

Twenty-first century librarians: time for Zones of Intervention and Zones of Proximal Development?

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Abstract

Purpose – The purpose of this contribution is to encourage library and information (LIS) professionals to draw on the initiatives by Carol Kuhlthau to align information seeking with learning theories and new roles for intermediaries. Considering the vast array of developments in information communication technology (ICT), and the challenges and pressures for continuing professional development (CPD) and reflection, it seems timely to encourage experimentation with the ideas of Kuhlthau on Zones of Intervention and Lev Vygotsky on Zones of Proximal Development (ZPD), (1) as means to become *au fait* with these theories, ideas and related research, and (2) to apply these theories and ideas on a practical level to offer opportunities for the continuing professional development of LIS professionals with specific reference to ICT, and to eventually also impact on the training of users.

Design/methodology/approach – This contribution will be written against the background of research from Information Literacy, Information Behaviour (including information seeking), the learning theory of Vygotsky on Zones of Proximal Development, and continuing professional development.

Findings – Although the information seeking process (ISP) model of Kuhlthau is widely cited, the idea of Zones of Intervention which she developed from the work of Vygotsky does unfortunately not feature strongly in the LIS literature. Considering the literature on Zones of Proximal Development, it can, however, hold much potential for LIS professionals to align support with information seeking with professional (optimal) development – especially if using the focus (Zones of Intervention and Zones of Proximal Development) as a means to become *au fait*, and if initially taking a more practical and relaxed approach as point of departure.

Originality/value – Relatively few publications on Zones of Intervention and Zones of Proximal Development appear in the LIS literature. None of these are to my knowledge, aligned to the continuing professional development of LIS professionals on a practical level or with regard to fully exploiting ICT developments.

Keywords – ICT, Information seeking, Libraries, Information behaviour, Continuing professional development, Learning theories

1 Introduction

I find that I frequently refer to the 21st century librarian and information specialist (LIS professional) as somebody special; somebody who can make a difference by drawing on the vast array of developments in information communication technology (ICT) and opportunities for continuing professional development (CPD). We are already 12 years into this century, with only 88 years left. This may seem like a lot of time, but considering the challenges and pressures we face and how quickly time passes, it is scary to see that although there is tremendous change in terms of technological development brought on by Internet, mobile and cloud technology, social networking, etc. many of our concerns and frustrations continue. We complain about information overload, problems with information organisation and management, inadequate services and access to the “right” information. We argue on

how to offer information literacy courses and the possibilities offered by virtual learning environments, webinars, and podcasts. Numerous complaints are raised about poor search skills, adamant preferences for using the Internet as the main or even sole source for academic research, poor adoption of resources in new formats such as electronic books (e-books) and for LIS professionals to become involved in action research and reflective practices (Grant, 2007; Seeley & Urquhart, 2008); the concern for the optimal use of LIS products and services are widely noted, and many calls have been raised for research findings to be incorporated in LIS practices (Booth & Brice, 2003). We need to learn how to ensure that effective change follows on developments.

There are calls for innovative ways for doing things, especially with regard to the training of users – game-based learning, fun, creativity, and holistic thinking features strongly (Dempsey, 2011; Theimer, 2012; Walter, 2012). The importance of the affective, emotion, passion and motivation in the workplace and in designing information systems are noted along with the need to be productive and excel, to change habits and to commit to life-long learning and continuing professional development and dealing with the challenges of the 21st century (Julien, McKechnie & Hart, 2005; Keiser, 2012; Kuhlthau, 2008; Ritchie, 2010). For most people, time and energy are, however, limited resources. Even when opportunities for professional development and means to stay abreast of new developments are offered for free or at very reasonable rates, taking on an extra task or just spending a few extra minutes on this, becomes just too much of an extra burden for many. When setting time aside to gain new factual knowledge such as how to incorporate Web2.0 or Web3.0 technologies, or how to use cloud technology, there are often no time left for reflection and actually incorporating the new knowledge. We gain factual knowledge, but our practices stay very much the same.

Professional life often turns into a vicious cycle of pressure, challenges, opportunities to gain factual knowledge and learn new skills, and feelings of guilt, frustration and inadequacy because there is no time to think through the implications, and to change work habits and practices. In limited instances changes in ICT and increased opportunities for continuing professional development and access to information lead to substantial changes. More often theories, ideas, potential of ICT and success stories are shared – without making a substantial difference. There is not sufficient time, opportunity and support for reflection, constructing meaning and building knowledge.

Acknowledging the realities of time and energy constraints, what can then be done to ensure that there is potential for change in how LIS professionals develop in their jobs and careers, especially with regard to the exploitation of ICT, and how they approach opportunities for their users to do the same? In an attempt to address the question, this contribution will consider the work of Carol Kuhlthau suggesting Zones of Intervention for intermediaries (LIS professionals) to support information seeking, Zones of Proximal Development proposed by Lev Vygotsky, and suggestions for LIS professionals to use these (1) as means to become *au fait* with the theories, ideas and experiments regarding Zones of Intervention and Zones of Proximal Development, and (2) to apply these on a practical (and perhaps more relaxed and fun, but still effective) level to offer opportunities for continuing professional development, eventually also affecting the training of users. The intention of this contribution is to promote the inclusion of theories and research findings in practice in a “lighter” manner, before embarking on exploring how theories of learning can impact on the information habits and practices, as well as work practices of LIS professionals. Although inspired by the work of Kuhlthau and Vygotsky, I am (with apology and deep respect for the work of these researchers) not claiming to *strictly* keep to their interpretations; as point of departure it might help LIS professionals to adopt the *ideas*, and to take a “lighter” and more creative look at creating “Zones of Intervention” for themselves and then for their users, before turning to an in-depth study and application of the original work. For progress on theoretical and practical level, more academic interpretations and research certainly need to follow. As

a warning against a too simplistic interpretation of popular learning theories, Henning (2008) reflects on the struggle for theoretical depth in research projects as well as her own assumptions and position in relation to "the Zone of Proximal Development". She admits that she has delayed theoretical enrichment to favour fieldwork in much of her career.

Background: on-going calls for change and exploitation of the potential of ICT, but with limited explicit alignment with learning theories

Numerous articles have reported on changes in the tasks, roles, knowledge, skills, and attitudes of LIS professionals (Fourie, 2004; Mullins, 2012). The same applies to continuing professional development, life-long learning and adoption of technology (Keiser, 2012; Ritchie, 2010). Collaboration between libraries, libraries and faculty and libraries and other partners is reported (Ferrer, 2012; Connolly, 2011); this stresses the importance of collaboration in becoming more effective and productive, with an overall emphasis on effective change for the better.

Although the acknowledgement of learning theories, and more specifically adult learning (andragogics) and constructivism is not new in LIS literature (e.g. Guistini, 2009), it does not seem to feature very prominently with regard to the mentioned calls for change and development. Perhaps this might be a reason for slow and inadequate change in professional habits and practices. Considerable time has lapsed since Carol Kuhlthau developed her idea of Zones of Intervention (Kuhlthau, 1994, 1996). She based it on the work of Lev Vygotsky a Russian psychologist (1896 – 1934) who is associated with Activity Theory and Zones of Proximal Development. His original work appeared in Russian, but since his death several interpretations and edited works have appeared to make his work more accessible (Daniels, 2001; Daniels, Cole & Wertsch, 2007; Mooney, 2000; Vygotsky, 1978). Perhaps it is time to revisit their work, and to interpret it according to the needs of LIS professionals who need to accommodate ICT developments and challenges in their daily tasks and continuing professional development, and who need to offer training and support to their users in this regard. Information seeking (requiring Kuhlthau's Zones of Intervention to be adapted for LIS professionals) and Zones of Proximal Development (with specific reference to collaboration, motivation and dialogue) might offer the needed opportunities.

Information seeking and Zones of Intervention

The concept "Zones of Intervention" was introduced to the LIS literature by Kuhlthau based on her research on the information seeking of middle and secondary school children from which she developed the information seeking process (ISP) model (Kuhlthau 1988a, b; 1989; 1991; 1993, 1994a, b). Her research pointed to "a complex, constructive process of learning from a variety of sources" (Kuhlthau, 1994b). In constructing meaning we each construct our unique personal worlds. Such construction involves the total person incorporating thinking, feeling, and acting in a dynamic process of learning. Constructive processes are not comfortable and, smooth transitions "but rather an odyssey of unsettling and sometimes threatening experiences" (Kuhlthau, 1994b). In seeking meaning (e.g. by seeking information), people experience uncertainty (Kuhlthau, 1993). They become confused and anxious. The different stages of information seeking, the thoughts and feelings experienced are reflected in the ISP model. Along these stages, acknowledging the thoughts and feelings reported by Kuhlthau (2007), LIS professionals can offer Zones of Intervention to help the users of libraries and information services to formulate their research problems, and to seek information from a variety of resources, etc. (Kuhlthau, 1994b, 2007). Considering the vast array of challenges faced in continuing professional development and keeping up with ICT developments, the ISP model and Zones of Intervention suggested by Kuhlthau, might, also hold meaning for LIS professionals if re-interpreted and adapted as necessary.

The ISP model is frequently cited in the LIS literature and reflects the different processes (initiation, selection, exploration, formulation, collection and preparation), thoughts (vague, focussed and increased self-awareness) and feelings (uncertainty, optimism, confusion, clarity, sense of satisfaction, and senses of frustration, direction, disappointment and accomplishment) (Kuhlthau, 2007) associated with information seeking. Since proposal of the model, it was tested by Kuhlthau and other researchers on school children, students, and professionals such as lawyers and even in collaborative settings (Hyldegård, 2006; Kuhlthau, 1988a-c, 1996, 2007; Kuhlthau & Tama, 2001). The research covered shorter as well as longer periods; one longitudinal study stretched over 15 years (Kuhlthau, 2007); the projects all confirmed the applicability of the model in a variety of settings. Kuhlthau developed the ISP model from various theories of learning such as the work by Dewey, Bruner, Kolb, and Vygotsky. Following her research findings she coined the concept “Zones of Intervention” from Vygotsky’s Zones of Proximal Development. The intention with such zones was to offer opportunities to learn information seeking skills with the support of LIS professionals (Kuhlthau, 1994b, 2007). In the LIS field, Zones of Intervention is thus aligned with teaching information seeking, bibliographic instruction, information literacy (Kuhlthau, 1994b, 2004, 2007), the design of information systems (Kuhlthau, 2007) and digital libraries (Kuhlthau, 1997). These all feature strongly in her book on seeking meaning (Kuhlthau, 2004) as well as work with her daughters on guided inquiry (Kuhlthau, Maniotes & Caspari, 2007). A new book, *Guided inquiry design: a framework for inquiry in your school* was recently published (Kuhlthau, Maniotes & Caspari 2012).

Zones of Intervention require LIS professionals to determine when intervention is needed and determining what intervention would be useful. Such intervention is unnecessary, as well as intrusive and annoying, when an individual is self-sufficient. Intervention is, however, required when individuals cannot proceed on their own or if they can proceed only with great difficulty (Kuhlthau, 2007). Apart from intervention as support, a holistic look should be taken at the use of information resources considering all information needs during the different stages e.g. initiation, selection, and exploration. The critical question is: what is the Zone of Intervention that will be helpful to an individual in his or her information seeking processes? (Kuhlthau, 2007).

Based on the ISP model and the principle of uncertainty for information seeking (often noted in research findings of information seeking – Case, 2012), Zones of Intervention works on the principle that increased uncertainty (e.g. when coming across new information) requires assistance and support. Such uncertainty needs to be accommodated (Kuhlthau, 2007). Kuhlthau (2007:36) formulates her intention with Zones of Intervention as follows: “The zone of intervention is that area in which an information user can do with advice and assistance on what he or she cannot do alone or can do only with difficulty. Intervention within this zone enables individuals to progress in the accomplishment of their task. Intervention outside this zone is inefficient and unnecessary, experienced by users as intrusive on the one hand or overwhelming on the other”.

Although the ISP model is widely cited and applied in research, relatively few references appear on Zones of Intervention. De Triatel (2002) reports on research on the information seeking process of postgraduate students involved in literature research, also noting Zones of Intervention. A few blog entries also promote Zones of Intervention such as the Trashing Librarian (McCarthy, 2009).

Although numerous opportunities for continuing professional development with a special focus on ICT is advertised for LIS professionals (e.g. through the websites and newsletters of professional associations such as the American Library Association (ALA), Chartered Institute of Library and Information Professionals (CILIP) and the Medical Library Association (MLA)), the focus is often on factual learning combined perhaps with small group discussion and group feedback. There is too little opportunity for reflection and constructing meaning,

returning to the subject literature, structured peer support, and collaborative construction of meaning and building new knowledge. Means need to be found to ensure that new factual knowledge is incorporated into practice and to promote holistic views of the problems and challenges faced.

The levels of mediation suggested by Kuhlthau (1994b) include organising access to information, support with locating information (e.g. a single fact or single source), support in identifying a group of relevant sources recommended in no particular order, advise on pattern intervention (i.e. support in the identification of a group of sources recommended in a particular order for use) as well as counselling to go beyond a source orientation to address the constructive process of learning from a variety of sources. To succeed with this, various levels of education should be provided as well as an engaging learning environment where mediation and education can be built around strategies of collaborating, continuing, charting, conversing, and composing (Kuhlthau, 1994b). Various techniques of collaboration may be employed such as brainstorming and networking, as well as various techniques for visualisation such as charting the information seeking process and conceptual mapping for organising ideas and showing connections between concepts. Journal writing may be useful in composing and formulation. "Writing in a research journal is much more comprehensive than jotting notes on notecards or in a notebook. A journal may be started when the project is first initiated and be kept until the presentation is made. However, the purpose of the journal changes as the search progresses" (Kuhlthau, 1994b). Kuhlthau (2007) can be consulted for more information on the zones, nature of mediation and education.

Zones of proximal development

As mentioned earlier, Kuhlthau's idea of Zones of Intervention is modelled on Vygotsky's notion of a Zone of Proximal Development that provides a way of understanding intervention in the constructive processes of another person (Kuhlthau, 2007:36) (i.e. constructivism and specifically social constructivism). Put in simple terms, the idea with Zone of Proximal Development, is to move from where you are... to what you can be... with the support of peers and experts. Lapkin *et al.* (2010) relate Zone of Proximal Development to an on-going cognitive/affective activity in which learning and development occur as participants interact. A positive affective context can afford multiple opportunities for Zones of Proximal Development to emerge (Lapkin *et al.*, 2010).

Similar to Kuhlthau's Zones of Intervention, there is limited mention of the work of Vygotsky in the LIS literature, some exceptions being Guistini (2007) and work on Activity Theory (also contributed to Vygotsky) (Wilson, 1997). Meyers (2007) applied Cultural Historical Activity Theory to model school library programmes and practices and concluded that a research team can use practitioners' Zones of Proximal Development to guide the alignment of library programme goals and practices. Large *et al.* (2007) use Vygotsky's Zone of Proximal Development in a report on the design of a low-tech web portal prototype that elementary school students could use to find information on Canadian history to support class-based projects.

Outside the LIS field many aspects of Zone of Proximal Development have been reported that might assist LIS professionals in collaborating and developing Zones of Proximal Development to support them in constructing meaning with regard to the use of ICT, and exploiting its full potential, developing overall expertise, problem formulation, finding solutions, improving meta-cognitive skills and supporting reflective decision making. A few are noted here.

In an article titled "Institutional creativity: The relational Zone of Proximal Development", Hasse (2001) argues that creative acts cannot be confined to an individual, and that institutions can facilitate creative potential and development. Lapkin *et al.* (2010) report on

the role of language, referred to as “*linguaging*”, in shaping higher order mental processes, while Anderson and Gold (2009) report on identity formation as fundamental to personal and business development; this encompasses a consideration of present concerns and interests, existing capacities and understandings and skills to find solutions to problems faced. They also mention action learning and the importance of self-image. Bassot (2012) deals with ways in which people make career decisions throughout their lives in rapidly changing, turbulent labour markets and globalised economies. Beliaevsky (2006) argues for acknowledgement of multiple intelligences when considering the theories of Vygotsky. She suggests that Vygotsky's idea of maximizing the Zone of Proximal Development can be realized by utilizing Gardner's approach of nurturing multiple intelligences. Cheyne and Tarulli (1999) argue for taking a broader cultural-historical view of the Zone of Proximal Development by focusing on three issues: dialogue, otherness and voice as a medium for cultural and historical change as well as for individual socialization. Doolittle (1997) discusses the integration of Lev Vygotsky's theory of the Zone of Proximal Development with the instructional strategy of cooperative learning, while Dunphy and Williamson's (2004) focus is on the development of expertise. Even the use of a "Graffiti Wall" is linked to Zones of Proximal Development (Franco, 2010). Hrastinski and Stenbom (2013) offer guidelines on the use of ICT in online coaching, while Gan and Zhu (2007) discuss a project using a Zone of Proximal Development in a virtual learning community to build knowledge and collective wisdom. Gutierrez (2008) brings in the notion of Third Space as a particular kind of Zone of Proximal Development. Third Space also takes a prominent place in Kuhlthau, Maniotes and Caspari (2007) with regard to Zones of Intervention and information seeking. Jones *et al.* (1998) describes a study that examined how science teachers' knowledge of science and science pedagogy changed as a result of participating in a constructivist-based graduate science methods course. The study revealed that within the Zone of Proximal Development, peers, teachers' students, instructors, readings, and tools mediated the development of content and pedagogical knowledge. Based on the Danish social networking siteMingler.dk for peer-to-peer learning and development, Ryberg and Christiansen (2008) argue how learning and development in such social online systems can be conceptualised and analysed. Virkkunen and Schaupp (2011) focus on on-going societal transformation triggered by ICT challenges with an emphasis on inter-activity connections.

In addition to reports on empirical research, some reflections and critiques need to be noted. Gillen (2000) reports on the influences and adaptation of the work of Vygotsky, while Gredler (2012) comments on factors that have hindered appropriate application of Vygotsky's work amongst other the unavailability of accurate translations of his complete theory for several years and the lack of key information in popular discussions of Vygotsky's work on scientific (subject matter) concepts.

Where to start with Zones of Interventions and Zones of Proximal Development for LIS professionals?

My interpretation of Zones of Intervention for LIS professionals are opportunities where people, with the support of their peers and experts, can learn to make more effective use of the subject literature and research reports with regard to their work tasks, responsibilities, continuing professional development and careers, and where there is time for reflection, constructing meaning and sharing knowledge... and where people can have fun, fully acknowledging the realities of constraints and barriers. There must be time to construct meaning and make sense, and the intervention should take place in a comfortable, but stimulating physical zone. There should be support from peers and experts, but in an unthreatening way, and there should be allowances for differences in developing meaning, skills, attitudes, values, learning styles and brain profiles as explained by De Boer, Bothma and Du Toit (2011) and De Boer, Du Toit, Bothma and Scheepers (2012). Multiple intelligences should be acknowledged in formulating problems to the challenges faced by LIS professionals and in finding solutions.

A good point of departure would be to start with studies on Zones of Intervention and Zones of Proximal Development *per se*: what does it entail, what does it promise, how to go about, what can be learned from experiments by others and how can these be adapted to fit the purpose of LIS professionals facing ICT challenges and users to be trained?

The purposes of such Zones of Intervention may initially be to stimulate interest in information seeking as means to find answers, to expand information horizons and to offer support (and intervention) in using the literature to help in formulating problems to be researched and composing reports on solutions. It can, however, be expanded to address more than information seeking towards proximal development e.g. in fully exploiting ICT and taking holistic views to its potential. Which tools can be used for this, how can institutions take a formal stance on Zones of Intervention and Zones of Proximal Development?

Some questions that can be considered include: how does LIS professionals seek information, do they require Zones of Intervention, and if so, what nature should it take, which physical zones and activities might gain their intention (i.e. be fun), how do they construct meaning, which tools can be used (e.g. wiki's), what role can collaborative information seeking play, and how can differences in learning styles and preferences in brain profiles be used most effectively? There are many more possibilities that can be noted if accepting and exploring the notions of Zones of Intervention (focusing on information seeking) and Zones of Proximal Development... and that need to be exploit.

Conclusion

Both Zones of Intervention and Zones of Proximal Development have been noted in the subject literature over many decades. Although noted in the LIS literature, these concepts have never been a strong focus for research and praxis. Considering the vast array of ICT developments, challenges and calls for continuing professional development, it might be timely for LIS professionals to consider the potential of Zones of Intervention and Proximal Development in a serious manner as research focus, but perhaps also in a lighter, fun and creative manner to see what works for them. If succeeding, the experienced gained can be transferred to interventions for library users.

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