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Pausing at the Threshold

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Pausing at the Threshold

Abstract:

Threshold concepts are increasingly inescapable at library conferences and in general information literacy discourse, and this visibility will likely only increase as they figure so prominently in the Association of College and Research Libraries inchoate *Framework for Information Literacy for Higher Education*. Nevertheless, very little has been done to critically consider the wider intellectual ramifications of certain assumptions fundamental to their manifestation in library/information literacy instruction. This paper is an initial attempt to promote such discussions.

Introduction

Just over a century ago, Dutch anthropologist Arnold Van Gennep published his classic study on the significance of liminal spaces. Thresholds, he noted, are unique in that they are between worlds; as such, they possess a singular power of mediation. Demons can slink through windows, sanctuaries are such only because of their semipermeable boundaries, and territorial borders are obvious loci for special wariness¹. The idea of physical transitional spaces also provides human cultures with a useful metaphor for more abstract or complex passages, such as that between child- and adulthood, or life and death. Another anthropologist, Roy Rappaport, frequently described this function of liminality as the translation of inscrutable, inherently nebulous changes – which he described as “analogic” - into discrete moments, these “digital” versions being easier for tactile humans to manipulate conceptually². According to him, the transitional spaces opened up by various rituals provide platforms on which these transformations can meaningfully occur. Liminal spaces, it would seem, are good to think with.

The psychological force of the threshold has recently materialized in the increasing popularity of what have come to be called “threshold concepts”³. Like liminal spaces themselves, such concepts are said to be gateways or portals between epistemological – and sometimes even ontological – mental or dispositional frameworks. These thresholds cannot be uncrossed: this

permanence is one of the key elements said to characterize such concepts⁴. Unlike more elementary ideas, threshold concepts result in “understanding of other subject discipline ideas integrated and transformed through acquisition of theoretical perspective”⁵. Other attributes of threshold concepts are similarly attractive to educators: a true threshold concept, it is said, needs to be not only irreversible, but also troublesome, transformative, integrative, and bounded within a specific discipline.

The appeal is understandable. Not surprisingly, threshold concepts have recently made their way into the information literacy discourse. Within the short span of a few years, the potency of threshold concepts has already become the intellectual centerpiece of the ACRL’s (Association of College and Research Libraries) emergent *Framework for Information Literacy in Higher Education*⁶ (the *Framework*), currently under construction in order to replace the aging and now unfashionable *Information Literacy Competency Standards in Higher Education*⁷ (the *Standards*):

This new Framework addresses foundational or core concepts in information literacy that coalesce some of the subordinate or more granular concepts and skills usually taught in library instruction; such concepts should position information literacy on a higher plane, as an integral part of the learning process within disciplines, and across them. Such core concepts should address the “bottlenecks of understanding” or challenges that students face in learning to maneuver expertly within the information landscape. These gaps or “bottlenecks” are best addressed through threshold concepts (5).

Guy Walker has pointed out that the relative novelty of threshold concepts presents interesting problems for researchers⁸, not least among which are the rather lopsided prevalence of theoretical over more empirical studies and the lingering fuzziness characteristic of different

definitions⁹. In the context of library or information literacy instruction, published scholarship has yet to fully reflect the prominence of threshold concepts in active discussions¹⁰, but several highly visible studies have already been done. Among the most galvanic of these is undoubtedly the work by Lori Townsend, Kory Brunetti, and Amy R. Hofer¹¹. These authors began (in 2011) to outline threshold concepts appropriate for information literacy instruction and subsequently produced another study (in 2012) which crystallized seven of them¹² (fig. 1). Much of the substance of these two studies has been directly or indirectly incorporated into the development of the inchoate *Framework* (fig. 2)¹³. Despite the prominence of these studies, the thinking behind the identification of these seven threshold concepts has never been addressed, and little criticism seems to have been offered¹⁴.

Figure 1. Townsend, Brunetti, and Hofer: threshold concepts for information literacy.

- Metadata = findability
- Good searches use database structure
- Format is a process
- Authority is constructed and contextual
- “Primary source” is an exact and conditional category
- Information as a commodity
- Research solves problems

Figure 2. Threshold concepts in the ACRL draft *Framework* (as of July 2014).

- Scholarship is a conversation
- Research as inquiry
- Authority is contextual and constructed
- Format as a process
- Searching as exploration
- Information has value

Since threshold concepts figure as the theoretical backbone of a document as paradigmatic and influential as the ACRL *Framework*, it is important that we take time to consider the possible ramifications of predicating our disciplinary conception of information literacy on them. This paper, accordingly, is intended to be one step in a more critical direction within the broader context of information literacy – oriented threshold concepts scholarship.

Foundational Assumptions

The work of Townsend et al. deserves a great deal of credit, and the authors have been very honest about certain limitations in the adopted methodology¹⁵. To gather the necessary data for their final seven threshold concepts, fifty-nine librarians submitted short descriptions of what they felt the most pernicious stumbling-blocks to student understanding in information literacy were. These responses were then “coded” for prominent ideas by the individual authors, who then met to aggregate these codes into themes. These themes were ultimately used to “identify” the seven threshold concepts featured in the study.

The authors note that respondents to their survey questions were likely both self-selecting and similarly acculturated professionally, which could lead to misleadingly consonant patterns in the responses themselves. The authors do not, however, address the most problematic aspect of this very real pitfall. The combination of primary layers of librarian-based identification of students’ conceptual difficulties with the secondary layers of the authorial processes of “code” selection and arrangement means that the threshold concepts presented in the study really amount to the detached, rather highly abstracted products of librarian-on-librarian meta-analysis. This collective navel-gazing is compounded by the apparent models of students and student

attitudes reflected in the authors' citations of librarians' responses. Many seem either blatantly oversimplified or clearly based on clichéd assumptions of student attitudes:

Students generally view research as an information compilation exercise rather than a problem solving venture that uses information as a tool...(401)

Students seem skeptical that learning how knowledge is constructed, recorded, and disseminated is useful to understanding how to navigate the Internet...because they already know "how to use it"...(399)

Students see "the Web" as a giant flat landscape...(397, 398)

Search boxes! They seem to feel that they can pour their hearts out into them and have no idea of separating concepts...(398)

In no case were respondents required to justify their assertions with evidence from published research, or even anecdotally from specific experiences. Certainly, there exist students who may fit these stereotypes quite well, but there are also many for whom none of these negative descriptions would be apt, and likely many more with much more complicated blends of shallow, faulty, sophisticated, and balanced ideas and habits.

Certain subtle elements of the way threshold concepts are discussed suggest deeper, more limiting assumptions are also at work. In both major studies, and in the developing *Framework*, threshold concepts are treated as immanent entities, unique to specific disciplines, and not as essentially contingent phenomena. While the various challenges presented by the general metaphorical apparatus inherent in their presentation are discussed more thoroughly below, it will be noted that an approach founded on the notion that threshold concepts are "out there" to be "discovered" suggests that their identification is less an interpretative exercise than a mining expedition. Even though the authors note that other researchers *might* have arrived at "different conclusions about possible information literacy threshold concepts" (393), this robust possibility

is cleanly dismissed by their assurance of their expertise, developed over “several years” of research, conversation, and presentation (394). This does little, however, to mitigate the problematic treatment of either “information” or threshold concepts as bounded, salient entities existing outside of specific interactions with particular researchers in unique contexts.

Why does this matter? As an illustration, consider a recent study which analyzed the mental models held by low-level composition students and instructors of the research process at Utah State University¹⁶. Though we must be wary of relying too heavily on such a small sample (nineteen students, one instructor), its results are interesting in exactly this regard. Specifically, students (and the teacher, too) tended to describe sources as though they were discrete objects “containing” a “thing” called information. Information, in short, was not approached as something contextual and fluid between writer, searcher and sources, but as a simple commodity to be “located,” “taken,” and “used.” This has clear implications for how students understand the process of research itself. We ought to be concerned about its keystone position in the leading application of threshold concept theory, and by extension, in the *Framework*¹⁷.

Basic assumptions like these create the impression that the threshold concepts “identified” by analysis of librarians’ responses are far from free of teleological interference¹⁸. Considering the overlap in the proposed concepts in both the 2011 and 2012 studies – the first before and the second after data were gathered from which the final seven concepts were said to have been drawn – it is hard to fight the suspicion that this is not far from the truth¹⁹.

Metaphorical Constructions and Assumptions

It would be useful at this point to direct our attention to the threshold concepts already adopted by the crafters of the new ACRL *Framework* (fig. 3).

Figure 3. Threshold concepts in the ACRL draft *Framework* (as of July 2014).

- Scholarship is a conversation
- Research as inquiry
- Authority is contextual and constructed
- Format as a process
- Searching as exploration
- Information has value

These are clearly close to the concepts ultimately recommended by Townsend et al. Here, however, the metonymical nature of the concepts is more readily apparent²⁰. This is prima facie problematic. Even in the case of the second and fourth concepts, which use “as” instead of “is,” it is clear that we are in the presence of metonymy: scholarship is being rearticulated as a conversation; research becomes inquiry; format is to be considered in terms of the process behind it. “Information has value,” which innocuously presents itself as an indication of an attribute, suggests a comparison with other things of value. Additionally, these are no ordinary metaphors: as threshold concepts, these are to be considered fundamental to the practice of information literacy, and thus foci of its instruction. In each case, complex concepts are simplified by their transfiguration into related but essentially simpler phenomena.

The *Framework* is not, of course, to be limited to a simple list of orientational maxims constructed around negotiated threshold concepts. Each draft of the *Framework* has included elaborations on the sense of each of the proposed concepts, complete with skills-based and dispositions-based examples of “literate” behaviors. In several places, the draft authors stress the a-prescriptive nature of the *Framework*, and many of the selected example behaviors seem obviously healthy; who would argue that the ability to, for example, “engage in informed, self-directed learning that encourages a broader worldview through the global reach of today’s

information technology” (*ibid.*, 6) isn’t important? The critical approach employed here might well seem foolish.

Against this, I would suggest that the apparent permissiveness of the threshold concepts-based *Framework* actually obscures major assumptions. The new *Framework* uses threshold concepts to generate “frames,” which can be thought of as modes or registers of information interaction. The language used in the most recent draft deploys “frame” and “lens” nearly synonymously, to refer to certain constellations of information behaviors and ideas. Both words are used to suggest a pre-existing palette of specific skills, which are used as tools in response to specific information needs. In short, we find a hermetic system: information needs are defined by, articulated within, and intended to be resolved by threshold concepts-driven pedagogy. Taken together, this constructs a kind of mythology of information literacy, in which an ideally descriptive model actually creates the world it was meant to try and describe. Perhaps, ultimately, “frame” and “lens” (as used above) can be legitimately compared to “filter.”

Myth can be glossed as a narrative structure (explicit or implied) whose fabric is a weave of metaphor²¹. Myth is meant here to refer, not to a false tale, but to a coherent frame for understanding. Such structural myths are frequently so obvious that they go unacknowledged until their constituent metaphors are articulated. George Lakoff and Mark Johnson’s 1980 book *Metaphors We Live By* is an analysis of common phrases for their inherent assumptions, the structural metaphors that can be discovered within the fabric of (the English) language. Lakoff and Johnson maintain that there are limits to all metaphors, which are only capable of translating certain aspects of anything:

The very systematicity that allows us to comprehend one aspect of a concept in terms of another... will necessarily hide other aspects of the concept...(10)

In other words, any metaphor can only do so much at once. We might add that this limiting effect is necessarily reciprocal: comparisons constrain all participants. The same can be said for the threshold concepts under discussion here. What does it actually mean to say that format is a process, or that research is inquiry? There is clearly truth to these expressions, but how complete, how useful is the aspect being emphasized, especially considering whatever is simultaneously being obscured? These are important matters, as they are foundational to future discourse.

As an example of the difficulties, consider the statement “information has value.” Clearly, this is a true statement, and in some important ways: one quickly thinks of the sham of “net neutrality,” the disputes between publishers and Google and e-book vendors, the dearth of real competition among internet service providers. But things are not so simple, and we ought at least to reflect on the consequences of how we conceptually crystallize “information.” The idea that information is best imagined in terms of a commodity is part of a much bigger complex involving information “producers” and “consumers,” and reflects a highly pragmatic and basically industrial mentality. Beyond the matter of oversimplification, such an unquestioningly capitalist orientation toward information interaction and our duties in stewarding it should raise red flags for anyone who believes that information ought to be free²².

To explore just one more example, let us also consider “scholarship is a conversation.” In a sense, this is quite accurate; in both, ideas are exchanged, engaged, understood or misunderstood, repeated, and these exchanges and changes take place serially, ordered chronologically by a chain of cause and effect. There are benefits to be gained from such a conceptualization of scholarship, not the least of which is that it has potential to make the entire process less intimidating and more familiar to students²³. What, though, might it obscure? How appropriate is the metaphor as a foundational element of how we wish to present information

literacy to students and other disciplines? In which field of study is there ever really a single discursive thread, as “conversation” might imply? The discussion found in the *Framework* seems, interestingly, to stress openness to a multiplicity of perspectives as a major indicator for engagement with this threshold concept. The expert, we read, seeks out a variety, and is not content with simple answers from supposed “authorities.” Laudable, yes; but how aptly is such behavior compared to conversation? We do not converse with the dead – at least, not in the often understood, reciprocated sense – but one of the wonderful attributes of scholarship is that it offers a kind of immortality unattainable in the flesh. Future scholars will be free to rip your arguments to shreds, and you will never have the luxury of a rejoinder. Descartes will never respond to you, but you are free to engage him. And so on. The old metaphor of the Burkean parlor expresses this notion of intellectual exchange quite flexibly, as a shared stage in which ideas outlive their contributors and many branching discussions – or should I write “interactions”? – continuously unfold. Finally, how might the fiction of a “unified” disciplinary discourse interact with the changing nature of canonicity, or the idea of what one “ought” to read in one context or another²⁴? Here, one is implicitly encouraged to stay on topic, read what has already been read (to better understand the conversation and be “relevant”), and thus to keep within relatively narrow lines of thought.

One might continue in this vein indefinitely, but the fundamental point is that these metaphors, and the dispositions associated with them thus far in the *Framework*, are unnecessarily confining and of limited value (and perhaps even stunting) to our conception of what information literacy is, and to students’ overall intellectual development. This sense of restriction and simplification seems somewhat ominous when coupled with the dominant tone of

threshold concept work, which seems usually to suggest, as discussed above, that they exist independently and need only be found.

Methodological Paradigms

In much, though not all, of the literature on threshold concepts, rather exacting criteria are used to distinguish these from more ordinary concepts. In the 2011 and 2012 studies by Townsend et al., the authors note following a rigorous process in eliminating candidate concepts not quite up to snuff, based on the criteria put forth by Jan Meyer and Ray Land's original article (fig. 4). As the authors themselves write, they relied heavily upon the externally-dictated criteria specified by Meyer and Land:

We often found that as we revisited Meyer and Land's position paper to test our ideas according to their definitional criteria, what had looked like a promising threshold concept, wasn't (391).

It was thus assumed that, whatever the threshold concepts for information literacy might turn out to be, they would naturally conform to the definitional criteria originally articulated by those two authors. The fact that this is, again, presented as discovery or identification rather than a process of interpretation or argumentation is hard to swallow. While slightly more loosely presented in the *Framework*, this delineation of threshold concepts' attributes is nearly mathematical in its exactitude, an unusual characteristic for a fundamentally contingent phenomenon²⁵.

Figure 4. Criteria for Threshold Concepts in Hofer et. al. 2012, from Meyer and Land 2006.

Transformative – shift in perspective
Integrative – brings together separate concepts
Irreversible – cannot be un-grasped
Troublesome – often counter-intuitive
Bounded – boundary-defining for a discipline

Let us briefly ferret out some of the implications of this. There is, in the first place, an obvious potential for trouble when we accept the idea that there are certain, specific concepts – and a limited number of these – which ought to form the root of information literacy learning/instruction. Further, when we say that truly vital information literacy concepts must be “irreversible,” for example, we begin to nail down firm parameters for what is actually a rather undomesticable phenomenon²⁶. Beyond the matter of practicality – which is a definite problem for “irreversibility” - is the world of information such a stable place? Has it ever been? How accurate is any single librarian’s (or fifty-nine librarians’) internal map(s) of students’ internal maps of any information context? In using any rigid methodology to imagine our aims, allowing any brittle frame to structure our thinking (and that of our students), we effectively restrict the possible in the face of a wild and unpredictable information landscape.

Shifting the information literacy discourse to the search for and implementation of the “correct” threshold concepts is counterproductive, and amounts to a restrictive methodology. This is not about rejecting, per se, threshold concepts as a notion, or even as one useful strategy for teaching certain *aspects of* information literacy. It is about questioning whether moving from a set of standards to what amounts to a methodology makes sense. The much misunderstood (or, perhaps, under-read) philosopher Paul Feyerabend’s polemics against methodological chauvinism in the sciences – which may be easily extended to any realm of human intellectual

endeavor – disputed, at root, the stifling dominance not just of a single methodology, but also, and perhaps more importantly, the dominance of the *mythos* of any single methodology²⁷:

Every methodological rule is associated with cosmological assumptions, so that using the rule we take it for granted that our assumptions are correct... All methodologies have their limitations, and the only ‘rule’ that survives is ‘anything goes’²⁸.

Townsend et al. note that the *Standards* “do not offer consistent guidance for instructors on teaching priorities” (393), which is another way of pointing out that no methodology is prescribed within them. Rather than a weakness, this can be considered a definitive strength, as it allows decisions of situational importance, relative to individuals and differing educational contexts, to be left to those instructors. The authors of the draft *Framework*, while claiming to “[allow] for varied manifestations of what information literacy means for students, faculty, administrators, and a range of academic specialists” (4), also write that

The *Framework* is based on concepts about the information ecosystem; practices for increasing expertise within it; particular ways of thinking about it and behaving within it; and general strategies for learning from it (*ibid.*).

The operative assumptions here include the singularity of “the information ecosystem” (viz., “it”) and the existence of appropriate “ways of thinking about it” and “behaving in it.” Since the threshold concepts intended to accomplish these are supposed to be flexible, the implication here is that this “ecosystem” is akin to a monolith that can be adequately mapped and even anticipated, and whose complexities can thus be adequately addressed in terms of certain fundamental ideas, ultimately theorized in a different discipline and imported into information literacy as though such a move were natural. In this way, the *Framework* is rather more normative than the “inflexible” *Standards*.

Conclusion: Pragmatics

We should appreciate the spirit of both the application of a threshold concepts approach to information literacy as well as the attempt to incorporate such a conceptually-oriented focus into our disciplinary vision of information literacy instruction. It is because these matters, particularly as they are reflected in constitutive documents such as the *Framework*, are so important that the points discussed above have been raised.

During the informative, but unfortunately far too brief, forum devoted to the developing *Framework* at the 2014 ALA (American Library Association) Midwinter meeting in Philadelphia, a question from one of the participants brought a different perspective on an old problem to mind. The question had to do with, more than anything else, time. How, it was asked, given the already sparse amount of time allotted for library instruction, could the average teaching librarian adequately shift his or her focus to more conceptual matters without sacrificing the basic, but still important, skills-based elements of such instruction? An easy answer to this significant question was not forthcoming.

There is little doubt that re-focusing our teaching on more macro-level information literacy goals is important to both students and librarians alike. Notoriously, however, striking a balance between higher- and lower-order information literacy instruction is far from easy. The sad fact is that, until there is real (read: codified) parity in a sufficient majority of institutions between the pedagogical goals of librarians and traditional teaching faculty, this balance will remain elusive. The majority of academic institutions above the community-college level still rely on the so-called “one-shot” library session, which lasts anywhere from 20 minutes to a few hours²⁹. Even when such sessions are replaced by multiple meetings, teaching librarians must make difficult decisions about what to include within any single session’s scope due to

limitations on time. Within these constraints, it is worth honestly considering how much even basic research elements (such as negotiating a library catalog) can be adequately addressed, let alone higher-level or truly transformative conceptual ones³⁰. This is not an argument for giving up; nevertheless, properly implementing a Framework-style information literacy program, especially discipline-wide, will require librarians and their schools to grapple with thorny issues, such as what, where, and how teaching librarians ought to be teaching and how (why?) such efforts ought to be supported.

For a profession as uncertain of its claim to the status of “educator” as teaching librarians, we often instruct under layers of hobbling circumstances many “real” professors would likely find difficult to manage. Foremost among these, perhaps, are matters of available time and external support. These are closely followed by individual expectations of other faculty involved as well as those of their students. Beyond these, there are also expectations of (or assumptions about) librarians’ roles, which can vary unpredictably from person to person and between institutions. It is not necessarily easy to convince others of the importance – or existence – of our own pedagogical goals.

To do this, we need both robust, creative foundational documents – like the *Framework* – as well as a thriving theoretical discourse. It is with this in mind that the points above have been raised; ideas have consequences, and most of those are usually unforeseen. If we are going to build a framework supple enough to meaningfully flex into the future, we must lay our plans very carefully.

Notes.

¹ Arnold Van Gennep, *The Rites of Passage* (Chicago: Chicago University Press, 1960 (1909)).

² Roy Rappaport, *Ecology, Meaning, and Religion* (Berkeley: North Atlantic Books, 1979), 184.

³ The bibliography of which is fast becoming flooded. Cf., perhaps most fruitfully, Jan Meyer and Ray Land (eds.), *Threshold Concepts within the Disciplines* (Rotterdam: Sense, 2008), though the editors have written on the subject for over a decade.

⁴ Similarly, Van Gennep wrote that a threshold ceremony unites a participant “with a new world” *ibid.*, 20.

⁵ Paul Davies and Jean Mangan, “Embedding threshold concepts: from theory to pedagogical principles to learning activities” in J.H.F. Meyer & R. Land (Eds.) *Threshold Concepts within the Disciplines* (Rotterdam: Sense, 2008), 38.

⁶ Successive drafts have been published since this paper was first conceived of. At the time of writing, the most recent version is available at <http://acrl.ala.org/ilstandards/wp-content/uploads/2014/02/Framework-for-IL-for-HE-Draft-2.pdf>

⁷ Available at <http://www.ala.org/acrl/standards/informationliteracycompetency>

⁸ “A Cognitive Approach to Threshold Concepts,” *Higher Education* 65 (2013): 247-263.

⁹ Walker finds it odd that none of the other available studies has addressed the significant overlap of threshold concepts with the much older Schema Theory, which investigates the creation of “mental templates” from past experiences in interaction with those in the present. In his view, “Whilst threshold concepts can undoubtedly be represented as schema, not all schemas (sic) are likely to be threshold concepts” (*ibid.* 251). This attention to different learning or information use contexts, reminiscent of Gestalt psychology, is one interesting avenue for future investigations of threshold concepts in information literacy learning.

¹⁰ Since the original version of this manuscript was written, the discussion surrounding threshold concepts has intensified, though much of this remains limited to conversations, conferences, and various social media (including blogs).

¹¹ “Threshold Concepts and Information Literacy,” *portal: Libraries and the Academy* 11, 3 (2011): 853-69.

¹² “Troublesome Concepts and Information Literacy: Investigating Threshold Concepts for IL Instruction,” *portal: Libraries and the Academy* 12, 4 (2012): 387-405.

¹³ There are interesting ways to keep tabs on the evolving Framework and the role of threshold concepts within it. Troy Swanson's reliably updated twitter feed (@T_Swanson) is a great hub for news and discussion related to threshold concepts and the Framework, and he is routinely insightful. Candid discussions of the Framework's development are also offered in his recurring guest column at Michael Stephen's tametheweb.com. Additionally, some readers might be interested in browsing the "Team TC" website at <http://www.iltthresholdconcepts.com/>.

¹⁴ Two critiques of the threshold concept craze are especially notable. One of these is by Maura Seale, "Marketing Information Literacy," *Communications in Information Literacy* 7,2 (2013): 155-160. While her criticism is focused on a different set of ramifications entirely than those addressed here, she raises important questions about another, more socially-oriented domain of librarians' assumptions. More recently, Lane Wilkinson wrote an important blog post raising some difficult questions for the emerging threshold concepts-based *Framework*. This is available at <http://senseandreference.wordpress.com/2014/06/19/the-problem-with-threshold-concepts/>.

¹⁵ "Troublesome Concepts and Information Literacy: Investigating Threshold Concepts for IL Instruction," *portal: Libraries and the Academy* 12, 4 (2012): 393ff..

¹⁶ Wendi Holliday and Jim Rogers, "Talking about Information Literacy: the Mediating Role of Discourse in a College Writing Classroom," *portal: Libraries and the Academy* 13, 3 (2013): 257-271.

¹⁷ On pages 5 and 8 of the draft Framework, for example, the authors refer to the ongoing search for and eventual "identification of" the information literacy threshold concepts.

¹⁸ Lest I leave myself open to my own criticism, it should be understood that these critiques are intended to be neither exhaustive nor definitive. Rather, they are presented in the interest of offering as broad and thorough an assessment as feasible within the space of an article.

¹⁹ The authors note that "the data collected [in the 2012 study] confirmed the ubiquity of the trouble spots that sparked our original threshold concepts" (p.393).

²⁰ "Metonymical" in that closely related but essentially different things are brought to bear on one another, or, as it has been technically phrased, the comparisons share a domain (Cf. Javier Herrero Ruiz, "The Role of Metonymy in Complex Tropes," in A. Barcelona (ed.) *Defining Metonymy in Cognitive Linguistics: Towards a Consensus View* (Amsterdam: John Benjamins, 2011), 167-193). These comparisons inevitably oversimplify and ultimately constrain.

²¹ I follow Barthes' view, more or less, as articulated in the 1975 appendix to a reprint of his classic book *Mythologies*, "Myth Today." Here, myth's distinctive characteristic is how it becomes "frozen into something natural" and can confuse interpretative reasons with motivations. The same seem to be happening with the sweeping appeal of threshold concepts' presentation of teaching and learning. Cf. *Mythologies* (New York: Hill and Wang, 2012(1972)), 217-274.

²² I am aware of Jaron Lanier's now famous reversal, but this, too, seems ultimately a pragmatic concession.

²³ Note, too, that such ideas assume "conversation" has an unproblematically clear meaning, functionally identical, for all students.

²⁴ See, for an interesting discussion of this burgeoning problem, Stephen Ramsay's essay "The hermeneutics of screwing around," available at www.playingwithhistory.com/wp-content/uploads/.../hermeneutics.pdf.

²⁵ That is, in the sense that threshold concepts in general and those proposed for information literacy in particular are negotiated, interpretative phenomena (see above). As in the previously discussed assumptions of their independent existence, it is dubious practice to ascribe to threshold concepts an independent, "natural" reality.

²⁶ Additionally, this assumes and/or suggests that different individuals will make pivotal intellectual adjustments in more or less the same ways (or at least, in ways conforming to a predictive, yet artificial, model) and on more or less the same terms, something quite hard to imagine.

²⁷ Feyerabend's arguments repeatedly stress the necessity of violating the assumed incontrovertibles within currently understood models, noting that major progress has always challenged prevailing ideas and expectations. We cannot predict what the information landscape will look like in five years, and the shift from standards to a supposedly more flexible framework may fail to keep pace with emergent developments just the same.

²⁸ *Against Method* (London: Verso, 1980(1975)), 295.

²⁹ See, among many others, William Badke, "Why Information Literacy Is Invisible," *Communications in Information Literacy* 4, 2 (2010): 129-141.

³⁰ Although some studies claim real and demonstrable benefit from such sessions (e.g. Ma Li Hsieh and Hugh A. Holden, "The Effectiveness of a University's single-Session Information Literacy Instruction," *Reference Services Review* 38,3 (2010): 458-473), adequately assessing the fundamental theoretical shifts thought to accompany threshold concepts presents a much more complex scenario.