL, stands in opposition to the requirement that professional educators constantly examine practice and construct "critical communities of enquirers into teaching" (Carr & Kemmis, 1986, p. 40).

Transformational power lies not with educational resources *per se*, but in how these resources are used "to support interactions that enable people to learn" (Luckin, 2010, p. 162). Effective teaching therefore means using these resources to develop agency in learners. Such agency is what allows them to carry on after the scaffolding has been removed, and continue to develop their ecology of resources in an autonomous, self-reflective way. This kind of teaching must go beyond behaviourism but not into a 'vulgar constructivism' of the sort rightfully criticised by Kirschner et al. (2006). It promotes reflection on learned techniques, not blind adherence to them, thereby moving from "ignorance and habit to knowledge and reflection" (Carr & Kemmis, 1986, p. 116). In a broader sense, it adheres to the principles of "double-loop learning" - a form of enquiry which looks not just at the results of action, but investigates the continuing relevance of the premisses and assumptions which underlie that action (Argyris, 1999).

Indeed, this is what 'educational theory' *is*, according to Carr and Kemmis (1986, p. 115): 'Educational theory', on this view, is not an 'applied theory' that 'draws on' theories from the social sciences. Rather, it refers to the whole enterprise of critically appraising the adequacy of the concepts, beliefs, assumptions and values incorporated in prevailing theories of educational practice.

Ultimately then, the librarian-turned-professional-educator must incorporate into their practice not just an awareness of pedagogical practice, but *must be constantly critiquing the very nature of IL*.

Conclusion

This paper has suggested what is needed from a programme of professional development for IL educators. In general, such work should be:

1. subjective, helping educators to establish their own personal educational philosophies and preferences;
2. objective, raising their awareness of standards and technical issues;
3. intersubjective, developing connections between members of communities of practice;
4. crossing the boundaries between the HEI and the external contexts, or communities, inhabited in the past, present or future by learners and teachers;
5. continuous (thus, CPD, or continuing professional development);
6. oriented towards developing in IL educators an ability to steward their own ecologies of resources, and develop the capacity for stewarding in others;
7. oriented towards the ongoing development of IL through continuous investigation of its basic premisses (as opposed to accepting IL as an unchanging principle), and informed by the evaluation of practice;
8. oriented towards developing the capital that teachers and learners need in order to have the results of their learning/CPD reflected in changed practice within the institution.

The political dimension of IL education (see Whitworth, 2009, 2011) is an issue that needs more exploration and research than has been conducted thus far. Exhorting librarians to develop professionally as educators will have limited impact on practice while the group lack capital within HEI and, thus, the capacity to bring about transformations in practice and culture. The CPD approach outlined here is one designed to raise awareness of this lack of capital, but in addition, further research is required into:

- the notion of capital as it applies to the lack of institutionalisation of the relational model of IL;
- the impact that the librarian-as-educator can have, and is permitted to have, in shaping learning environments (ecologies of resources);
- the cultural environment which supports these efforts and how that culture can be changed.

Without such understandings the librarian-as-educator will continue coming up against blockages. To lapse into metaphor, banging one's head against these brick walls will become frustrating - but the brick wall will not yield without some reconceptualisation of what IL is and what the role of the librarian-as-educator should be in the HEI. These transformations must make connections between the library and other client groups, particularly academics, who also face challenges to their professional autonomy that require, not a rejection, but a *strengthening* of the educational research enterprise (Carr & Kemmis, 1986, p. 187) and a reassertion of its importance in the light of these and other challenges (Pope & Walton, 2011). Librarians can, indeed must, understand the reasons for this needed transformation and the CPD processes that support it. Even if the next few years will be frustrating, awareness can be raised, and the

profession *as a whole* develop in ways that respond to these needs and the learning which takes place in response to them.

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