

Project Report

Using Nuthall's ideas to conceptualise and support children's information needs

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Abstract

Much research has been undertaken over many years into the information needs of children and young people. A frequent outcome has been the creation of typologies which set down the categories of information youngsters require in their lives. Often, however, these breakdowns treat the types of information as discrete entities, when in the real world a single situation may be responsible for needs of several related kinds. There is also the problem that certain needs may be pigeon-holed into more than one of the defined categories. The present paper, which is devoted to UK children aged between four and eleven, offers a new model intended to address these complications. The types of needs featured within the model are outlined, then their interactions are conveyed diagrammatically and examples of the interactions are described. Subsequently, the issues raised are discussed in terms of relevant literature and the model's limitations are acknowledged. The paper concludes with consideration of the model's value and utility. In particular, the importance of teachers taking a holistic approach to learning is emphasised, with practitioners encouraged to exploit interests that their students have developed privately in order to enhance motivation and build on the knowledge they have gained in these outside contexts.

Keywords: independent learning; information literacy; information-seeking; primary education

1. Introduction: the problem

Over the last fifty years, much research and thinking have been devoted to the matters on which children and young people need and want information. The outcomes of this work have often included typologies in which the divisions are based on either the subjects of the material or the uses to which it will be put. A key weakness of many of these breakdowns is that they treat the elements as entirely separate entities and few attempts are made to link them. In reality, some information needs emerge from others or should be seen within a wider picture which embraces

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needs that may at first glance seem totally different. In broad terms, this typological approach can lead to reductionism and the removal of context. It gives little more than a snapshot of the nature of a need at a particular point in time, rather than tracing the need's overall "life" and its emergence in different areas of concern to the individual. Holistic and longitudinal dimensions are missing. Until now, these shortcomings appear to have gone largely unnoticed in the literature.

In an early analysis, Minudri (1974) considers the information needs of young adults (YA), although she purposely does not attach specific ages to the YA construct. Taking a qualitative rather than quantitative line, she views young adults "as individuals who have not yet reached maturity, who have progressed – for the most part – beyond juvenile... concerns, and who – while they have a great deal of ability and expertise – still do not have the perspective one expects of mature individuals" (p. 156). In terms of their information needs, she treats "recreational needs" and "accomplishment skills and information needs" as distinct categories (pp. 158–59). The former are defined as pertaining to how the individual spends their leisure time when they have no obligations to others whilst the latter are regarded as enabling the youngster to feel a sense of achievement. It would not seem unreasonable, however, to suggest that once an individual has acquired a degree of skill in some recreational activity, pursuing it to a high level then offers them a sense of accomplishment. Walter (1994) believes that self-actualisation—which Maslow (1970) places at the pinnacle of his hierarchy of human needs and which is closely aligned to accomplishment—in fact embraces "leisure activities" (p. 120). A recent paper which presents a new typology derived from data relating to eight- to 18-year-olds within a survey carried out last year by the National Literacy Trust (Clark et al., 2024) notes how a single scenario may give rise—successively—to as many as three of the four kinds of needs that are featured (Shenton, 2025). No attempt is made, however, to convey such a sequence within the typology itself, with the result that the four categories of need appear rather too standalone.

In addition to the typologies which have been created being largely ineffective at dealing with situations where needs in a particular area shift from one of the defined categories to another, there are also questions of interpretation. In their study of American high schoolers aged 16 and 17, Latrobe and Havener (1997) position information about beauty in a "health information" category when it can be argued with some justification that it could just as easily be placed within "current lifestyles" (p. 190). Walter (1994), who concentrates on 10-year-olds, counters this kind of problem by bringing certain information needs into several categories. Information about "ethics and values", for example, can be found under three different headings – "self-actualisation", "esteem" and "love and belonging" (p. 120).

Wilson (2009) notes that much of the research into information behaviour has been undertaken with "captive audiences" (p. 104), specifically school children and students at universities. Given the fact that so many investigations have been conducted in educational environments, we may not be surprised that they have tended to scrutinise their participants' academic needs. Although the situation has changed somewhat in recent years, with everyday life information-seeking (ELIS) becoming a theme of major interest and other studies that have embraced various dimensions of young people's information practices, there remains an inclination in this wide-ranging research to group needs on the basis of categories that are not wildly different from those presented in the needs typologies outlined above. For example, in their ELIS investigation into urban 14-17-year-olds, Agosto and Hughes-Hassell (2005) cite a dozen such

areas and map these on to comparable divisions defined by previous writers, including Minudri, Walter and Latrobe and Havener. Meyers, Fisher and Marcoux (2009), who are concerned with youths between nine and 12, present a similarly generic, albeit shorter, list of commonly reported information needs.

In this paper, the author proposes a new model for understanding the information needs of UK primary schoolers, i.e. children aged between four and 11 years of age, and which directly addresses the shortcomings of the typological approach. The fundamental concepts are derived from those of Graham Nuthall in work outside information science. His divisions are explained in the next section.

1. Graham Nuthall's work on the hidden lives of learners

The work of Nuthall (2007) – although focused on education, rather than information science – offers potential for the creation of a new breakdown of the needs for information that are experienced by children. Ultimately, Nuthall's analysis proved significant to the author in two respects. Firstly, the individual "worlds" that he identifies served as the basis for the three essential elements within the eventual model and, secondly, the interaction between these worlds enabled the dynamism and progression of information needs to be appropriately conceptualised. In terms of the former, Nuthall recognises three domains that affect life in the school classroom:

- the "public world" that the teacher sees and manages (p. 84). It is centred on activities designed and staged by the adult and is governed by the rules and customs associated with the school environment.
- the world of peer relationships, dominated by its own conventions. Here students "establish and maintain their social roles and status" (p. 84). In out-of-school settings, where no restrictions are imposed by the teacher, cliques can emerge and teasing and bullying may go unrestrained.
- "the private world of the child's own mind" in which knowledge is constructed, attitudes and beliefs are formed and thinking on an individual level takes place (p. 84).

Nuthall notes that these three domains are not independent – they interact and affect one another. He points out, for example, how peer relationships colour the way students participate in activities within the classroom; what takes place at school influences the private world and, conversely, the youngster brings into the classroom the results of their individual thinking and learning.

2. A new typology of information needs

Taking a lead from Nuthall, it is possible to define a new, three-part breakdown with respect to the needs for information that primary schoolers experience. It consists of:

- the "academic domain", in which information is necessary for the child to function effectively in the school environment and to satisfy their obligations in this context. Kuhlthau (1988) especially emphasises the importance of communication skills, notably reading, writing, listening and speaking. Information needs in the academic sphere also include material for projects or assignments.

- the “social domain”, in which information is relevant in some way to youngsters’ lives beyond school and which involve others, such as friends, online acquaintances, neighbours, siblings, parents and family members outside the immediate household.
- the “private domain”, in which information applies to solitary pursuits. Many will be hobbies or pastimes undertaken by the child on their own and in the home. Some activities may be unknown even to people who would believe themselves to be close to the youngster.

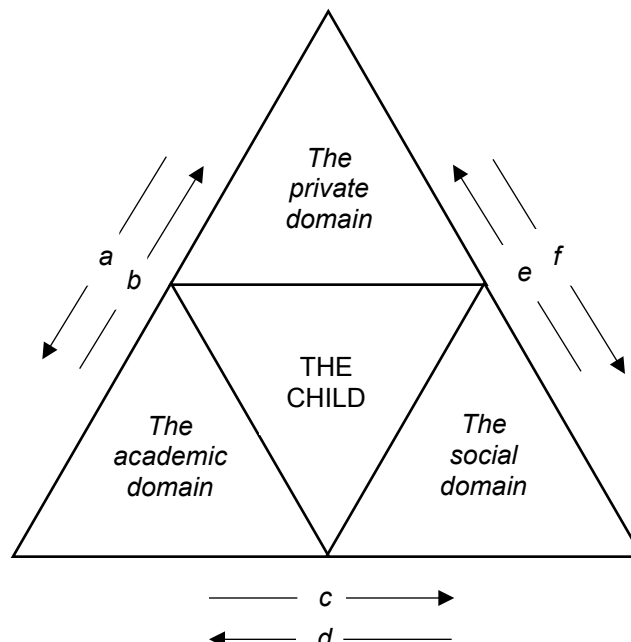
These domains – like those defined by Nuthall originally – are not separate and independent. Each impinges on the others.

Although distinctions between the two concepts are often problematic, if we accept the stance of the Department of National Heritage (1995), we may feel that, in strict terms, situations in the academic domain lead to “needs”, whilst scenarios in the last two realms tend to pertain to the child’s “wants” (p. 5). There are certain parallels between the above typology and the general needs for information cited by Farrell (1974) in her work on young children. The “private domain” can be seen to correspond loosely to Farrell’s “self” and the “social domain” to “other people”. The “academic domain” and Farrell’s “environment” are less closely related, however (p. 153).

3. A new information needs model

For the purposes of this paper, a model is defined as a generalised representation of reality (Shenton, 2021) – in this case it portrays, on an abstract level, the way in which information needs associated with the three domains affect each other. It is shown diagrammatically in Figure 1. The scope of each of the three domains has been explained above. The arrows indicate the interactions of the individual domains.

Figure 1: Model of a child’s information needs



4. Examples of interaction

- a) An interest that a child has developed in private and away from school becomes the subject of academic work. A knowledgeable youngster may, for example, focus on it for a talk or presentation that they are required to deliver to their classmates. Clearly, though, in these circumstances the topic must be socially acceptable and conveyed in a way consistent with the teacher's expectations surrounding the task.
- b) A topic studied in the classroom is of sufficient appeal to the youngster for them to pursue it beyond school, in their own time and in a more solitary capacity.
- c) Young children are heavily dependent on adults and if their interest in a subject has been stimulated in the classroom it may be difficult for them to find out more on their own. Consequently, shared information quests may see the child working with a parent or older sibling in order to satisfy their desire for information. The help provided for the youngster may take many forms. It may, for example, include facilitating transport to and from a public library, advising/finding appropriate items within the building and, ultimately, enabling the youngster to work effectively with the source(s) selected so as to extract the desired material (Shenton and Dixon, 2003b). Whilst giving process support, the older person may also impose their own perspective on the need as it is articulated by the child. There could be opportunities, too, for the child to use social media at home but this may be moderated by a parent, thereby again influencing the nature of the need presented by the youngster. We should be aware, too, of the existence of "source-dependent needs" (Shenton and Dixon, 2005, p. 25). In one type, a moderate interest in a topic studied at school remains only in the child's head until an adult offers some easy opportunity for relevant or related material to be accessed. Where, in contrast, information is required by the youngster for a homework assignment and a parent goes as far as tracking down items on the child's behalf, the scenario features a "double imposed query" of the kind identified by Gross (2006, p. 71).
- d) A matter about which the child has learnt from a social setting outside the school becomes a focus for work in the classroom. For instance, a youngster who has watched a television programme at home with their family brings this knowledge to bear in lessons, such as when undertaking a relevant project. What they know is now supplemented with information from the sources made available by the teacher.
- e) A child develops curiosity about an issue that has been a topic of conversation within their friendship group. They then act on their interest at home, conducting their own private search. Such situations are relatively rare among primary schoolers, however, partly because peers have not yet taken on the importance that is characteristic of the teenage years and partly because young children, especially, may be heavily reliant on adult support when seeking out information.
- f) An interest that a student has initially developed privately, in the home, becomes a subject for discussion with others, frequently via an after-school or lunchtime club or in some online community group.

5. Discussion

The existence of "school-inspired information wants" is noted by Beautyman and Shenton (2009, p. 69). Here a child feels an urge to investigate, away from school and on their own initiative, a topic previously introduced to the youngster through work in the classroom. Their

action may involve two of the pathways shown in the model. They may undertake their own solitary search at home (route *b*) or solicit help from others (route *c*). The assistance can fall into one of many generic categories (Shenton and Dixon, 2003a). Broadly, though, the other party either gives the child information personally or provides process support in a quest to find relevant material.

A particular interest may gradually extend and embrace all three domains, with some coming into play more than once. Let us begin with the theme, *Ourselves*, which is often a focus for early years projects at school. Here, at least initially, information needs reside firmly in the academic domain. In time, the youngster becomes interested in their family and asks parents, siblings and other relatives questions about their elders that intrigue them. Attention has now shifted to the social domain. Privately, they investigate on their own, typing into Google the names of various members of their family. Ultimately, they put their discoveries and new information they acquire to use, in the context of a school project entitled, *My Autobiography*, so returning their area to the academic domain and bringing about a full circle.

There is the potential for the child's original need to shift in subject at several points. Typically, this comes about either with the involvement of other people or when the youngster feels it necessary to rework the need themselves while they attempt to seek information, perhaps in response to initial failure or maybe as a result of their expectations as to what will be available. Both causes have long been acknowledged in the literature. Gross (2006), for example, writes of how an information query may mutate at important stages. She draws attention to "forces that could divert it from its original intent" (p. 33). These include other people, and the possibility that an older "assistant" may impose their own perspective on the need has already been raised in this article. Other factors may be psychological on the child's part. When interacting with an elder, they may feel obliged to rephrase their need in a way that they believe will be most acceptable to them. Similarly, limitations imposed by parents on the child's use of ICT in the home may mean that the youngster knows they are expected to operate within restrictions when they are looking to find out more about matters of interest. "Social constraints" form one of four factors that Allen (1996, p. 130) considers crucial in the creation of statements of information need.

Even if the youngster is working on their own, there is no external pressure and the need is internal in its genesis, the need can still mutate. Taylor (1968) shows the difference that may emerge between the "conscious" need, in which the individual has assembled a mental picture of what is missing from their knowledge or understanding, and the "compromised" form ultimately presented to an information system and based on the individual's grasp of what can be provided (p. 182).

On a fundamental level, any response to an internally originating need that involves consulting an external source, be it a person or system, assumes that the youngster has sufficient ability to transform their in-the-head sensation into an explicit statement. Taylor (1968) suggests that when the need first emerges, the individual's initial understanding of it "is probably inexpressible in linguistic terms" (p. 182). Very young children, with their limited skills in relation to thinking and language, may not be able to progress beyond this stage. There are particular problems when the child knows insufficient to attach what Allen (1996) calls a "label" to the matter of interest (p. 136). The challenges may be lessened somewhat when other people help and take the lead in question-and-answer dialogues with the youngster. Such interactions can add focus

and clarity to the nature of the need (Shenton and Dixon, 2003a) but we return to the problem that the participation of the assistant may mean that the negotiated and ultimately agreed need no longer entirely matches what the child intended.

6. Limitations of the model

The model that has been presented here is based on ideas that have been developed in relation to education and information science. Consequently, it will be of most interest to teachers and school librarians. The paper takes a heavily UK-centric position in assuming that children attend school. Clearly, this may restrict the extent to which the model is relevant in other cultures and no claim is made that the patterns represented in the model are universal. It gives scant attention, too, to institutions other than schools that may play important roles in the lives of children, like religious organisations, welfare bodies and youth groups. No model, of course, can ever be truly comprehensive. As Kaplan (1968) recognises in terms of model construction, "There are always other things to be said about any situation, further knowledge to acquire" (p. 281).

It is important to appreciate, too, that the concept of the child as it is understood here conforms to the traditional Western view. Moreover, we should not assume that the model can be applied to all children irrespective of key variables, such as ethnicity, class and disability. For example, given the fact that many youngsters with severe disabilities are especially heavily reliant on support from parents or other caregivers, we may expect the social dimension to assume a greater importance in these instances than that envisaged in this paper. Where the relationship between the three dimensions takes a highly particular or idiosyncratic form, this could necessitate a redrafting of the more generic model so it better reflects the situation that pertains. The prospect that a model will be subject to revision is inherent in Bates' perspective on theory-building. She defines a model as a "tentative proposed set of relationships, which can then be tested for validity" (Bates, 2005, p. 3).

It would be inappropriate for the author to offer a judgement on how far the transfer of the existing model to other specific settings is wise or even possible. Lincoln and Guba (1985) believe that transferability is dependent on the degree of congruence between the "sending" context that is apparent in the research situation and the "receiving" context that prevails in the setting to which the reader wants to apply the model (p. 124). As the author knows insufficient about the "receiving" contexts that are of interest to readers, it is impossible for him to suggest how far such transfers can be made with confidence. Consequently, it is left to the reader to determine how comfortable they feel about adopting elsewhere the model that has been presented here.

Criticism can also be made of the way in which the academic, private and social domains are represented as discrete entities. Certainly, the nature of information and communications technology today means that distinctions between the second element and the third have become blurred. In particular, the pursuit of information away from school may assume characteristics associated with the private domain but the use of social media often brings the child into contact with peers. The position taken here is that although the youngster may be solitary in a physical sense (probably in terms of being alone in their bedroom at home), when online and involved with others – either directly through conversation (as indicated in the

example referred to in route f) or more obliquely, via some broader communal information resource to which peers contribute – the scenario becomes an essentially social one.

There are, of course, alternative viewpoints. It may be said that all reading – even that involving a lone individual and a book – is an inherently social activity as it involves a collaboration between the writer and the recipient of their text. The relationship between the two parties is fundamental to reader response theory (Ross, 2005). With respect to children, it is pertinent to note that, in discussing their EXIT (or Extending Interactions with Text) model which they present as a strategy for teaching information skills to primary schoolers, Wray and Lewis (1995) highlight “conceptualisations of the reading process as one of transaction, that is, the active construction of meaning in negotiation with the text as written” (p. 3).

7. Conclusions

In the introduction, two shortcomings were identified in relation to certain longstanding typologies of the information needs of children and young people – they make no allowance for the possibility of movement, and they are dogged by questions of interpretation. The model that has formed the subject of this article addresses both issues: the diagram indicates explicitly the shifts that may take place, with the examples outlining individual instances, and the fact that needs are first categorised unequivocally in terms of the contexts in which they originate mean that semantic ambiguities do not arise.

Although the model owes its origins as much to the field of information science as it does to education, the framework can serve as a useful planning aid for the teacher. It points to the importance of taking a holistic approach to learning and recognising the possibilities that situations outside the classroom offer. Teachers may, for example, seek to motivate children by capitalising in the classroom on interests they pursue enthusiastically in private settings (route a). Project work that allows students to choose their own topics enables them to practise skills in reading, writing and finding information in relation to subjects that hold their attention. In terms of promoting understanding and involved thought, Carmichael (2010) draws on Schiefele's ideas to state, “interest is associated with deeper levels of cognitive processing”.

In taking a constructivist approach to learning, the teacher may also look to build on knowledge that youngsters have already gained (Kuhlthau, Maniotes and Caspari, 2015). Some of this may have originated outside school, perhaps through interactions with their peers (route d) or in a more solitary manner (route a again). Equally, the model emphasises how parents can support their child's education at school by encouraging—in the home and in places such as public libraries—their offspring's pursuit of topics they are enjoying in the classroom (route c).

The model has obvious implications for perspectives on information literacy (IL) instruction. Traditionally, such teaching has emphasised to students the pivotal nature of information skills in achieving academic success. Shenton and Jackson (2007) suggest that, in many situations, this is the most powerful factor in “selling” IL to learners. In instances where youngsters are unconvinced by such arguments, however, it is important that teachers are able to employ strategies which, for some youngsters, will be more persuasive. Demonstrations of the wide-ranging transferability of the value of information skills can be productive. Shenton and Fitzgibbons (2010) indicate that there are children who respond more positively to instruction if

they realise that what is being taught will be useful to them beyond academic contexts. In terms of the model, teachers can discuss with students how information skills can help them satisfy needs that arise in relation to interests which emerge both when they are on their own and when interacting with their peers. Drawing on the ideas highlighted by Webb and Powis (2005), we may say that doing this adds, on the child's part, an element of wanting to learn that supplements the prerequisite of needing to learn.

Conceptually, the model indicates that many needs for information are not static and immutable; they frequently evolve and take new forms. The teacher may have no involvement in this progression. The way in which efforts to find information on a particular matter can result in shifts from one area to another within the overall model is reminiscent of patterns within another structure that has been created to show the development of an information need – specifically a modified Johari Window framework (Shenton, 2007). This was intended to be of help to information professionals, such as librarians, rather than teachers, and it was meant to relate to library users of all ages, but it too has significant implications for work in the classroom, especially when tutoring students one-to-one and rectifying learners' misconceptions.

Declarations

Ethics approval

Ethical review was not considered necessary in alignment with Whitley Bay High School's guidance on the conduct of ethical research.

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