Reconsidering the Relationship Between Generic and Situated IL Approaches: The Dreyfus Model of Skill Acquisition in Formal Information Literacy Learning Environments, Part I

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Abstract

This is the first of two papers discussing the application of Berkeley phenomenologist Hubert Dreyfus' five-stage model of skill acquisition to information literacy (IL) theory and practice. This paper will review and build on previous discussions of the relation between generic, conceptual, competency-based approaches to IL definition and instruction and what has come to be called "situated" approaches, arguing that both the generic and situated approaches to IL ought to find a place within a complex learning continuum. Dreyfus' model depicts this continuum as one in which learners start out as novice rule-followers and then develop, over time and with guidance from instructors, into experts capable of situated, embodied coping. The Dreyfus model is here put forward as a synthetic approach that can be used by IL theorists and instructors to design curricula aimed at maximizing the learning potential of students in formal learning environments.

Introduction

This is the first of two papers discussing the application of Berkeley phenomenologist Hubert Dreyfus' five-stage model of skill acquisition to information literacy (IL) theory and practice. This first paper outlines the theoretical moves in the early 1980s within the nascent IL field that led librarians to conceptualize disciplinary research expertise in terms of teachable generic skills, and the subsequent critiques of that move by theorists who have attempted to re-place IL and its instruction within the situated context of disciplinary practice. It will then show that as this critique became more widespread throughout the 1990s and 2000s, a question arose about the relationship between generic, conceptual, competency-based approaches to IL definition and instruction and what has come to be called "situated" approaches.

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This paper will review and build on attempts to answer this question and will propose its own answer, arguing that both the generic and situated approaches to IL ought to find a place within a complex learning continuum. Dreyfus' model depicts this continuum as one in which learners start out as novice rule-followers and then develop, over time and with guidance from instructors, into experts capable of what he calls "skillful" "embodied" "situational" "coping" (Dreyfus, 1997). In Dreyfus' continuum, learners pass through 5 stages on the course to expertise: Novice, Advanced Beginner, Competent, Proficient, and Expert. Over the course of their development, learners transition from what Dreyfus calls detached, non-involved, analytic behavior—behavior that depends upon following abstract rules—to contextually situated, involved, intuitive behavior (Dreyfus, 2004; Dreyfus & Dreyfus, 2005).

The Dreyfus model is here put forward as a synthetic approach – that is to say, one which systematically brings together existing approaches – that can be used by IL theorists and instructors to design curricula aimed at maximizing the learning potential of students in formal learning environments. Although many information literacy programs in practice may and often do draw upon pedagogical techniques that correlate with the continuum put forward in the Dreyfus model, it is hoped that the model will help bring these correlations out in systematic ways, as outlined in the second paper, and thereby aid in the development of more deliberate instructional design.

Following Woolwine (2010), these papers rest on the assumption that the way librarians define the relationship between generic and discipline specific IL instruction is central to "the structuring of information literacy education." As Woolwine notes, defining "what types of instructional formats are best suited for teaching information literacy, what forms of collaboration between library faculty and discipline-based faculty should exist, and when in the educational experience information literacy should be taught" depends upon what role librarians give to generic information literacy skills and their impartation in the process of students' development of information literacy behaviors characteristic of disciplinary experts (p. 169).

Historical Origins of the Split Between Generic and Situated IL Skill Acquisition

In 1981 the Association of College and Research Libraries (ACRL) Bibliographic Instruction Section published its "Think Tank Recommendations for Bibliographic Instruction" (ACRL, 1981). Comprised of a number of influential "'first generation' bibliographic instruction librarians," the Think Tank saw its mission as setting out the "most pressing issues" in bibliographic instruction and a general vision for instruction librarians to work from going forward (p. 394). Although the "Recommendations" initially met with a fair amount of controversy (an entire issue of the *Journal of Academic Librarianship* was devoted to debating its merits (Euster, 1983)), one of its central tenets, its view of what "research competence" is and how it ought to be taught, both articulated an already prevalent approach to instruction in the growing BI field and established what has come to be viewed as the dominant paradigm in information literacy learning theory. "Library research competence," the Think Tank wrote,

> has traditionally depended on tacit knowledge acquired through the process of socialization to a discipline. While library use has been studied mainly through surveys and user groups and compilation of statistics on services rendered, the behavior of individual users is still largely a mystery. Instruction librarians should make explicit (and thus teachable) the tacit knowledge of experienced researchers and determine the concepts and techniques which should be taught….All sound instruction is based on the importance of the basic tenets of a body of knowledge; all instruction should be conceptually based. (p. 396)

The Think Tank made a remarkable assertion in this statement, an assertion all the more remarkable given the breadth of its acceptance in the field. In their use of the words "tacit" and "explicit," the authors seem to have been drawing on the work of Michael Polanyi to make a distinction between tacit knowledge, a kind of knowledge that is unconsciously embodied by experts and intuitively performed in situated contexts of practice, and explicit knowledge, or knowledge that has been or can be formally articulated into generic concepts, principles, or rules (Polanyi, 1967).

The claim made by the Think Tank thus painted two distinct pictures about the nature of research expertise in the disciplines and about how novices acquire such expertise. On the one hand, the authors make a nod to a traditionally relied upon method of "socialization" into disciplinary research expertise, what we might call a process of "apprenticeship." In this picture, expertise is a kind of unsystematically acquired "know how" presumably arrived at

over time through a natural form of trial and error undertaken under the guidance of a practicing expert in situations that call for skilled action. Such expertise, the Think Tank seems to believe, is not "teachable."

On the other hand, the authors gesture toward formal learning environments and the kind of learning that takes place in them. In this picture, expertise is something that can be systematically acquired by a novice by internalizing a set of concepts—concepts that can be educed from expert practice, are teachable, and can be taught by those who have themselves mastered those concepts. Expert practice in this picture is highly cognitive in nature, that is to say dependent upon rational decision making according to rules for action that either takes place deliberately or so quickly as not to be noticed.

In short, the Think Tank made the then bold claim that although the practice of academic information seeking and use can be acquired through "socialization to a discipline," techniques comprising research expertise in a discipline could also be abstracted from that practice by librarians and formalized into sets of "teachable" "concepts and techniques." Such concepts, or what we might call generic skills or competencies, could then be taught in formal learning environments outside the context of disciplinary practice by librarians who were not themselves necessarily disciplinary experts. We can see the influence of the Think Tank and the trends it drew upon in the subsequent literature—Blandy and Roberts (1989) would later go so far as to reprint the recommendations in their entirety—and in the general trend over the past thirty years towards the articulation of generic standards and competencies both in the information literacy field (e.g., ACRL (2000)) and in the larger academy which itself has seen an increasing move towards defining generic standards or competencies for higher education learning outcomes (Stoffle & Prior, 1980; Oakleaf, 2011, p. 64).

But as Spiranec and Zorica (2010) note, "The predominant tendency toward defining IL as a set of skills without relating it to particular disciplinary, technological, historical, economical contexts—such as can be found in the widely cited and translated standards of ACRL—has been criticized since the first attempt at defining IL" (p. 143). We can find such critiques in Smalley and Plum's (1982) arguments about the centrality of disciplinary context to bibliographic instruction, to more recent critics today. Over the past several decades, a growing number of theorists and practitioners have argued along with Tuominen et al. (2005) that "information competencies cannot be taught 'for life' independent of the practical domains and tasks in which they are used and that usually involve a complex system of social relationships and work organization" (p. 331). In this view, "needs for information and information skills" must be understood as "embedded" or situated "in work practice and domain-dependent tasks" (p. 330) and information literacy instruction must adopt "a situated understanding of learning and learning requirements" (pp. 330-1).

Even before the publication of the Think Tank's recommendations, librarians were taking issue with this view. Wilson (1979), in her critique of the growing identification of the academic library profession with teaching, and even more explicitly Colin Harris (1980, as cited in Budd, 1984), contrast how being inside or outside the practices that comprise a discipline changes one's relationship to libraries and information use. Failing to heed this distinction, in Wilson's view, can lead librarians to confuse the teaching of the "structure" of a "graphic record" with the "dissemination of a body of knowledge" (p. 155). Harris notes that generic approaches to research instruction could lead librarians to see "information…as being disembodied from the study of subjects, something that can be stored and retrieved." In Harris's view,

The information of a subject *is* the subject. To study a subject is to handle the information of the subject. The study of the subject is the proper place for education about the structure of the subject's information system, about access to the system and about the evaluation and use of the information. User education is therefore the proper province of the subject teacher. (As cited in Budd, 1984, p. 97).

Wilson's and Harris's views are not unique in the history of discussions surrounding instruction in academic libraries. As Gunselman and Blakesley (2012) have shown, the question of instructional boundaries between disciplinary faculty and academic librarians has deep historical roots and continues to prompt discussion. To this day critics from the situated standpoint have argued that generic approaches to IL theory and learning erroneously reify information literacy into a "distinct discipline" comprised of "complex and mechanical skills" that "removes information…from the context in which [researchers]…seek and use that information" (Williams, 2007). For Nichols (2009), such "cognitive" approaches misguidedly "focus on…basic skills" which "put[s] a wall around

library and information use instruction," that is to say, decontextualizes it, "lead[ing] to the isolation of library activities from the related [read 'situated and contextual'] activities that give meaning and value to the use of the library" (p. 515).

As a result of this focus, information literacy instruction has traditionally and mistakenly been seen as the process of teaching "individual minds" (Lipponen, 2010, p. 56) to "perform operations on symbols" (Lipponen, 2010, p. 53) or follow sets of rules to accomplish tasks in a "mechanical or algorithmic" (Meola, 2004, p. 337) manner much as a computer might. Benjamin Harris (2008), criticizing the narrow scope of the ACRL standards, makes a similar point stating that the concept of the "individual learner" is an "illusion" (p. 250). Harris's attitude here seems to be informed by thinkers like Talja et al. (2005) who take as given that the work of various socio-cultural theorists of the 1990s "effectively dissolved the image of the user as a monologic actor…" (p. 86). By "monologic actor," Talja means someone engaged in a practice outside the situated context of the social community engaged in that practice.

Both Hjørland (2002) and Marcum (2002) provide cogent histories, each from a unique perspective, of the origin and limitations of what they both call the "information processing" model within information science and information literacy theory and practice, a model that has led the field to focus on individual learners rather than the disciplinary communities in which learning takes place. Budd (2008), locating himself in the center of this critique, describes generic cognitive instruction as based on a "computational theory of mind," pointing to Karen Macpherson's (2004) information processing model as an example of what he takes to be this misguided approach (pp. 319-320). In Macpherson's view, information literacy consists in a kind of "procedural knowledge"—a number "of routines or sequences for performing a given task" by "following a series of IF…THEN rules" (Macpherson, 2004, p. 335). "Novices," or those new to the procedures that comprise information literate behavior, are typically "slow and deliberate" in the application of these rules, while "experts," in this view, "may not even be aware consciously that they have performed the steps" but follow rules nonetheless. For Budd, "The difficulties that stem from cognition, language, symbols, and intentions"—the context in which information seeking behavior occurs— "militate against any simplistic information-processing model of education" (p. 323).

Skilled information literacy performance, situated theorists argue, ought not be seen as a process of cognitive rule following or procedural "IF…THEN" decision making, but as a kind non-cognitive, that is to say, intuitive or perceptual practice that allows the possessor to make the right moves when seeking, evaluating, and using information in highly specific contexts. In order to facilitate this kind of skilled behavior, they continue, instructors should adopt what Lipponen (2010) calls a "participation framework" (p. 55) for IL instructional design, one that eschews the impartation of decontextualized rules and seeks to immerse novices in communities of practice in order to acquire the kind of IL expertise proper to specific domains.

In point of fact, situated theorists seem to be in many ways right on both of these fronts. "Becoming information-literate means becoming familiar with a community's ways of using and creating information and with its technologies and practices" and coming to "kno[w] the many environments that constitute an individual's [socially shared way of] being in the world" (Lipponen, 2010, p. 60). Information literacy at the expert level—at the level reached through extensive experience of information seeking in situated contexts—manifests itself in a kind of flexible, intuitive performance in which mechanical rules-based thinking typically plays little role (Meola, 2004, p. 337). There is, literally, a world of difference between "acting as" a member of community—having learned the rules of practice—and "being" a member of a community—embodying a practice (Lloyd, 2005a). We must agree with Lloyd that IL is a "critical information practice which is organized and arranged through the site of the social, rather than…a reified and decontextualized set of skills, cast adrift and remote from the discourses and practices that influence and drive human activity and interaction" (2009, p. 252). Situated context, or the disciplinary or practice-based "landscapes" (Lloyd, 2006; 2010b) within which information seeking behavior finds its meaning and purpose, in this view ought to be seen as inextricably bound up with and defining of information literacy skills. As Lloyd notes, drawing on Schatzki (2002), "Being information literate in one context does not constitute being information literate in all contexts, as contexts embrace and entangle the phenomenon [of IL], providing it with its shape and character" (Lloyd, 2007b). Information literate behavior of experts who have acquired the form of life characteristic of fire fighters (Lloyd, 2007a) is something quite different from the information literate behavior of expert ambulance officers (Lloyd, 2009), vault inspectors (Veinot, 2007), nurses (Johanisson and Sundin, 2007), theater professionals (Olsson, 2010), or professional academics (Smalley & Plum, 1982; Grafstein, 2002).

For proponents of the situated view of IL, the benefits of taking such an approach are clear. In addition to leading IL instructors in colleges and universities to develop new pedagogical approaches aimed at equipping students with skills appropriate to situated workplace or disciplinary contexts, it has also opened the door to critical information literacy, or what we might call "transformative" or "emancipatory" (Mezirow, 1990) pedagogies in the classroom or at the reference desk, approaches grounded in the recognition of the socio-cultural forces underlying information production, consumption, and the ideologies that often underlie information literate behavior and its teaching.

As we will see, the general benefits to IL practice brought about by the situated critique has led many to question the utility and place of generic approaches to IL instruction. In the following section, we will consider some of the IL instructional models that have emerged from proponents of situated perspectives and from those who have attempted to incorporate the insights derived from them. It is among these that we will then position the Dreyfus model.

Attempts to Reconcile the Tension Between Generic and Situated Approaches

As the tension between generic and situated approaches to IL theory and instruction practice has become more acute in the field over the past several decades, several styles of answer to the question of their relation have been put forward. Although there has been no systematic analysis in the literature of the kinds of answers IL theorists have given to the question of the relation between generic and situated approaches, so doing can provide us with a clear picture of several distinct models and their practical instructional consequences. We can place these models on a spectrum that spans from the rejection of generic instructional approaches by theorists who find situated instructional approaches more appealing, to those that seek to synthesize the two in different ways. We can designate these models as:

- Fully Situational—models that aim to place or immerse novice researchers in as close to real world research contexts as possible, through which they will develop expert or expert-like skills.
- Distributed—models that seek to distribute instructional responsibilities between librarians and disciplinary faculty, with the responsibility for teaching novice and expert level skills divided between the two respectively.
- Translational—models that in increasingly refined ways seek to continue the traditional work of abstracting expert disciplinary research skills into concepts that can be taught to novices on their way to expertise.
- and Synthetic—models that seek to preserve the distinction between generic and situated skills and learning but that relate them by providing integrated learning experiences through which novices develop expertise.

Subscribers to each of these models of IL instruction see their model as best able to educate students from novice to expert researchers. But each has unique consequences for teaching and learning within the context of formal learning environments characteristic of higher education.

Fully Situational Models

Several authors including Foster (2004, 2005), Markless and Streatfield (2007), Benjamin Harris (2008), and Meola (2004) might be considered as representatives of the "fully situational" model of IL instruction. Foster (2004), whose work on non-linear information-seeking behavior is cited by Markless and Streatfield (2007) as the theoretical foundation for their instruction model, explicitly advocates "revising the teaching of information literacy" "to teach both academic and non-academic, and expert and non-expert information users in a manner that reflects actual behaviors and real-world solutions" (p. 235). To construct a model of how experts across a number of disciplines seek information, Foster interviewed "academic and postgraduate researchers" across the disciplines (p. 230) in order to determine the "activities, strategies, contexts, and behaviors" (p. 229) common to their information seeking practices. The model he developed paints a highly nuanced picture of how experts begin to orient themselves to and develop knowledge about a research topic within the highly situated context of their fields and their places in them. He concludes that at the expert level, "Information seeking…[is]…nonlinear, dynamic, holistic, and flowing" (p. 235).

As Markless and Streatfield (2007) note in their application of Foster's model to undergraduate IL instruction, Foster's non-linear model might better be understood as "non-sequential." Building on that insight, they have developed a "radical student focused" (2007) online learning environment that provides "a framework to support

student choice in learning rather than information literacy teaching" "designed to enable students to get help where and from whom they need it rather than to usher them through a regimented programme of information skills development" (Markless & Streatfield, 2010, p. 149). The learning model for which they advocate, they make clear, moves away from teaching generic, standards-based skills and moves to a more immersive environment in which students are allowed to follow the same "nonlinear" information seeking processes characteristic of the expert researchers identified by Foster. Building on Foster, they believe that the best way to move the individual novice who has not yet entered a community of practice towards expertise is to immerse her within situations that call for information practices characteristic of the domain expert. Other IL theorists have taken this approach as well, including Meola (2004).

While the aforementioned authors offer quite valuable insights and pedagogical suggestions, the fully situated approach leads to instructional designs that start students off in the contexts of experts and leave them to acquire IL skills as they might if left to their own devices, through trial and error, thus missing out on the potential efficiencies afforded by formal, direct instruction. Taken to its practical extreme, the critique of generic skill instruction results in pedagogical approaches such as those advocated by Meola (2004), ones that seek to let students emulate informal learning processes with important, but limited formal guidance.

Distributed Models

As Owusu-Ansah (2004) notes, demarcating roles between librarians and disciplinary faculty to provide students with comprehensive information literacy instruction is a traditional move in the field (p. 5). In his view, Grafstein's (2002) much cited article allocating generic skill instruction to faculty librarians and contextualized IL development to disciplinary faculty "offers nothing new" to the information literacy conversation. However, Grafstein makes clear how understanding the relationship between generic and discipline specific IL instruction in terms of a "division of labor" gives rise to a specific form of IL instruction.

For Grafstein, "the role of librarians" should be "the teaching of generic IL skills" such as mastering the steps of a formal search process: defining an information need, developing keywords, using Boolean logic to formulate searches, using controlled vocabularies, and applying the kinds of "generic critical thinking skills" she sees as common to all research situations (p. 201). Disciplinary faculty, on the other hand, should be responsible for teaching "those IL skills that are embedded within the research paradigms and procedures of their disciplines," in other words teaching students how to think about information and use it within the situated context of the discipline (p. 202).

Grafstein's "division of labor" model informs many faculty/librarian "collaborative" approaches to information literacy instruction across the disciplines. We can see it tacitly at work in many of the collaborative IL models reviewed by Brasley (2008) and several reviewed by Breivik (1998, pp. 57-74). But while it provides leverage for librarians to develop information literacy partnerships with faculty, it also leaves librarians with very little role in the process of educating students into situated IL practices. Although this approach can be scaled up to include "higher order" generic information literacy skills needed for "life-long learning," if not disciplinary expertise, as evidenced in work done by Grafstein's colleagues at Hofstra University (Dolan & Martorella, 2003), Grafstein's approach seems to place librarians in subordinate roles limited to generic skill instruction, roles that potentially reduce the ability of librarians to help educate students as they develop expertise within disciplines.

Translational Models

Translating generic information literacy competencies into discipline specific contexts has been and continues to be a popular approach for librarians seeking to define the relationship between generic IL skills and advanced disciplinary instruction. Various ACRL bodies have been engaged in projects since at least the 1980s that aim to articulate what we might call discipline specific generic skills. This work follows much the same method advocated for by the 1981 Think Tank (e.g., for the field of education alone see Education and Behavioral Sciences Section (1981), (2011), Gratch (1992)).

In recent years, IL theorists and practitioners have engaged in more sophisticated translational attempts. Gordon & Bartoli (2012) document their work integrating information literacy standards into a counselor education program by

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translating IL goals into language proper to the disciplinary standards articulated by the discipline's professional body, and review other work of the same sort. Tyron, Frigo, and O'Malley (2010) have convened disciplinary focus groups on their campus aimed at translating generic information literacy competencies defined by their library into "customized information literacy core competencies" more meaningful to the various disciplinary faculty with whom they work (p. 64).

Woolwine (2010) has added an important theoretical contribution to the conversation by advocating for the refinement of decontextualized rules by translating them into context specific formulations. Taking up the traditional generic skills that comprise information evaluation, he argues that such generic skills really don't exist in the practice of the disciplinary experts he surveyed about such skills. He concludes that the aspects of evaluation that librarians take as comprising the concept—timeliness, authority, bias, etc.—are to a great degree only truly meaningful within the knowledge-base and community of practicing disciplinary experts. From this, he argues, "It follows that any attempt to teach such skills 'generically' would fail to achieve the goal of bringing students to an understanding of the discipline-dependent meaning of the concepts" (p. 180). As such, generic IL skills ought to be taught within low-level undergraduate courses or in course related sessions, depending on the realities of a library's situation, and librarians ought to work with faculty as best they can to help students understand the disciplinary practices that comprise information literate behavior within particular fields. Woolwine calls this a model "of disciplinary knowledge-informed cooperation between library faculty and discipline-based faculty" (p. 183). Such translational work attempts to find a more robust position for librarians in the process of developing student IL expertise, particularly within upper undergraduate and graduate level curricula as students begin work towards increasing professionalization, as Gordon and Bartoli note (2012, pp. 24-26). However, the approach does little to offer a practical model for instructional application—"the structuring of information literacy education" in Woolwine's (2010) terms (p. 169)—beyond the binary roles of providing generic instruction to lower-level undergraduates and serving as an assistant to the work of professionalization fostered by disciplinary faculty in upper undergraduate and early graduate level courses (Woolwine, 2010, p. 183).

Synthetic Models

There have been relatively few synthetic attempts to bring generic and situated skill instruction into systematic relation. Two that can be found in the literature are those of Nichols (2009) and Lupton and Bruce (2010). Nichols (2009) puts forward a model in which students develop in "three directions" (in terms of their IL related actions and products, disciplinary cognition, and disciplinary participation) with instruction taking place in three stages (in a first-year experience course, in an intermediate gateway-to-major course, and in a capstone course). Through instructional modules that draw on both generic and situated pedagogical approaches, students at each level are provided learning opportunities that increasingly refine their understanding of what it is a scholar is expected to be able to do, produce, know, and be. Students are thereby educated over the course of this instruction into what it means to attain "accomplishment of some kind in reading, writing, and critical thinking as well as information seeking, within particular disciplines of practice or scholarship" (p. 515).

Lupton and Bruce (2010) have offered perhaps the most promising model for synthesizing rules-based approaches and situated immersion. They argue that information literacy can be understood in terms of three separate but related skill sets defined from three different perspectives or "windows," as they call them: the generic, the situated, and the transformative. The skills as defined by each "window" are all necessary, but only together sufficient for becoming information literate, they argue, and should not be seen in opposition to each other, but rather as standing in an "inclusive and hierarchical" (p. 6) relationship. In other words, they make the excellent point that generically conceived information skills, skills that would be defined in terms of "observable and measurable" "individual[ly]" attainable "skills and processes" (p. 11), ought to be understood as an integral part of information literacy but subordinate to more advanced contextual and critical aspects that, along with generic skills, make up information literacy as such. IL instruction can and should be designed to provide students with learning opportunities aimed at leading students to a transformative perspective, one that empowers them to participate in a field, contribute knowledge to it, and critique the knowledge generated in it.

What Lupton and Bruce do not offer, however, is a systematic picture of how the hierarchy they posit might inform the scaffolding of information literacy instruction in the formal learning contexts characteristic of higher education across the full development of the learner. In fact, they state explicitly that their model should not be taken as

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advocating for a view of educational or developmental stages that sees information literacy as a process by which students must first acquire lower level (generic) skills and then advance to higher level (situated and transformative) skills (p. 6). Like Nichols, Lupton and Bruce seem to advocate for simultaneously developing students in the three areas of information literacy they identify across all levels of their education. This is demonstrated in the two course-embedded instruction examples they put forward as practical applications of their model.

As will be touched upon in the conclusion of this paper, the intuition underlying both Nichols' and Lupton and Bruce's approaches is in practice right. One is likely to see continuous learning in all the aspects that comprise information literacy when we look at students through the windows put forward by Lupton and Bruce or in the three directions put forward by Nichols. However, by answering the question about the relation between generic and situated instruction in a different way, the Dreyfus model put forth below is able to incorporate the best aspects not only of these synthetic models, but of all of the models reviewed above. In Dreyfus' view, both generic and situated approaches are necessary, but they are necessary at different points in the student's learning process. For Dreyfus, novices must start out with instruction in rules and generic concepts to begin developing a skill. Over time, they develop into experts by being provided with different kinds of learning opportunities that help them progress across developmental stages. In each of the different stages, emphasis is either placed more on generic instruction or more on various degrees of situated immersion until students are at the point where only self-directed situated immersion—real world practice—can help them develop. The relationship between generic and situated instruction put forward by Dreyfus' five-stage model has, like the other models detailed above, practical consequences for the "structuring of information literacy education" (Woolwine, 2010, p. 169). As will be seen, it avoids the subordination of librarians' roles to those of disciplinary faculty by providing anyone with an awareness of the learning experiences that bring about the transition from contextless novice to situated IL expertise a role in designing and guiding students through such experiences.

The Dreyfus Model

Dreyfus' model of skill acquisition began taking shape in the early 1980s as an outgrowth of his research into the phenomenology of embodied skill acquisition and performance and his earlier studies critiquing claims for the possibility of artificial intelligence (Dreyfus & Dreyfus, 1988). First articulated in a report written with his brother Stuart on instructional design in the area of aircraft piloting for the U.S. Department of Defense (Dreyfus & Dreyfus, 1980), his model has since been used to understand and facilitate directed skill acquisition in formal learning environments in a variety of fields, including medicine (Batalden et al., 2002; Thornton, 2010), nursing (Benner, 1984; Benner et al., 2009), dentistry (Reed, 2011), and athletics (Sutton, 2007; Hogeveen, 2011). In LIS and related fields, however, Dreyfus' work has received relatively little attention, mentioned only in a passing footnote by Lloyd (2010a), though receiving fuller treatment by Sweeney (2008) as the theoretical basis of her article on the acquisition of reference skills by librarians.

But Dreyfus' approach should be appealing to situated IL theorists in higher education. In Dreyfus' view, the skilled practitioner must learn and internalize a very large number of responses to various situations that have been presented and have presented themselves both in formal learning environments and through situated practice. This experience then forms a kind of background, an attunement or disposition towards action—what Merleau-Ponty, on whom Dreyfus draws, calls an "intentional arc" (Dreyfus, 2002, p. 415)—within and against which new situations and the actions for which they call come to be seen and felt. Rather than having to deliberate about right courses of action, the skilled practitioner, in Dreyfus' view, simply "sees what to do and does it" without cognitively representing it to herself or making recourse to rule-like propositions to guide her action. The skilled expert is "set to respond" flexibly to situations as they arise (Dreyfus, 2002, p. 421). She embodies the skill.

However, unlike many of the situated IL theorists we've considered, Dreyfus does not reject or even marginalize the "cognitive" picture of skill of acquisition. Rather, he acknowledges that "the tradition has given an accurate description of the beginner" who in fact "calculates using rules and facts" very much "like a heuristically programmed computer" in the early phases of formally learning a skill as an adult (Dreyfus & Dreyfus, 2005, p. 788). But these rules we start out with as beginners, he goes on to say, "seem to give way to more flexible responses as we become skilled" (Dreyfus, 2006, p. 46). "[R]ules," he suggests, "are like training wheels. We may need such aids when learning to ride a bicycle, but we must eventually set them aside if we are to become skilled cyclists....The actual phenomenon suggests that to become experts we…switch from detached rule following to a more involved

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and situation-specific way of coping" (Dreyfus, 2006, p. 46). The "switch," as Dreyfus calls it, crucial in the process of moving from novice to expert, can be understood in terms of the kinds of perspectives a student is able to adopt on a situation, the kinds of decisions she makes based on those perspectives, and the level of emotional involvement—personal commitment—she has to the domain and her own performance within it. Through the accumulation of experience, these aspects—perspective taking, decision making, and involvement—change in quality (Dreyfus & Dreyfus, 1988, pp. 16-51). The five stage model he offers us can help us design scaffolded learning opportunities to facilitate this change in quality in students as they acquire information literacy skills in the classroom and other formal, directed learning environments.

Although the Dreyfus model may look quite individualistic as presented here, thus opening up to critique from the situated perspective, as Erik Rietveld has shown in his work on "situated normativity," skill acquisition for Dreyfus must be understood as taking place within a socio-cultural sphere in which the norms or rules of a particular discipline, craft, or practice are learned in communities with accepted standards and, over time, incorporated, or embodied by the practitioner (Rietveld, 2008; 2010). As such, the model presented should be understood as representing an acculturative process by which individuals come to embody the skills proper to a particular discipline or community of practice.

5 STAGES

Beginner/Novice

For Dreyfus, the novice lacks a perspective on real life situations that call for skilled performance and starts out "detached" from such situations. In other words, the novice does not start out "involved" within real life situations as an experienced member of a community of practice would. She has not yet acquired the experience that allows such involvement. While such a point might be obvious, it allows Dreyfus to find a place for generic skill instruction at the novice level. Thus to begin learning a skill in an instructional setting, Dreyfus argues that the novice should be presented with the "context free features" of the "task environment" that have been taken apart and laid out by an instructor or more experienced practitioner of the skill. These are what Dreyfus calls "domain-independent" or "non-situational" "features" of the skill environment. These features are removed, or "decompos[ed]," from their situational context and made explicit by the instructor because the beginner does not have the experience to recognize them within the sphere of practice or know what to do when such features are seen. Accordingly, the novice is given a set of rules to follow in an analytical, highly cognitive manner when she encounters the features of the task environment (Dreyfus & Dreyfus, 2005, p. 782).

Advanced Beginner

After putting into practice the rules she has been given in real situations, the novice begins to move to the stage of advanced beginner. It is only in practice that the beginner begins "coping with real situations" and "develop[ing] an understanding of the relevant context," typically with the guidance of an instructor who is there to point out important and "meaningful" "aspects of the situation or domain" (Dreyfus & Dreyfus, 2005, p. 783). Dreyfus is here making a distinction between aspects and features. Features, we saw, are those things that can be pointed out to a learner independent of the actual, situated domain of practice and that can be appropriately responded to by following rules. Aspects, on the other hand, are those characteristic parts of a situation that only come to light within the context of real situations or through the presentation of choice examples derived from real situations. They are perceived characteristics of situations that reveal themselves to be important in some way to the practice of the skill.

Given the variety of aspects experienced within the course of practice in real situations, rules covering what to do when one or another aspect of a situation is encountered cannot be given to a learner. What she can be given, though, are general rules of thumb or "maxims" by which she can guide her actions in rule-like ways whenever she perceives salient aspects in real situations. Once having had the salient aspects of situations pointed out to her by a teacher, the student acquires a repertoire of such maxims or rules of thumb, adding them to her collection of rules to guide her as she encounters the features and aspects of real situations demanding skilled behavior.

At this point, the student still has not acquired the requisite experience to form an independent perspective on the situation. She must understand it and make an analytical decision about what to do based on rules (albeit with the

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addition of new rules of thumb), just as the novice. But in the process she is acquiring the kinds of situated experiences that will help her, as she progresses, begin taking a perspective on situations for which she will have individual responsibility.

Competent

As the student continues practicing a skill in the world, she begins to encounter the almost infinite variety of situational contexts in which practice occurs. It becomes impossible, Dreyfus argues, to get a handle on all of the "potentially relevant" situational aspects of a situation. "To cope with this overload," Dreyfus writes, "and to achieve competence, people learn, through instruction or experience, to devise a plan, or choose a perspective, that then determines which elements of the situation or domain must be treated as important and which ones can be ignored." The competent performer will not be able to find rules or maxims "to decide which perspective to adopt" on a situation to successfully cope with it. Rather, she must exercise and develop her own understanding of the situation, albeit analytically since she hasn't acquired the experience needed to see intuitively what needs to be done, and then make a choice of her own that may or may not work out well. In this phase, for the first time, "the result" of the student's skill performance, "depends [solely] on [her] choice of perspective," making her directly involved in the outcome (Dreyfus & Dreyfus, 2005, p. 784). Once she has chosen a perspective, she then has recourse to the body of rules and maxims she has acquired, making a decision about what to do while still in the detached manner of the novice and advanced beginner.

At this third stage, Dreyfus argues, the student has to learn to "take to heart" the successes and failures her actions engender: to take joy in her success and feel remorse for failures. Such "emotional involvement" makes it productively "difficult for [the skillful practitioner] to draw back and adopt the detached rule-following stance of the beginner" (Dreyfus, 2004, p. 268), providing a crucial step forward towards the kind of involved sense of a situation and what it calls for that is characteristic of expertise. She must therefore develop and be encouraged to develop a risk taking attitude and an emotional commitment to the consequences of actions if she is to make progress. If the learner attempts to hang on to the rule following procedure in the face of increasingly numerous and complex situations that call for skilled action, whether because she is inherently "risk-averse" or becomes so by negatively reacting to failure or mistakes, she will become "rigid" and inflexible in her action and revert back to rules stunting her skill development (Ibid).

Proficient

Whereas the competent performer has to "stand back" and choose "plans" of action based on a deliberately chosen perspective on the situation, the proficient performer who enters into situations with embodied, emotional involvement acquired through her previous successes and failures finds that the aspects of situations immediately "stand out as important" and plans of action are "evoked" (Dreyfus & Dreyfus, 2005, p. 786). Unlike the competent performer who has to decide everything—both what perspective to adopt and what rule or maxim to follow based on that perspective—the proficient performer simply "sees goals and salient aspects" of situations not as parts of situations to be rationally considered, but as meaningful wholes. But due to lack of sufficient experience she still does not immediately see "what to do to achieve these goals." She still has to decide on what action will help her achieve her goal by "fall[ing] back on detached rule and maxim following" (Dreyfus & Dreyfus, 2005, p. 787).

Expert

Over time, the proficient skill practitioner gradually acquires a "theory of the skill" that is comprised of situational discriminations accompanied by associated responses—a way of seeing the world in which "reasoned responses" are "replaced" by "intuitive responses." As this switch happens, she transitions into expertise. In contrast to the individual possessed of proficiency, the "*expert* not only sees what needs to be achieved" because of the intuitive perspective she now brings to the situation due to her storehouse of experience. Now "thanks to a vast repertoire of situational discriminations, he or she also sees immediately how to achieve the goal" and no longer must analytically decide on a course of action (Dreyfus & Dreyfus, 2005, p. 787). As Dreyfus notes, in each of the stages prior to expertise, "The performer needed some sort of analytical principle (rule, guideline, maxim) to connect [her] grasp of the general situation to a specific action. Now [her] repertoire of experienced situations is so vast that normally each specific situation immediately dictates an intuitively appropriate action" (Dreyfus & Dreyfus, 1980, p. 12). In other

words, the expert has both the "perceptual repertoire" that gives her an intuitive feel for what the situation calls for and the accumulated experience for the felt consequences of actions such that she is able to act flexibly and responsively in an intuitive, non-deliberative manner to the variety of real situations she encounters.

For Dreyfus, not all expert action is of course intuitive. Experts, just those in earlier phases of skill acquisition, must analyze situations and think about what to do when they find themselves in unusual circumstances outside the sphere of their experience or when problems arise. In other words, experts must make recourse to deliberation and rule-following when problems must be solved. However, having come to embody expertise within the domain of practice, the expert normally responds to situations requiring skilled performance with a responsiveness appropriate to the demands of the situation. Following situated IL theorists, we can say that the expert has fully become a part of a "socio-cultural" or "situated" form of practice or what we might also call, following Savolainen, a "way of life" (Savolainen, 1995) or "life world" (Savolainen, 2008, p. vi).

Conclusion

For librarians, the benefits of adapting the Dreyfus model to IL skill acquisition are manifold. The five stages offer us a refined framework in which to scaffold both generic skill instruction and progressively situated learning experiences, whether through the design of credit bearing courses or through course related workshops or online offerings. As will be shown in the second part of this article, the teaching strategies afforded by both by generic and situated approaches to IL theory and instruction can be contextualized within the skill development continuum of Dreyfus' model and are only limited by the imagination and expertise of the practicing IL instructor. Not unlike Nichols' (2009) model, the Dreyfus model allows librarians to incorporate developmental learning opportunities for acquiring basic skills, disciplinary cognitive development, and the norms of disciplinary participation. The model also allows instructional designers to construct immersive, non-linear learning experiences while at the same time acknowledging the role generic skill acquisition plays in the development of expertise.

In the second paper in this series, I will show that adopting Dreyfus' model allows librarians and disciplinary faculty to take an inclusive yet systematic and organized approach towards the variety of pedagogical methods, learning experiences, and learning theories put forward and drawn upon across the full spectrum of the IL literature. For example, evaluating information at the level of a disciplinary expert can be understood, according to Dreyfus' model, as a highly nuanced "perceptual," "intuitive" act informed by years of situated research experience in a field. But rather than leading us to "chuck" the generic checklists many librarians use to introduce students to the "concept" of evaluating information (Meola, 2004), the model allows us to see generic rules for evaluating information as the equivalent of training wheels needed but for a time. They become an element in an instructional sequence that may be paired with non-linear learning experiences that emphasize the aspects of real situations in which such rules are used (and fall short), problem-based learning exercises that help students later in their development become emotionally involved in the consequences of their self-chosen actions, and finally real-world internships or apprenticeships that lead students towards expertise.

But it bears stating here that the stages put forward here are intended to provide *conceptual* clarity and should not be taken as prescribing an overly rigid framework for structuring temporal sequences in course offerings or other forms of IL instruction, though such sequences may in practice prove useful. Within actual instructional contexts, generic, situated, and transformative learning opportunities should and often do co-occur, given that they are fully distinct from each other, as Lupton and Bruce suggest, only within the context of theoretical abstraction. As Swanson (2006) rightly points out, cognitive development should not be simplistically conceived "in terms of discreet organized growth. Instead, individuals develop unevenly, exhibiting different traits at different rates" (p. 95). Individuals may excel with more proficiency in some areas of the complex set of behaviors that manifest as information literacy than in others. In truth, it would be just as much an error to insist on a series of distinct developmental learning stages as it would be to suggest that there is no place for an approach that systematically scaffolds the kinds of experiences that provide students with both generic and situated learning opportunities.

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