

## CHAPTER 2

# THE EVOLVING RELATIONSHIP BETWEEN COMPOSITION AND COGNITIVE STUDIES: GAINING SOME HISTORICAL PERSPECTIVE ON OUR CONTEMPORARY MOMENT

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In *Naming What We Know: Threshold Concepts of Writing Studies*, Howard Tinberg (2015) makes an important distinction between cognition and metacognition, especially significant in light of composition's recent focus on the transfer of learning, which scholars largely agree, depends upon metacognition. He explains:

cognition refers to the acquisition and application of knowledge through complex mental processes . . . but the effective accomplishment of writing tasks over time requires even more. It calls upon metacognition, or the ability to perceive the very steps by which success occurs and to articulate the various qualities and components that contribute in significant ways to the production of successful writing. (2015, p. 76)

If we parse the tasks Tinberg names here, he describes cognition in terms of the acquisition and application of knowledge while metacognition, which is also defined by acquisition and application, additionally involves perception and articulation. Although composition's focus on metacognition is fairly new, since its inception, composition has been interested in cognition. Looking closely at the discipline's history, we can better understand the role that cognitive studies has played in the field and how an initial interest in cognition ultimately developed into a focus on metacognition. Taken together, the disciplinary-defining moments explored in this chapter represent important historical antecedents to

the field's contemporary research on transfer and metacognition, as well as its most recent turn back toward questions surrounding individual cognition. After decades of privileging sociocultural approaches to understanding and teaching writing, the last few years have seen an increase in the number of studies that explore how individuals' dispositions affect the transfer of writing knowledge. This chapter ultimately argues that this reintroduction of studies of individual cognition is an important way of enriching discussions of transfer, but must not overshadow or forestall the work that still needs to be accomplished through more socially inflected studies of transfer. As such, after exploring composition's historical relationship to cognition, this chapter recommends the adoption of David N. Perkins and Gavriel Salomon's (2012) detect-elect-connect model of transfer because it highlights where dispositions are most important in the complex process of transfer, and it does so while also considering the importance of context.

## THE 1960S: COMPOSITION CALLS FOR THE STUDY OF THE "PSYCHOLOGICAL DIMENSION OF WRITING"

The field of composition is often traced to 1963 (Bridwell-Bowles, 1989; Crowley, 1998; North, 1987), a watershed year wherein the Conference on College Composition and Communication's annual meeting shifted its focus to the relationship between composition and rhetoric, accounting for what some called the revival of rhetoric. That same year saw the publication of far-reaching and influential studies such as Albert Kitzhaber's (1963) *Themes, Theories, and Therapy* (1963) and Richard Braddock, Richard Lloyd-Jones, and Lowell Schoer's *Research in Written Composition* (1963/2009). The latter, more commonly called The Braddock Report, provided an overview of 485 research studies on writing and laid the groundwork for the founding of *Research in the Teaching of English* (RTE), which remains the flagship research journal of the National Council of Teachers of English.

*Research in Written Composition* was arguably the most influential publication within the field in the 1960s and, thus, offers an early artifact that allows us to begin to understand composition's longstanding relationship to cognitive studies. As is well-known, the committee, led by Braddock, was charged in 1961 to investigate "the state of knowledge in composition." One of the studies the committee examined was John Andrew Van Bruggen's (1943) "Factors Affecting Regularity of the Flow of Words During Written Composition." Braddock et al. explain that it "probes into the psychological realm underlying or accompanying the act of composition" (1963/2009, p. 31) and that this study, among others, suggests "that the psychological dimension of writing needs to be investigated"

(p. 31). These are descriptions that offer important insights into composition at the time, a point to which I will return after describing the study in more depth. In this study, Van Bruggen measured the flow of junior high school students' writing using a kymograph in order to determine "how the composing structure—that is the number, length, and location of pauses between words—differs in compositions of superior and inferior quality and in compositions written with rapid and slow flow of words" (as cited in Braddock et al., 1963/2009, p. 31). Although the Braddock Report does not use the term "cognition," its description of the study's psychological underpinnings, as well as the report's call for more work in this vein, indicate the field's initial interest in the relationship between writing and mental processes. However, a closer look at this early conceptualization of this relationship reveals that understandings of the relationship between writing and the mind are rather undeveloped. As indicated above, the "psychological realm" is said to "underlie" or "accompany" the act of composition. I would argue that the "or" here is indicative of the committee's uncertainty about this relationship in that the psychological elements may reside somewhere below the surface of the writing process or alongside it. In fact, amidst all of the factors that Van Bruggen studies as affecting the rate of flow—including compositional, academic, personal and environmental factors—it is not readily clear which factor Braddock and his committee are deeming psychological in nature. An educated guess is that the "psychological realm" refers to the "personal" factors affecting the rate of flow since the other factors are largely external. In his conclusion, Van Bruggen describes the effect of personality on writing and, by extension, on teaching:

The problem of personality development cannot be divorced from teaching. The dominating, extrovertive, and emotionally stable pupils wrote with a rapid flow of words while those with introvertive tendencies and lack of emotional balance paused often and long during composition writing. It is evident that something must be done for the latter group to give them more confidence and place them more at ease if they are to use their abilities to the best advantage and show improvement in composing rate. (1943, p. 154)

Although this is arguably an early iteration of the importance of studying the effect of (what are now called) dispositions on the learning and transfer of writing knowledge, Braddock et al.'s description of the study as psychological in nature and the trouble the committee has describing the relationship between writing and the mind suggests that composition needed to refine its understanding of writing's relationship to individual cognitive processes.

Moreover, it would also need to clarify how those cognitive processes are affected by a range of both internal and external factors. In fact, Braddock et al. go on to call for the use of case studies and longitudinal studies to showcase the effect of “individual differences” on writing (1963/2009, p. 32). But, as Braddock’s committee notes, before composition teachers can conduct these kinds of studies, “they must learn how to do so” (1963/2009, p. 23). As described in the next section of this chapter, Janet Emig (1971), among others, would undertake this work. These scholars borrowed concepts from psychology that would allow them to address the individual differences—cognitive and otherwise—that their students exhibited.

### **THE 1970S AND 1980S: THE ROLE OF COGNITIVE STUDIES IN PROCESS THEORIES OF WRITING**

Although in the 1960s the Braddock Report anticipated the benefits of exploring what it called the psychological dimensions of writing—seemingly defined by how students’ personalities affected their compositions—in the 1970s and 1980s, composition moved toward explorations of cognitive psychology. Cognitive psychology had methodologies that seemed conducive to studying something as complex as writing. Moreover, methodologies such as think-aloud protocols, protocol analysis, problem-solving models, case studies, as well as longitudinal studies—all methods used in that field—seemed far more legitimate than those employed in the studies described in the Braddock Report. These approaches were also more conducive to studying processes rather than products, which, of course, the field was moving toward, as well.

Composition’s focus on the writing process—and later and more accurately—on writing processes, was initially encouraged by Janet Emig’s groundbreaking decision to concentrate her research not on students’ compositions, which had been the focus of the Van Bruggen and other studies— but on the process of writing. Rather than defining writing as a method of transcribing one’s ideas, Emig’s (1971) study, *The Composing Processes of Twelfth Graders*, described writing as integral to those ideas. Emig suggested, in other words, that writing allowed one to discover, to develop, and to shape ideas. Emig (1977) would go on to publish “Writing As a Mode of Learning,” which was heavily influenced by Carl Bruner’s work in educational and cognitive psychology, as well as the process movement in composition. This shift in focus away from product and toward process offered a critique—if not rejection of—“traditional, product-driven, rules-based, correctness-obsessed writing instruction” (Tobin & Newkirk, 1994, p. 5). Because of early process theorists such as Emig, students’ writing processes supplanted attention to their written products as “students themselves,

rather than the texts they produced, became the locus of instruction” (Crowley, 1998, p. 202). The field of composition, in other words, began studying the “individual differences” (Crowley, 1998, p. 32) among student-writers that the Braddock Report anticipated would be so crucial to explore.

This new focus on students’ processes meant that if compositionists were going to study the cognitive aspects of writing they needed to reimagine their object of study. No longer were students’ final compositions thought to provide the insights they once had. Studying students’ writing processes, instead, allowed compositionists to better understand and target students’ difficulties, particularly important as America saw unprecedented numbers of students attending postsecondary institutions in light of changing admissions policies. In 1970, for example, the City University of New York (CUNY) adopted an open admissions policy and saw enrollments “jump from 174,000 in 1969 to 266,000 in 1975” (Shaughnessy, 1977/2009, p. 387). As Shaughnessy explains, in addition to the newly adopted open-enrollment policies, “many four-year colleges began admitting students who were not by traditional standards ready for college. . . . In some the numbers were token; in others . . . the number threatened to ‘tip’ freshman classes in favor of the less prepared students” (1977/2009, p. 387). This change in the student population would necessarily have a profound effect on writing instruction as “academic winners and losers from the best and worst high schools in the country, the children of the lettered and the illiterate, the blue-collared, the white-collared, and the unemployed, some who could barely afford the subway fare to school” (Shaughnessy, 1977/2009, p. 387) all sat side by side—or more accurately—were immediately given placement exams and separated into different classes since their preparations were so uneven.

These uneven preparations resulted in the development of basic writing programs across the country, and the changing face of the college student suggested the need to study and compare the composing processes of inexperienced and experienced writers, which Linda Flower and John R. Hayes, among others, did by drawing on cognitive psychology. In fact, their own model of writing as a problem-solving activity was borrowed, in Hayes’ words, “quite directly” (1992, p. 11) from cognitive psychologists (and colleagues at Carnegie Mellon) Allen Newell and Herbert Simons’ “general problem solver (GPS)” concept (as cited in Vipond, 1993, p. 128). Researchers like Flower and Hayes believed that rather than prescribing the writing process, they could study the mental moves that experienced and successful writers made throughout their writing to develop cognitive models of successful writing processes. They could then translate those models into pedagogies to assist the poorer, less experienced writers. Flower and Hayes’ conceptualization of writing as a form of problem-solving laid the groundwork for the field’s current discussion of the effect of “prob-

lem-exploring” and “answer-getting dispositions” on students’ transfer of learning, discussed below.

Flower and Hayes’ scientific approach, which studied the act of writing as a problem-solving enterprise led others to do the same. This work, however, incited debates within the field. Although the Braddock Report called for more scientific approaches, the field’s borrowing of concepts and methodologies from cognitive psychology was publicly rejected by Ann E. Berthoff (1971), for example, whose exchanges with Janice Lauer were published in *College Composition and Communication*. Favoring hermeneutically oriented approaches to understand the writing process rather than empirically oriented ones, Berthoff warned the field, “When we make problem-solving central to a philosophy of education we effectively separate learning from knowing: the results are philosophically disastrous and politically dangerous” (1971, p. 240). Lauer (1970), on the other hand, contended that “unless both the testmakers and the teachers of composition investigate beyond the field of English, beyond even the area of rhetorical studies for the solution to the composition problem, they will find themselves wandering in an endless maze” (p. 396). Robert Connors (1983), like Berthoff, was vocal about what he saw as a mismatch between composition and science: “We are not a science and will not be one in the foreseeable future, and we must beware lest our understandable desire to share in the cachet of science lead us to a barren enactment of imitation science” (p. 19). Through the 1980s, compositionists like William F. Imscher (1987) remained unconvinced of the uses of science to composition: “We need to reassert the humanistic nature of our own discipline, which in this context means its concern for the individual as a human being, not as a quantity or specimen” (p. 85).

Others within composition had different criticisms of this scientific turn. Although the initial Flower-Hayes model (1977) was a “breakthrough in describing how the three key recursive cognitive processes involved in writing (planning, translating, and reviewing) interact within the constraints of memory and the task environment” (Berninger, 2012, p. 221), Patricia Bizzell (1982/2009) and others would go on to critique its incomplete approach to studying writing because it ignored “the social context afforded by recognition of the dialectical relationship between thought and language” (p. 486). With the major shift in the student population, differences beyond degree of experience, including class, race, and gender were becoming obvious, and generalizations based on case studies of experienced and inexperienced writers—with no acknowledgment of other differences—were becoming suspect. By the beginning of the next decade, studies on individual cognition were met with criticism in favor of studies that took into account writing’s social dimensions. This new paradigm,

later called the “social turn,” removed the writer (and her individual cognition) from isolation, situating her, instead, as a social being affected by cultural, political, and social forces.

John Trimbur (1994) describes this turn as characterized by a representation of “composing as a cultural activity by which writers position and reposition themselves in relation to their own and others’ subjectivities, discourse practices, and institutions” (p. 109). Cognitive approaches that focused on individual students’ thinking and writing processes were no longer sufficient now that other differences among students had been exposed so dramatically. Lillian Bridwell-Bowles (1989) explains this shift:

We needed a theoretical foundation for our data, one that drew from philosophy, critical theory, sociology, and politics to account for the writer at work within a larger socio-political-philosophical matrix. The whole field of composition studies ha[d] shifted its interest. . . . methodologies shifted from experiments or clinical observations, cloaked in the respectability of “objectivity,” to narratives and complex ethnographies. (para. 10)

The shifts in focus and methods Bridwell-Bowles describes just above would potentially allow compositionists access to the range of factors and elements that shaped students’ consciousness and subjectivities, and, therefore, access to their writing and thinking despite the differences among students and contexts.

Although the field remained somewhat polarized between those who thought that empiricism and methodologies from cognitive psychology had a lot to offer composition and those who wanted to define composition on its own terms, this was a moment in which composition sought to integrate cognitive and social theories of composing. Compositionists such as Flower began employing what they called sociocognitive approaches that valued individual cognition, but also considered the social (and other) contexts that condition individual cognition. In 1989, recognizing the importance of the social nature of knowledge, Flower described this new integrated theory as a means to “explain[ing] how context cues cognition, which in its turn mediates and interprets the particular world that context provides” (p. 282). Before attention to individual cognitive aspects of writing would largely disappear as the social turn gained momentum and the field moved toward cultural studies, many scholars (Bloom, 1986; Brand, 1987; Brandt, 1986; Larson, 1985; Schoenfeld, 1983) developed studies that sought to synthesize cognitive and social constructivist methodologies.

Social constructivist approaches to studying and teaching writing would ul-

timately dominate before giving way to other more politically inflected theories of writing and teaching writing. During this period, psychology, and particularly cognitive psychology, was not as germane to the work of composition. It would not be until a decade or so into the twenty-first century that composition would again begin to see a proliferation of scholarship drawing on cognitive studies, and specifically cognitive psychology, as composition turned its attention to the transfer of learning.

## **FROM COGNITION TO METACOGNITION: TEACHING FOR TRANSFER IN THE TWENTY-FIRST CENTURY**

Transfer is a concept that has been studied for years by educational and cognitive psychologists, only recently becoming an interest of those in composition. Compositionists most often rely on educational psychologists Perkins and Solomon's (1992) conception of transfer, which they describe as "instances in which learning in one context or with one set of materials impacts on performance in another context or with other related materials" (para. 1). Although as early as 1908 educational psychologist Charles Judd's experiments showed that transfer was, in fact, possible, it would take until very recently for those in composition to ask: "If transfer is possible are there ways we can teach writing to promote transfer?" One of the answers to this question is that teaching writing with an emphasis on metacognition can help facilitate transfer.

As the opening to this chapter reminds us, though, metacognition and cognition are not the same. The contemporary emphasis on metacognition, as opposed to cognition, underscores the influence of social constructivism as the field's interests now lie in how contexts—disciplinary, generic, cultural, among others—don't just cue individual cognition but challenge the very concept of individual cognition as something separable from its surrounding contexts.

With the field's emphasis on context came the rise of WAC and WID programs, which depend on a conceptualization of writing not as a general skill, but one that is context-specific. These programs highlight the role that disciplinary conventions, context, genre, and audience play in effective writing. Still, as WPAs and others began assessing these programs they found that students were not transferring what they were learning in lower-level writing courses to other courses. Anne Beaufort (2007) and Elizabeth Wardle (2009) both found in their research that even when students described their first-year writing courses as valuable, they were largely unable to imagine how that writing connected to other courses. For example, Wardle (2009) explains that students "did not appear to make even near connections of those skills, much less transfer those skills to very different contexts . . . no students suggested they were being asked to



write a persuasive paper in order to be able to write persuasively in other courses” (p. 777). While Wardle followed students during the course of their first two years in college, Beaufort followed a single student throughout his entire college career, ultimately concluding that his early writing courses did not prepare him to succeed in later writing courses he took within his majors. Gerald Nelms and Ronda Leathers Dively (2007) at Southern University of Illinois at Carbondale studied the extent to which students transferred writing skills and knowledge from their general, first-year writing courses to their writing-intensive courses in their majors. Ultimately, they found that a great deal of what was covered in the introductory courses was not transferring to the upper-level courses, thereby creating a significant “disconnect” between the lower-level courses and the upper-level courses.

Here again, cognitive (and educational) psychology proved useful in describing precisely what was prohibiting this transfer. It was not that the students lacked certain cognitive abilities. Instead, students lacked the metacognitive abilities that allowed them to abstract and generalize concepts from one course (i.e., context) to use them in another course (i.e., context). As the definitions that open this chapter suggest, metacognition is more complex than mere cognition. One way to imagine this complexity is in terms of how the various facets of memory work. Metacognition depends upon “external cues to trigger retrieval processes in long-term memory, so information about a thinking skill can move into working memory, where it can be consciously considered” (Halpern, 1998, p. 453). This chain of events, though, is complicated by the fact that there are no “obvious cues in the novel contexts that can trigger the recall of the thinking skills” (Halpern, 1998, p. 453) that would allow the transfer of knowledge into that new context. In a classroom setting, students, themselves, become responsible for creating “retrieval cues from the structural aspects of a problem or argument, so when these structural aspects are present in the novel context, they can serve as cues for retrieval” (Halpern, 1998, p. 453). Creating these retrieval cues is not an easy task, and in his chapter in this volume, Marcus Meade points out some of the problems posed by a way of learning that depends on cognitive dissonance.

Despite the challenges that Meade describes, compositionists continue to recommend pedagogies that emphasize metacognition in order to help students anticipate future uses of what they are learning so that they can make the sort of connections that Wardle, Beaufort, and Nelms and Dively found were absent. These pedagogies also cue students to draw on prior knowledge that might be useful in the current context. Wardle and Downs’ “writing about writing” pedagogy depends upon students using their metacognitive abilities to generalize what they are learning about writing while Rebecca Nowacek (2011) recom-

mends the use of what she calls the interdisciplinary learning community model of first-year composition, “which immerses students into disciplinary contexts” (p. 133) and replaces the more general first-year writing course. Most recently, Kathleen Blake Yancey and her colleagues (2014) tested the benefits of deliberately teaching for transfer. They found that students in courses with instructors who taught for transfer actually did transfer their writing skills and knowledge more regularly than students who were in other types of writing courses. No matter their approach, all of the scholars mentioned above call for the importance of deliberately teaching for transfer by incorporating metacognitive exercises into writing courses so that students can succeed across courses and contexts both within and beyond academia.

## A (RE)TURN TO INDIVIDUAL COGNITION

In the last few years, as compositionists have studied courses, curricula, and even writing centers that put transfer front-and-center, they have begun to realize that while it is important for students to engage in metacognitive exercises so they can apply, adapt, and transform knowledge across contexts, metacognition alone cannot account for successful instances of transfer or, in some cases, for the lack of transfer. Such findings led researchers in composition to turn their attention to dispositions or “individual, internal qualities” (Driscoll & Wells, 2012) that seemed to have affected the transfer of learning. There is, of course, nothing new about focusing on dispositions. As discussed above, as early as Van Bruggen’s 1943 study, described in the Braddock Report, researchers were exploring the impact of students’ individual dispositions (e.g., extrovertiveness and emotional stability). Although the individual (student) has never been totally absent from theories of writing and of teaching writing, it has recently been overshadowed by the privileging of social and cultural contexts.

Dana L. Driscoll has described this belated treatment of the individual learner as a pattern within the field: “As composition has sought to understand fundamentals like rhetorical situations, literacy development, and genre theory, it has done so by, first, gravitating toward context. Only later does it self-correct to include the impact of the individual learner.” Still, as the field turns its attention once again to individual cognition by focusing on dispositions, as well as the “habits of mind” described in Council of Writing Program Administrators, National Council of Teachers of English, and National Writing Project’s (2011) *Framework for Success in Postsecondary Writing*, composition runs the risk of leaving important work on the transfer of learning unfinished. Moving too quickly and too narrowly toward (re)privileging individual cognition by focusing on dispositions could potentially be detrimental to the advancement of research

in the field. Although Driscoll and others who study transfer through the lens of dispositions acknowledge that attention to dispositions should not foreclose other perspectives on transfer, Paul Kei Matsuda (2003) has aptly described what often happens as new approaches seek to replace older ones. He points out how “new ‘paradigms’ criticiz[e] previously dominant theories and pedagogies for certain features while appropriating or ignoring other features” (2003, p. 74). As composition shifts its attention toward the individual learner’s dispositions, it is crucial that the field work against caricaturizing earlier approaches to studying transfer. These socially inflected and context-driven theories of transfer are necessary for a comprehensive understanding of transfer, as well as comprehensive understandings of dispositions. After all, as Meade notes in his chapter in this volume, dispositions, too, are contextual.

So how does composition (re)introduce individual cognition (through a study of dispositions) back into the conversation while simultaneously acknowledging the embeddedness of dispositions in contexts? Perkins and Salomon’s (2012) detect-elect-connect model of transfer is especially helpful here because it highlights specifically where dispositions are most important in the complex process of transfer, and it does so without bracketing context. I conclude this piece with a description of this model and an exploration of how it holds promise for further explorations of the role of individual dispositions in the transfer of learning.

## THE DETECT-ELECT-CONNECT MODEL OF TRANSFER

In David N. Perkins and Gavriel Salomon’s detect-elect-connect model, the learner is understood as “detecting a potential relationship with prior learning, electing to pursue it, and working out a fruitful connection” (2012, p. 248). Rather than focusing on that final step—as do most outcomes-based models of transfer—this model posits that the acts of detecting and electing are particularly useful in considering how a range of dispositions come into play because it is precisely dispositions and habits of mind like curiosity, motivation, and self-efficacy, for example, that impact whether a learner will detect a potential relationship and then elect to pursue it. Perkins and Salomon refer to each step as a mental bridge. These bridges may occur serially or simultaneously, and any one of those bridges may be “too far” and lead to failure of transfer (Perkins & Salomon, 2012, p. 250). The point is that by breaking up the process of transfer into these three bridges and focusing on the first two, researchers can study the conditions—such as learners’ dispositions—that inform that final bridge of connection, the bridge most often privileged in studies of transfer. Moreover, such a model does not assume that the *ability* to detect a potential relationship

with prior learning will automatically result in a connection between that prior learning and the current context. Instead, parsing transfer into these three mental bridges foregrounds the distinction between ability and action, a distinction particularly germane to the study of dispositions, which are not the same as the abilities or skills that are being transferred. Ultimately, Salomon and Perkins' integrated model allows researchers to consider how contexts contribute to individual dispositions which, in turn, affect transfer.

The fact that contexts contribute to the development of dispositions (Driscoll & Wells, 2012; Meade, this volume; Perkins & Salomon, 2012) is promising since this gives teachers the opportunity to create academic contexts that don't just seek to promote the transfer of learning, but also encourage the cultivation of the dispositions that will make that transfer more likely. To this end, Salomon and Perkins call for the development of a "learning culture of opportunity" rather than a "learning culture of demand." The latter, which they argue describes the current state of education in America, expects and rewards students for showing knowledge on demand while a learning culture of opportunity engages students in more open-ended experiences that have far-reaching effects beyond that immediate academic context (2012, p. 257). Within composition, Wardle (2012) has explored the importance of contexts and the characteristics they can share with individuals. Drawing on Bourdieu, Wardle has considered how fields, in addition to individuals, inhabit dispositions. Each system or habitus, Bourdieu explains, is characterized by a set of dispositions that affect how actors within it behave (Wardle, 2009). Wardle's specific interest lies in what she calls problem-exploring vs. answer-getting dispositions that characterize both individuals and academic fields. Like Perkins and Salomon's (1992) "learning culture of opportunity," problem-exploring dispositions "incline a person toward curiosity, reflection, consideration of multiple possibilities, a willingness to engage in a recursive process of trial and error, and toward a recognition that more than one solution can 'work'" (Wardle, 2012, para. 13). The characteristics that make up problem-exploring dispositions are very much aligned with the habits of mind described in the *Framework*. On the other hand, Wardle's answer-getting dispositions echo Perkins and Salomon's "learning culture of demand" in that these dispositions "seek right answers quickly and are averse to open consideration of multiple possibilities (Wardle, 2012, para.13). Although Bourdieu maintains that the dispositions of both individuals and fields are not easily changeable, Wardle (and Perkins and Salomon) argues that it is still necessary to work toward the goal of constructing educational fields characterized by problem-exploring dispositions so that these fields can support students' cultivation of problem-exploring dispositions. Similarly, education scholar Erik De Corte argues for the development of "powerful learning environments for thinking and problem

solving” that prepare students for future learning (De Corte & Masui, 2012, p. 365). To test the efficacy of such environments, De Corte and his colleague Chris Masui created a learning environment that privileged the dispositions of “orienting” and “self-judging,” as well as other “self-regulation skills” (2012, p. 375). Ultimately, the students in this learning environment were better prepared for and more successful in the new context—another course—than the students in the control group.

Intentionally creating a specific type of environment that inhabits certain dispositions need not be something that goes on wholly behind-the-scenes. In this volume, E. Shelley Reid makes a compelling case for openly talking to students about the environmental factors and dispositions that impact the transfer of learning. In her own study, she found that students recognize that “dispositions are connected to their work as writers.” As such, class discussions about how their “dispositional approaches interact[t] with their school writing endeavors” can go a long way toward empowering students to engage in transfer as they become more aware of their learning dispositions. Taking into consideration Reid’s encouraging findings, it seems as though a related productive route to follow would be one that engages students in discussions about the effects of the dispositions inherent in the *range* of institutions—beyond academia—that surround them and how those dispositions affect their own dispositions. Students’ religions and cultures have a habitus, as do their individual families; discussions about this would only enrich the types of conversations Reid describes. By way of conclusion, I will now turn to the implications of Reid’s approach, as well as the arguments put forth by De Corte and Massui, Wardle, and Perkins and Salomon.

## WHERE TO GO FROM HERE

The discussion above is intended to point toward the need to keep context in discussions of individual cognition. The integrative approach of the detect-elect-connect model allows for—and seems to even invite—research on aspects of transfer that still remain understudied, including, Which dispositions in particular tend to lead to transfer most regularly? Moreover, this model’s distinct approach to studying transfer that focuses on much more than outcomes opens up a range of questions about what (external elements) inform transfer and dispositions, how those dispositions are formed, and how they may change (or not) over time. These questions could not be pursued if the pendulum swings too far toward a focus on dispositions and individual cognition, and would be in particular danger if scholars studying individual cognition begin to caricaturize previous, socioculturally inflected theories.

Keeping integrative approaches to studying transfer in play, so to speak, will encourage other studies that address how context affects individual cognition. As Dylan Dryer and David Russell point out in this volume, there is important work emerging from cognitive-science investigations that allow researchers to actually see what happens while people compose. Studies that use applications that capture keystrokes and eye movement, for example, have demonstrated that cognitive processes are affected by “environmental conditions.” Unlike when Bizzell and others challenged the Flower-Hayes model, new technologies are allowing researchers to actually see how this happens during the composing process. To shift the field’s focus too much toward the individual cognitive realm would forestall the important work that can be done by observing these cognitive activities and understanding how they are affected by environmental conditions.

Rather than closely controlling or bracketing the context in which we study individual learners, the detect-elect-connect model can help researchers foreground the environmental conditions and the individual learner’s place within social (and other) context(s). We can, thus, begin imagining different ways of intervening in students’ learning. These approaches would go beyond creating curricula and pedagogies that foster the transfer of skills and abilities toward those that also create environments that facilitate the dispositions that are determined to be most germane to transfer.

Discovering precisely which dispositions are most important to transfer and how they might be measured are perhaps the next steps. As discussed throughout this chapter, compositionists are already developing lists of dispositions that seem relevant to writing, including self-efficacy, curiosity, confidence, and motivation, all of which are more precise than the dispositions Van Bruggen sought to study in 1943. Although the Braddock Report criticized Van Bruggen’s study on many counts, this early study—and others like it—cannot be discounted as important historical antecedents to the work on dispositions that compositionists are beginning to pursue. Van Bruggen’s concepts of introvertive and extrovertive personalities, as well as his interest in studying the effect of what he calls “emotional stability” on the writing process are certainly not as precise as they might be, but his study still gets at the crux of one of the field’s current questions: What other aspects of one’s cognition affect writing? Developing ways to explore this and other questions—perhaps with our students alongside us (as Reid, in this volume, might urge)—is a step toward a more comprehensive understanding of transfer. The detect-elect-connect model of transfer, which itself offers a more comprehensive approach to the transfer question by valuing what happens before a learner makes a connection between two contexts, is a promising integrated approach to studying transfer that depends upon both individual learners’ dispositions and the contexts that inform those dispositions.

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