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Writing with Concepts: Communal, Internalized, and Externalized

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From the perspective of writing concepts are most readily identified through conceptual words deployed by writers to evoke conceptual meanings in readers. Although every word has some conceptual weight, this article focuses on words associated with core ideas or classifications or connections of domains of thought—the kinds of terms attended to in the history of ideas that are at the forefront of discussions in disciplines and that undergraduates grapple with. Such concepts are fluid within historically evolving and socially varying situations, and specific conceptual terms circulate within specific epistemic communities as part of specific intellectual practices, associated with specific genres. These domain-specific conceptual terms create challenges of internalization for novices, and become the basis for thought gists of those enculturated into disciplinary ways of thought. In each new communicative situation calling for new statements, however, internal gists must be externalized to create publically shareable articulations of thoughts, undergoing the disciplines gaining the understanding and engagement of readers within the epistemic activity system.

If we are to go hunting for concepts in the wild we can readily find their marks in public, where speakers display them for others. But concepts live in thought, in activated minds solving problems. Although thoughts are elusive and evanescent, sequestered in individual minds, when one mind attempts to activate another we can readily spot the signs at the site of interaction. Even better would be to find the signs of concepts gathered together in structured relation to each other, so we can see how they work in ensemble. Best would be to find durable inscribed traces of these interrelated signs of conceptual thoughts. All this suggests we might seek our quarry in the forums of disciplinary and professional texts. Texts are a primary medium by which individuals articulate and share their concepts within disciplines and professions and by which epistemic communities negotiate, deploy, and store their most elaborated concepts, linked within the conceptual systems of communal intellectual projects. Those inscribed social marks then are available for others to make sense of and internalize as they become cognitively enculturated into the epistemic community.

As writers within academic communities we are the hunted as well as the hunters, for we express familiar concepts and bring new ones into being every time we write. Concepts are remembered and born in pursuit of practical ends of human problem solving that are pursued in every act of writing. Writers and teachers of writing work with words that evoke concepts—concepts they get from others, concepts they attempt to articulate clearly and coherently in their writing, and concepts that they attempt to nurture in the writing of their students. Writers need to learn to use concept words accurately, precisely, adroitly, and forcefully to organize their statements and move the minds of readers.

In this article I elaborate a view of concepts grounded in practices of writing and teaching of writing. This view is attentive to social and historical contexts where writing emerges, particularly the academic and professional contexts where concepts are at the center of the discussion. Because the vitality and meaning of concepts (especially in this article's rarified realm of concepts about concepts) depend on their usefulness for practical ends, it is important to remember that the following thoughts are all motivated by the desire to develop understandings that will help us regulate our practices as writers and teachers.

Whereas considering concepts as psychological or philosophical entities raises unresolved and shadowy questions about what kinds things concepts are, the practical act of writing presents concepts more concretely in the form of conceptual words that writers and readers struggle with. Further, in observing the circulation of texts carrying conceptual terms, we can see how conceptual words mediate the work and meanings of an activity system (i.e., people gathered in an organized set of relations, rules, and practices in pursuit of some object; see Engeström, 1987). The specificity of the conceptual word makes it easier for writers and teachers of writing to consider and discuss concepts.

However, there are limits to how much concepts can be understood by remaining low to the textual ground of words. After all, writers choose words in relation to meanings they hold internally and wish to evoke in the readers—using marks on a page or screen to mediate the semiotic interaction. If significant meanings are to be evoked by the conceptual words, they must engage readers' internal thought process. These internal processes may result only in the rehearsal of well-entrenched meanings or may produce thoughts immediately rejected as passing fancies, not worth entertaining with any energy. But if the words are to have long-term consequence, they must evoke internalization processes that change readers' cognitive and affective landscapes (i.e., the symbols, gists, and emotions individuals have available for their motivated thought at the moment and in the future). Changes in mental landscape make new thoughts possible and may even alter readers' functional systems of perception, self-monitoring, and action, triggering moments of development.

Whatever the processes of internalization may be, these words and the concepts they signify populate our minds as we make sense of the world to address action challenges. The same words also provide means to externalize one's thoughts to engage others. Yet the externalized words of the writer and the reader's meanings evoked by those words depend on each participant's history of engagement with those words within each person's communicative interactions. As we look into these histories we must confront the socially organized circulation of conceptual words and texts, as well as the socially organized activities within which the words are experienced.

WORDS AS CONCEPTS AND CONCEPTUAL WORDS

In a sense, every word is conceptual, as each word evokes a meaning and places what it discusses within the categories invoked by the word. For example, a creature I point to is a dog, a mammal, a terrier, a schnauzer, a pet, a *Canis Lupus Familiaris*—each term evokes a class of creatures, of different level of generality, based on differing principles with different contrast terms. Even such apparently empty words such as *a, the, and, but, here, and there* carry conceptual weight. Even the morphological variations of verb tenses are saturated with conceptions of time.

But in this article I focus only on those particular terms associated with creating characterizations of large classes of things or processes, or providing other high-level reorganizations of material for individuals or groups. In particular, I focus on words associated with core ideas or classifications or connections of domains of thought. These are the kinds of conceptual terms whose emergence might be recounted in the history of ideas or growth of theoretical understanding. These are also the kinds of conceptual words that university undergraduates cope with as they are asked to engage with the ideas presented to them in their academic subjects. In Vygotskian terms, they are the words associated with higher order reasoning and that represent scientific (or disciplined or schooled) concepts and therefore have documentable social histories; such terms put pressure on spontaneous concepts as students struggle to internalize the resources of disciplined concepts (Vygotsky, 1986). Such academic and professional concepts provide the leading edge of attention in disciplinary and individual growth. In contrast, the concepts that arise with general learning of the language are what Vygotsky would categorize as spontaneous concepts. Even though language is learned by engaging in partially ordered, socially available linguistic resources, each person's learning path of exposure and use can be highly idiosyncratic. This suggests why for adolescents (early and late) both in school (secondary and university) and out, discussion is an important part of cognitive development as individuals sort out private views and reformulate ideas within wider communicative worlds—which may include academic and professional epistemic communities or may involve other communities of belief and practice.

I am aware that this identification of concepts creates a fuzzy category, but it captures the kinds of terms people talk about when they say they are working with ideas and theories. The struggle for terms to characterize events, phenomena, and processes is thus a leading activity of epistemic and professional activity systems and their individual participants. Because the university, moreover, is the home to many such epistemic activity systems (along with hospitals, courts, and other institutions relying on professionals) and the place novices are inducted to epistemic practices, such concepts are prominent in academic life and academic communication.

CONCEPTS IN ACADEMIC DISCIPLINES AND PROFESSIONS

These are also the kinds of terms that are likely to be considered by philosophers in attempting to understand concepts. Hjørland (2009), from the practical perspective of an information scientist seeking appropriate knowledge organization systems to guide bibliographic tools, has provided a useful review of the major philosophic approaches to concepts. He finds difficulties in empiricist accounts of concepts, which consider concepts as natural kinds to be revealed if we have enough data correlations, and rationalist accounts that give concepts foundational status by locating them in abstract formal systems. He proposes instead a historicist and pragmatist definition:

Concepts are dynamically constructed and collectively negotiated meanings which classify the world according to interests and theories. Concepts and their development cannot be understood in isolation from the interests and theories which motivated their construction, and in general we should expect competing conceptions and concepts to be at play in all domains at all times. (Hjørland, 2009, p. 1523)

Hjørland further associates this historical and pragmatic view with activity theory, which offers an account of how concepts arise and change within situations. Hjørland's definition fits with how I have seen conceptual terms operate in practice. For example, several years ago I did a small study of how a single conceptual term had different meanings and uses in different disciplines (Bazerman, 1997a). Using the Greenwood *Dictionaries of Concepts* in various fields I examined how the term *myth* was represented in the volumes on cultural anthropology (Winthrop, 1991), literary criticism (Harris, 1992), psychology (Popplestone & Macpherson, 1988) and history (Ritter, 1986). In the field of history, *myth* represents the earliest accounts of events that predate chronicles and the historical record, and thus have the least credibility as historical evidence. The circulation of oral and transcribed myths within historical time (the time for which we have written records) does serve as a fact about the culture (Ritter, 1986). In cultural anthropology the concept of *myth* is usually invoked as part of a general description of a larger cultural system and the mechanisms by which cultural life is enacted (Winthrop, 1991). In behavioral and experimental psychology the term *myth* does not circulate as a significant concept and thus does not appear in the Greenwood series dictionary (Popplestone & Macpherson, 1988). But for other versions of psychology, particularly those related to psychoanalytic practice, *myth* is the product of the human psyche and thus provides evidence about the workings of minds and emotions (Corsini, 1994). In literary criticism the term *myth* surfaces in the form of myth criticism, which traces the appearance in authored, nonmythic texts of items from the mythic literature or from psychoanalytic constructs of myth (Harris, 1992). In each of these fields *myth* appears in different contexts to do different kinds of work, and even indexes different objects, viewed from different perspectives.

If concepts are fluid within historically evolving and socially varying situations, and specific conceptual terms circulate within specific epistemic communities as part of specific intellectual practices, it is appropriate to inquire into the processes by which groups form concepts, aggregate them, and then use them. Further it is worth asking how individuals become familiar with, use, and learn to think with these community circulated concepts and then produce new concepts to enter into communal circulation—that is, we might inquire into the processes of internalization and externalization, and how both lead to dynamism and fluidity in the conceptual resources available to individuals and communities. The rest of this article addresses these issues through reinterpretation of previous studies.

HOW CONCEPTS OPERATE IN DISCIPLINARY AND PROFESSIONAL GENRES

Communications within disciplines, as all communications are, are shaped by genres. A major line of genre theory (Bazerman, 1994; Miller, 1984) has associated genre with phenomenological processes of typification (Schutz, 1967). Genres in this line of theory participate in typifications of communicative situations, motives, and messages that allow us to make sense of the fluid potential of words within various circumstances and that guide us in composing messages appropriate

and effective for our perceived needs and circumstances. Thus it is within genres that conceptual terms are deployed and reside, with particular expectations of which conceptual terms are appropriately found in each genre. We would be surprised to find the conceptual terms from psychiatric case studies in theoretical articles in physics, and we would be surprised to find terms from either in an economic report. Conceptual terms identify the phenomena or objects that are attended to in each genre, along with the procedures by which particulars in the class are to be identified, gathered, and reported. Further concepts identify what can be properly done with them in the course of the operations of the text and how they are to be transformed in the course of the text. Accordingly particular genres are associated with particular kinds of attention, perceptions, and thoughts; consequently practice within particular genres can engage and advance particular modes of thought or cognitive development (see Bazerman, 2008).

The collaboratively produced genre of completed tax form provides a highly explicit example of how representational constraints of genres use conceptual terms to define what appears conceptually and to calculatively reason to produce new conceptual objects. In the United States and other countries with similar income tax codes, on the annual income tax form a person must inscribe oneself as an identifiable financial object (a taxpayer) by reporting one's name and social security (or taxpayer identification) number, which intertextually links the information in this document to information in a number of other government records and reports filed by employers, financial institutions, and other providers of income. By identifying oneself and reporting the income information already received by the government from other sources, one is disciplined into and disciplines oneself into a specific regime of information. Vegetables given to you by neighbor from their gardens, although in theory reportable as a financial benefit, are outside the reach of the intertextual reporting system and in practice escape one's financial identity. Further, to report such gifts, one would have to convert them into monetary equivalents in U.S. dollars, as one would also have to do with income earned in Euros or Rupees, as the logic of calculation requires recognizable entities within a single currency.

The intertextually linked documents from income providers already conceptually identify the income as wages, dividends, interest, capital gains, real estate rental, and so on. Once the taxpayer enters into the tax form the amounts associated with each category of income, he or she must then add and subtract them according to specified procedures, thereby turning all these wages, dividends, rental income, alimony, and so on, into "total income." The total income is then transformed into "adjusted gross income" through further subtractions. "Adjusted gross income" is next transformed through procedures of "computation of taxes," and further recombined with "credits," "other taxes," and "payments" to determine "refund" or "obligation." All these concepts are procedurally defined and algorithmically calculated within the document and related instructions (see Bazerman, 1999, for a fuller analysis). Further, those who work regularly with such forms, such as tax examiners, tax accountants, and tax lawyers, develop specialized modes of thinking and argument, as well as specialized sets of relations to professional concepts and the intertextual system that supports them (see Devitt, 1991).

Similarly, within the world of systematic botany (as reported by Swales, 1998), botanic samples are laboriously and precisely gathered, documented, and classified—establishing some samples as known types and others as representing new species, all according to conceptually defined criteria and procedures. The classification of these samples is then reported in the genres of treatment and monograph, thereby enacting a conceptual system for identifying and distinguishing among samples, as established in the 18th century by Linnaeus.

The importance of establishing useful and accurate concepts for characterizing phenomena is illustrated in the history of syphilis. Only when the concept of a disease entity was separated from the appearance of disease symptoms could serological tests be devised and symptoms at different times be associated as a single disease. Following the conceptual identification of a single disease, the pathogenic agent that infected the body as a whole could be identified and antibiotic treatments developed (Fleck, 1979). Although it took several centuries for the conceptual shifts to occur in the study of syphilis, we have seen recently with respect to HIV a similar conceptual shift over little more than a decade from an identification of an array of apparently separate diseases to a single disease of the autoimmune system caused by an infecting retrovirus with extended latency periods. In such cases concepts evolved hand in hand with research to effectively identify the phenomenon and find appropriate treatment for the newly conceived disease entity.

In physics, as well, there have been numerous cases where anomalous data that did not fit currently accepted theories led to acceptance of newer theories that could account for the data. Kuhn (1962), in fact, posited that the accumulation of such anomalies was the primary engine of conceptual shift and scientific revolution, using the shift from a Ptolemaic Earth-centered cosmology to a Copernican heliocentric one as the prime case. Although Kuhn's more extreme claims of conceptual incommensurability, that is, phenomena, cast in one set of conceptual terms being unintelligible in another remain controversial, there is little doubt that some concepts can provide simpler and more effective accounts than others and that scientists have shifted their theoretical concepts to account for data. One such case was that of Arthur Holly Compton, who initially was firmly committed to classical mechanics but is credited as providing the first persuasive experimental evidence for quantum mechanics. Although light quanta had been proposed by Einstein as early as 1905, from 1917 through 1922 Compton had presented a series of papers attempting to reconcile X-ray scattering data that he and others had been finding with classical mechanics, and he had argued that this reconciliation was possible despite difficulties (see, e.g., Compton, 1919). In 1922, however, in reviewing the history of these experiments, he included and positively evaluated new results based on quantum calculations. Shortly thereafter, to explain even more recent data from his experiments, he published "A Quantum Theory of the Scattering of X-Rays by Light Elements" and disowned his earlier classical arguments (Compton, 1923). The particular data he reported in this article have since been named the Compton Effect (Bazerman, 1984b).

Once quantum theory became the accepted explanation for electrodynamic phenomena, it also became a way of seeing, a way for describing what was seen, and a framework for discussion. This is exemplified by the shift that occurs in the organization of papers on optical spectroscopy in *Physical Review*. Since the discovery of Fraunhofer lines in 1805, the basic task of optical spectroscopy has changed little: measuring spectral lines from a source to identify some characteristics or processes of the source. Before the debates over quantum theory, the structure of optical spectroscopy articles was straightforward—identifying the object to be characterized and the importance of doing so, presenting the methods, and then offering the results in detail, often with little discussion. During an interim period when quantum theory was introduced but not yet fully accepted, articles were organized around theoretical questions using spectral measurements to support discussions of theory. Once quantum theory was accepted as a general conceptual model, however, spectroscopy papers took on a new structure, even though they were still carrying out the classic task of characterizing the lines from an object or event. Articles were framed by quantum theoretical explanations mentioned in introductory parts or discrete sections

immediately after results, before discussion, to identify what had been seen. After 1930, data display also shifted from tables with the numerical values of observed lines to graphic representations of quantum states. In this way concepts can become deeply associated with genres and serve as organizing principles for them (Bazerman, 1984a). Similarly we can see the adoption of certain formats in the experimental psychological article (Bazerman, 1987a) and taxonomies of psychiatric disorders (see Berkenkotter & Ravotas, 1997) as being deeply driven by conceptual commitments about the nature of the phenomena they were characterizing and the appropriate way to see, represent, and reason about those phenomena.

Genres structured by core concepts can also constrain presentation of alternative conceptual views. Conceptual challenge may require disruption of the genre, as Gould and Lewontin (1979) attempted to do in their idiosyncratic article "Spandrels of San Marcos," which argues that evolutionary biology had lost the way proposed by Darwin and had fallen into reductive forms of argument. To take on this task, they had to step out of the familiar generic constraints and intertextual linkages that had come to characterize articles over the last century and had come to ossify conceptual habits (Bazerman, 1993a).

THE EVOLVING CONCEPTUAL STRUCTURE OF DISCIPLINARY AND PROFESSIONAL FORUMS

Even if constellations of genre and concepts have not reached the ossification that Gould and Lewontin attribute to evolutionary biology, they tend to seek static crystallization in integrative, stable theories. Most texts are presented as solving the problem at hand or providing a true and complete account of the phenomena or project represented, but this is only an argumentative fiction, proposing a provisional best account for the moment (Bazerman, 1991). If the discipline or profession is to remain vital, and not be reduced to a set of fixed algorithmic procedures to be carried out by technicians following ancient textbooks, the field must constantly be destabilized by the search for new concepts and new truths. Thus each writer, in seeking to contribute, rethinks the field, its concepts, and its structures of relations as well as possibly bringing new resources to the discussion.

The activities of disciplines and professions coevolve with their concepts, for the concepts direct attention and work, and provide communicative tools for coordinating thought while newly exigent tasks motivate new concepts (see Bazerman, 1987b, 1997b, 2006). The structure of communication and the organization of the activity system also evolve hand in hand with the conceptual structure. Each discipline and specialty has specific forms of argument that are sensitive to the changing social and conceptual structure of the field, as well as to the way in which evidence is linked to the conceptual terms and calculated upon (Bazerman, 1988).

Some fields have strong traditional commitments that hold the core concepts and activities more stable over time, such as law, which in some core concepts, roles, and relations harken back to classic times. Nonetheless, Anglo-American common law has evolved distinct from Franco-Roman law (Tiersma, 2008). There are even differences between British and U.S. common law and differences from state to state in the United States. Further U.S. law is constantly changing as new concepts and principles modify practices, roles, and communication. For examples, the U.S. Constitutional right to not incriminate oneself, through the interpretation of a 1966 Supreme Court case, has been transformed into an obligation of the police to inform suspects of their

rights. The obligation becomes communicatively organized in the stylized “Miranda warnings.” This new obligation has further transformed legal defenses complaining of the absence of such warnings, giving rise to briefs elaborating the obligation, relying on new kinds of arrest narratives.

At the other temporal extreme has been the rapidity of conceptual change fostered by digital technologies. New concepts like *virtuality* and transformed concepts such as *networks* establish new operational consequences, proliferating forums and forms of communication.

Whether slowly or rapidly changing, each of these conceptually saturated fields of practice has high demands on participants if they are to be knowledgeable, skillful, and effective. Participants must be able to articulate phenomena through the lenses of the field’s concepts, calculate and reason through the implied relations of conceptual systems, and understand how deployment of concepts can serve their ends. In short, lawyers need to be able to see, speak, and argue as lawyers in lawyerly situations, which are themselves recognized and constructed in lawyerly terms. That is, they need to learn to operate in a conceptually saturated domain. The social and institutional concepts (of rules, relations, forms, and tools) are as important parts of the field as are the more direct epistemic concepts. It is as much an error to mistake a scientific argument and a scientific colloquium for a legal argument and a courtroom as it is to mistake a law of nature for a law of a legislature.

Consequently skillfulness and knowledgability do not carry easily from one domain to another, even from closely related ones. Sociology, economics, and psychology may report on the same behavior (such as purchaser choice of product) but discipline it into different regimes of conceptually driven evidence gathering, characterization of phenomena, and forms of reasoning. Consequently, communication across these disciplines occurs only with tolerance and charity in respecting each other’s conceptual domains. Even if the fields are as close as toxicology and ecotoxicology, conceptual differences that regulate the work of each field and define appropriate data and phenomena, may make articles in one field irrelevant, or even suspect in the other (Bazerman & de los Santos, 2005). When the fields are at an even greater distance, such as pharmacology and the law, the movement of knowledge from one to the other is circuitous and uncertain, leading to major transformations of meaning (Bazerman, 2009).

LEARNING AND INTERNALIZATION OF DISCIPLINARY CONCEPTS

The specificity of the epistemic and socio-institutional concepts of each domain require that participants new to a field have much to learn and internalize, transforming their points of view as they adopt recognizable perspectives, visibly trustworthy to other participants. These points of view, deployment of concepts, and the presentation of the self through appropriate roles are most visibly and durably displayed in writing. Writing education and adjustment to the writing norms of a profession, therefore, are central sites for learning disciplinary concepts. Research into writing across the curriculum and writing in the disciplines (programmatic attempts to develop cooperation between writing instruction and instruction in the academic disciplines) has begun to reveal the close relationship between specialized academic genres and disciplinary concepts, and how learning in one is intertwined with learning in the other (reviewed in Russell, 1997, and Beaufort, 2008). When students have to work with and represent data through concepts in their writing, they gain operational understanding of those concepts and begin internalizing the concepts into their own development.

Often in the social sciences and humanities students are asked to examine a case in light of specific theoretical principles taught through textbooks or expository articles; the concepts are then used to analyze or explain the particulars of the case, or students are asked to assemble appropriate particulars or examples (e.g., Russell & Yañez, 2002). Typically, in graduate studies students learn to place their experience and views within an organized literature, creating shared disciplinary concepts (Berkenkotter, Huckin, & Ackerman, 1990; Geisler, 1994). In another kind of example, medical students in learning to produce professional communicative genres of case reports learn to focus and refine their presentations of patients and patient data so as to facilitate group problem solving on grand rounds (Schryer, Lingard, Spafford, & Garwood, 2002). Further, as medical and psychological clients become entrained into technical vocabulary, they start to adopt professional views toward themselves (Berkenkotter & Ravotas, 1997; Emmons, 2009).

A series of studies of an evolving introductory course in oceanography has examined the use of disciplinary concepts within student writing to guide gathering and interpretation of data. The initial study established that teachers and students came to define disciplinary knowledge through the everyday practices associated with teaching and learning oceanography, particularly writing (Kelly, Chen, & Prothero, 2000). A second study analyzed the epistemic levels of student papers to determine how students tied concepts to evidence and then compared the results of the analysis with the holistic grading by instructors (Kelly & Takao, 2002). A third study found that although students, graduate teaching assistants, and the professor all recognized that high- and low-scoring papers tied evidence to concepts differently, only the professor could explicitly articulate the argument structure that accounted for this difference (Takao, Prothero, & Kelly, 2002). Two further studies (Kelly & Bazerman, 2003; Kelly, Bazerman, Skukauskaite, & Prothero, 2010) examined the argument structure in greater detail. Successful student authors were found to adjust the epistemic level of their claims to accomplish different rhetorical goals, build theoretic arguments upon site specific data and methods, introduce key concepts that served as anchors for subsequent conceptual development, and tie multiple strands of empirical data to central constructs through aggregating sentences. Also, more successful students were able to maintain conceptual threads throughout their essays through lexical cohesion, deploying higher level and lower level conceptual terms appropriately in the different parts of the arguments.

A different ethnographic study in progress is also providing evidence that students working with specific concepts in one genre can internalize them so that perspectives associated with those concepts can appear in different situations reporting on different events in different genres to accomplish different tasks (Bazerman, Simon, & Ewing, 2012). Specifically, a writing assignment in a teacher education program required teacher candidates to examine the circumstances, motivations, and thinking of secondary school students engaged in hiding-out behavior, that is, behavior avoiding completion of reading tasks (Brozo, 1990). In their completed texts, the teacher candidates characterized the complexity of student behavior with more conceptual sophistication (evaluated by a grounded qualitative set of categories developed for this study) than they had previously done in their work in the program. Of more interest, this conceptual sophistication for the majority of the students carried over to other courses and assignments in the remainder of the program, including classroom discussions and informal blog commentaries. Further, the conceptual change began to occur just before the hiding-out student assignment was due, whereas the teacher candidates were working through the meaning and application of the concept.

FORMULATING NEW EXTERNALIZATION OF CONCEPTS

Identifying processes by which internalized concepts interact and become applied in new situations to reemerge in new statements presents many challenges to the researcher. Not only are these processes played out in the private spheres of individual minds, internalized concepts lose their external representational form (and thus their obvious tracemarks) as they go underground to become internal gists, if Vygotsky is correct (Vygotsky, 1986). Further, if the internalized concept has serious developmental consequences and interacts with other functional systems (i.e., structures of concepts, affects, and mental practices mobilized in addressing problems or challenges—or what might be called purposive structures of thoughts and feelings), it will likely be substantially transformed as it reemerges. It is at this level of interaction of functional systems that serious interdisciplinarity or reformulation of entrained disciplinary perspectives may occur, as structures of thought are reconfigured in engagement with novel situations and problems that call on multiple conceptual resources, perhaps creating a new functional system.

Although I have attempted reconstructions of the growth of innovative and interdisciplinary writers' thoughts throughout their careers (see Bazerman 1991, 1993b), I have found no means to gain empirical purchase on the actual internal processes by which this deep work occurs. Even Vygotsky, when he attempts to characterize the external consequences of inner speech in the last chapter of *Thought and Language*, relies on the testimony of poems (Vygotsky, 1986). Here I present only introspections and theoretically driven explanations as a prod to a further research. I use my introspections because they are available to me and not because my self-knowledge is certifiably accurate or because my experience is either unique or universal.

In a sense, any form of writing responsive to its situation involves some externalization of previous linguistic tools in ways prompted by the situation, even if it is only to repeat prior formulations of authoritative others, apropos to the moment. As Bakhtin (1981) noted, we use received language but to our own purposes. Moreover, any fresh formulation, putting together words, phrases, and sequences of sentences not previously seen or heard by the writer, involves a deeper externalization, as the writer must convert meaning gists into publicly shareable thoughts by reformulating the linguistic repertoire the writer has at hand through prior social transactions. This reformulation undergoes a public discipline, requiring that the externalization be intelligible to others.

Especially if the concept has great novelty (and therefore is not readily conceived by the reader) the writer has to work to evoke presence, meaning, and value for the expressed idea within the reader's thoughts with sufficient force to engage continued grappling with the idea, even if the conceptual word does not evoke reader's meanings fully consonant with the writer's thought. Unless the formulation meets these conditions, it is just an evanescent verbal figure, having little more power than the passage of random signs before the eyes of inattentive daydreamers. Indeed much of the verbal/symbolic production in the world suffers the fate of inattentive or shallow processing, exciting little conceptual weight or novelty. People construct the meaning of their reading from what they know and think already, and in reading they will attempt to normalize the meaning to already familiar thoughts and contents. So a writer's search to get the serious attention of readers in ways that will interact positively with their cognition and dispositions while still conveying novelty is a serious social and literate discipline.

As a writer, once I have identified the problem space I am working in, the kind of document I am heading toward creating, and the most immediate relevant resources that need to

be examined, I often rely on deeply internal formulation processes. I locate and trust mental spaces of concentration that allow me to hear the spontaneous bubbling up of ideas from beyond the edges of my consciously calculative mind. Then I give those bubbling thoughts linguistic shape as they emerge. Even though these thoughts seem spontaneous and associative, they reflect underlying organizations and syntheses of material I have read, experienced, and thought over years, so that I have the sense I am walking through familiar landscapes of organized concepts with a sense of the place I am heading toward. I may not, however, be able to articulate the connections that get me from one place to the next or the end point of the journey until I can sort through what I have put on the page. The spontaneous expressions almost always factor in my memory traces of the reasoning that I have previously gone over as well as memory of texts I have read—but my mental gists seem to add these up and push them forward toward fresh articulation relevant to my current task, often surprising me in their formulations and implications.

Even for ideas I have previously articulated and for which I have ready-made formulations, the particular force and gist that drive me at any moment lead me to reinspect my familiar terms and phrases so as to choose or modify them deliberately rather than treat them as premade plug-ins. When working with more proximate or predetermined materials, such as describing historical materials, reviewing a limited set of articles, or making an institutional argument based on a small domain of legitimate sources and topics, I still rely on internal impulses to select and direct the writing. The words I gather to articulate these impulses gives me something to select from, edit, tighten, and make more forceful; they also give me further objects to contemplate, pushing my thinking forward and suggesting new thoughts that bubble up. In consciously inspecting the text I have produced, I also evaluate what is sustainable for the audience and whether I can give a reasonable account of the relations of the concepts appearing in a text. In short, the conceptual impulses often come from deeply internal places, but then develop clarity, force, and public presence as they are disciplined by linguistic form and the strictures of coherent reasoning, accessible and persuasive to others.

Writing and the Externalization of Thought

Although these processes of externalization are murky, they are at the heart of writing, particularly the kind of writing fostered at the university—bringing concepts into articulate and reasoned being, informed by reading, evidence, and experience. The resulting statements, disciplined by the strictures of reasoned and precise language and accountable to evidence and theory, then take a position in the complex public landscape of other disciplined statements of a field to create structured constellations of concepts. The communal growth of knowledge, reason, and action develops out of the creative actions of individuals participating in and contributing to communal resources.

Gists first form into expression on the internalized playing field of thought, where spontaneous impulse is integrated with and positioned in relation to organized public concepts. So although internalized thought and self-regulation may follow the Vygotskian path of intermental to intramental, the consequent path of expression is from intramental to intermental—creating a loop of individual and group development. To be relevant to communal reasoning processes, individuals' externalizations of thought need make visible some new evidence, concepts, or phenomena

that change the communal symbolic landscape. In this way the concepts and reasoning of a field are not a stable structured object, nor are the relations in a field fixed in a stable pattern. Rather they are structured, in Giddens's (1984) terms, by the ongoing participation of individuals who constantly remake the social and intellectual structure through their communicative actions in ways that articulate with their colleagues' constructions, in a process Prior (1998) called writing/disciplinarity.

Concepts dynamically move in and out of minds, crystallized in words that mediate the activity and meanings of social groupings, to be constantly reformulated in each interaction. This understanding of concepts is of practical interest to all writers who wish to reflectively improve the effectiveness of their writing and to all teachers who wish to advance the intellectual capacities and practices of students so they can more fully participate in the work of their societies. The understanding presented here, as I noted at the beginning of this article, was in fact purpose-built for the practical needs of writing and the teaching of writing, as all concepts are purpose-built or deployed for problems that face individuals and societies. The work of writing teachers and all teachers who mentor students into becoming disciplined and creative thinkers and writers (i.e., every instructor in every subject who assigns a challenging writing task) is to help students internalize disciplinary concepts and externalize disciplined thoughts. Their task is to help students locate conceptual expressive resources in the self and bring them into the world of public concepts at the same time as helping them integrate more disciplinary materials more deeply, so that their conceptual well-springs grow. We support students in learning to develop and express concepts—that is, to write with intelligence. Whether this particular set of concepts about concepts will be useful for other domains and other problems and with what reformulations will be for others to determine.

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