Glossary

Activity system. A unit of analysis that includes a subject, an object, and the tools that mediate the subject and object's interaction (Engeström, 1987). Russell (1995) defines an activity system as comprised of goal-directed and historically situated cooperative human interactions. See also *Expansive learning.*

Actor-oriented theory. An alternative to the "traditional transfer paradigm" framework developed by mathematics education researcher Joanne Lobato (Lobato & Siebert, 2002, p. 89). Rather than measuring transfer based solely on what the researcher expects to see, the actor-oriented view of transfer "scrutiniz[es] a given activity for any indication of influence from previous activities" *from the individual actor's perspective.* Nowacek's (2011) critique of negative transfer as affirming the perspective of the teacher rather than considering the experience of the student (and her subsequent articulation of the transfer matrix) makes a similar point.

Analogical reasoning. A mode of thinking and argument that relies on analogies to previous occurrences, in similar or different domains. Within the field of cognitive psychology, Gick and Holyoak (1980, 1983) conducted a series of early and influential experiments on participants' transfer of learning around what is known as the "radiation problem" (with a "dispersion" solution). To a large degree, they focused on participants' ability to recognize isomorphs—that is, similar situations disguised by superficial differences. The ability to reason analogically is often seen as a form of learning transfer.

Automaticity. Automaticity is thinking that is "fast, automatic, effort-less, associative, implicit (not available to introspection), and of-ten emotionally charged" as well as "governed by habit and . . . therefore difficult to control or modify" (Kahneman, 2003, p. 698). While automaticity would seem antithetical to the inten-tional, mindful transfer of learning often promoted in transfer research, some scholars have documented significant advantages of more automatized thinking. For example, Chase and Simon's (1973) perceptual chunking thesis identifies such automatized, unconscious thinking as part of the mental process of expert chess players. In medical and aviation education, researchers note that automatized learning is desirable; surgeons and pilots make life-or-death decisions so quickly and so often that if they regularly relied on deliberate, mindful, high-road transfer, it would be at their peril. Writing studies is just beginning to explore the role that automatized experiences of transfer might play in transfer of writing related knowledge. Donahue (2012) notes that "although much has been made of . . . meta-awareness as one of the key com-ponents of successful transfer, some research is beginning to ques-tion its role"; preliminary results from her own study suggest that "mature practices might indeed develop without an accompany-ing meta-awareness" (p. 150).

Boundary crossers and guarders. A distinction articulated by Reiff and Bawarshi (2011) as part of their work studying how first-year uni-versity students draw on and potentially repurpose their anteced-ent genre knowledge when they face novel composition tasks. Informed by Tuomi-Gröhn and Engeström's work on boundary crossing, Reiff and Bawarshi argue that boundary crossers (char-acterized by a tendency to engage in "not talk," a somewhat lower level of confidence, and a willingness to break down and recom-bine existing genre knowledge) tend to perform more highly than boundary guarders (characterized by an inappropriately high con-fidence that their prior composition strategies will be appropriate for new contexts).

Boundary objects. The concept of the boundary object, as developed by Star and Griesemer (1989), gives valuable explanatory power for understanding boundary work practices outside of the appli-cation model of metacognition. Specifically, boundary objects

re-orient metacognition through its emphasis on how discourses and artifacts (a) have a material, historical, and sociocultural life outside of individual cognition; (b); coordinate specific relationships between people; and thus (c) mediate between disparate social worlds. Star and Griesemer first theorized boundary objects as a way to understand how a group of workers at a natural science museum could collaborate and reach a provisional understanding about ideas and tasks related to running the museum without reaching consensus or straying too far from each person's vision for this communal project. The problem that Star and Griesemer sought to answer was how could actors from a number of distinct and even dissonant social worlds "establish a mutual *modus operandi*" (p. 388). Wardle (2009) suggested that genres could serve as boundary objects, as tools for transfer as writers moved across university-level courses, "actively functioning as bridges to the varied disciplinary genres students will encounter" (p. 783). Boundary objects—and particularly the idea of boundary crossing—are central to the theories of transfer developed by Tuomi-Gröhn, Engeström, and colleagues (Tuomi-Gröhn & Engeström, 2003). The concepts of boundary objects and crossers (Carlile 2002, 2004) and brokering (Hargadon, 1998, 2002; Hargadon & Sutton, 1997) have also received considerable uptake within the field of knowledge management.

Concepts. A construct central to cognitive psychology, a concept is an abstract mental representation that encompasses any number of varied concrete instantiations (Markman & Ross, 2003, p. 593); the concept of a dog, for instance, is built from multiple instances, including experiences with Miniature Schnauzers, Golden Retrievers, and Rotweillers. This notion of a concept as a mental representation of a category of objects (material like *dogs*, or abstract like *love*) abstracted by an individual plays a pivotal role in linguistics and philosophy, as well as psychology (Laurence & Margolis, 1999, p. 3). Concepts are often understood in relation to each other; these relationships are sometimes referred to as schema, or an "organized system of relations" (Gick & Holyoak, 1980, p. 309).

Consequential transitions. A framework developed by Beach (1999) as an alternative to traditional conceptualizations of transfer as the

carrying of learning from one context to another; embracing a sociocultural perspective, Beach offers a "reconceptualization of transfer as consequential transition among social activities" (p. 104). He identifies four types of consequential transitions: lateral, collateral, encompassing, and mediational. Indeed, he ultimately rejects the metaphorical entailments of the term *transfer* and instead proposes the term *generalization*, which he defines as "the continuity and transformation of knowledge, skill, and identity across various forms of social organization, involving multiple interrelated processes rather than a single general procedure" (p. 112).

Community of Practice. Developed by Lave and Wenger (1991), the concept of a community of practice emphasizes the ways in which writing (and often genres of writing) emerge from a collective commitment of a group to accomplish a shared goal. Often used in discussions of workplace writing and writing in the disciplines, as well as sports education, to emphasize the situated and dynamic nature of learning.

Declarative and procedural knowledge. Simply put, the what and the how of knowledge: knowing that something is true versus knowing how to do something. Content versus enactment of that content.

Discourse community. A group of people that communicates using shared goals, values, standards, and specialized vocabulary and genres. John Swales (1990) defines discourse communities as a group with an agreed upon set of common goals, mechanisms of communication among members, participatory mechanisms to provide feedback, specialized genres and vocabulary, and a threshold level of expertise for membership participation. James Paul Gee (1999) adds that discourse communities signal membership through saying, doing, being, valuing, and believing in like ways, using combinations of language, actions, interactions, objects, tools, and technologies.

Dispositions. Researchers in psychology and beyond have long worked to distinguish between traits (more long-term qualities) and states (more like moods), but in ways that are not always consistent. Psychology researchers often use the term disposition in tandem with the word *trait* (e.g., dispositional traits)—and indeed disposi-

tions are often meant to describe affective responses that are more predictable over the long term than moods. Driscoll and Wells (2012) explain that dispositions are not intellectual traits, but instead determine how intellectual traits are used. They identify several other key features of dispositions, including that dispositions are dynamic, operate within a larger context, can be generative or disruptive, and can "determine students' sensitivity toward and willingness to engage in transfer" (part 3 of section on "Defining Dispositions").

Distributed cognition. Like work informed by situated cognition, scholarship taking a distributed cognition perspective understands learning to be inseparable from its social context; it takes a particular interest in how individuals use material environments, cultural tools, and even other people to redistribute their cognitive load (Sutton, 2006). One particularly celebrated example is Hutchins' (1995) cognitive ethnography of the collective efforts required to navigate a naval ship. See also embedded cognition; situated learning.

Embodied cognition. A view of cognition in keeping with theories of situated learning and distributed cognition, it is one part of what is sometimes referred to as 4E cognition: embedded, extended, embodied, and enactive cognitions (Menary, 2010). Embedded cognition is often understood as the least radical and most capacious of the four Es; whereas extended cognition extends the boundaries of the mind to include material objects outside the brain, embodied cognition focuses particularly on the role of the physical body in cognition. Theories of embodied cognition play a central role in education that relies on simulations (such as aviation and medical education); they have played an increasing role in writing studies as well (LeMesurier, 2016; Pigg, 2020; Rifenburg 2014, 2018).

Expansive learning. An alternative to the term *transfer of learning*, often preferred by scholars drawing on an activity theory framework. Expansive learning can be understood as the "processes in which an activity system, for example a work organization, resolves its pressing internal contradictions by constructing and implementing a qualitatively new way of functioning for itself" (Engeström,

2007, p. 24); individuals can also go through this process of reso-
lution. Central to the idea of expansive learning is Engeström and
colleagues' shift in unit of analysis; whereas the terms *transfer* or
even *generalization* of learning (the term often preferred by schol-
ars informed by theories of situated cognition) keep the individual
as the unit of analysis, expansive learning focuses on the entire
activity system (Tuomi-Gröhn, 2007, p. 201). As Engeström ex-
plains, "Theories of learning typically speak of the outcomes of
learning in terms of knowledge, skills and changed patterns of be-
havior. In expansive learning, the outcomes are expanded objects
and new collective work practices, including practices of thinking
and discourse" (Engeström & Kerosuo, 2007, p. 339).

Fidelity. A term most often associated with transfer and simulations
from the fields of aviation and medical education. Fidelity refers
to the ways a training or practice context (a lab, a simulation, a
classroom) reflects the target context. For many scholars, fidelity
is a multi-valent concept that requires educators to name precisely
what types of matches they seek between a practice and target
context (e.g., motion efficiency, dexterity, economy of movement,
quickness, and accuracy).

Generalization. A term sometimes proposed—by varied scholars from
varied disciplines—as an alternative to the term *transfer*. It was
used as early as Judd (1908) to describe how individuals learned
from their experiences. Katona (1940) and other Gestalt theorists
also regularly used the term. In the transfer of training scholar-
ship, generalization of learning—which refers to making use of
learning in novel contexts (such as the shift from training modules
to the workplace)—is distinguished from maintenance of learn-
ing over time (Baldwin & Ford, 1988). The term generalization
is also favored by scholars taking a situated cognition perspective,
including Beach (1999), Carraher and Schliemann (2002), Day
and Goldstone (2012), Engle (2006), Lobato (2003), and Wag-
ner (2006). In this tradition, Beach defines generalization as "the
continuity and transformation of knowledge, skill, and identity
across various forms of social organization, [which] involves mul-
tiple interrelated processes rather than a single general procedure"
(p. 112).

General writing skills instruction. GWSI refers to writing curricula that attempt to teach universal skills outside of social or rhetorical context. Russell (1995) famously rejected this approach, observing that "To try to teach students to improve their writing by taking a GWSI course is something like trying to teach people to improve their ping-pong, jacks, volleyball, basketball, hockey, and so on by attending a course in general ball-handling" (p. 58). His and others' rejection of general writing skills instruction stems from socially situated theories of writing and learning and has served as a catalyst and conundrum for studies of transfer in both first-year writing and writing across the curriculum/writing in the disciplines.

Genre. See Rhetorical Genre Theory.

Goal orientation. From the research in psychology, a characterization of an individual's approach to learning. Dweck's highly popular *Mindsets* (2008) draws on earlier work (Dweck, 1986; Dweck & Legget, 1988) that distinguishes between mastery orientations and performance orientations. Individuals with mastery goals "are concerned with increasing their competence" while those with performance goals are "concerned with gaining favorable judgments of their competence" (Dweck & Legget, 1988, p. 256). Overwhelmingly the performance-goal orientation has been found to be less conducive for learning and therefore for transfer of training (Fisher & Ford, 1998; Ford et al., 1998; Tziner et al., 2007).

Identical elements. An early theory of transfer articulated by Thorndike (1906/1916, 1913; Thorndike & Woodworth, 1901a, b, c) as a response to earlier formal discipline theories. From this perspective, transfer of learning is made possible not by the strength of a mental muscle (the formal discipline explanation for why studying Latin might improve academic performance in other domains) but by similarities between the two tasks. The more closely related the tasks—the more identical elements they share—the stronger the transfer of learning.

Interference. Early orientations to language transfer in second language acquisition framed evidence of transfer as interference of the L1 into the target L2. This early orientation to transfer as interfer-

ence, and interference as error, is still frequently used in studies of transfer in writing. See also negative transfer.

Legitimate peripheral participation. A term developed by Lave and Wenger (1991) as a crucial part of their situated learning theory of how individuals become active and knowledgeable members of communities of practice. Lave and Wenger clarify that there is not illegitimate peripheral participation, nor legitimate central participation. Instead, legitimate peripheral participation (LPP) "refers both to the development of knowledgeably skilled identities in practice and to the reproduction and transformation of communities of practice. It concerns the latter insofar as communities of practice consist of and depend on membership, including its characteristic biographies/trajectories, relationships, and practices" (p. 55).

Locus of control. Locus of control refers to "a stable personality trait that describes the extent to which people attribute the cause or control of events to themselves (internal orientation) or to external environmental factors such as fate or luck (external orientation)" (Kren, 1992, p. 992).

Metacognition. A prominent construct in psychological research, which many scholars have noted is defined inconsistently throughout the scholarship. At its core, most researchers acknowledge at least two components: knowledge of cognition and regulation of cognition (Scott & Levy, 2013; Gorzelsky et al., 2016). In his discussion of threshold concepts of writing, Tinberg (2016) defines metacognition as "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 effective writing" (p. 76); metacognition, he notes, plays an especially important role when writers move into new, unfamiliar contexts.

Metagenres. Carter (2007) defines metagenres as genres of genres or general "ways of doing" that pattern into "similar *kinds* of typified responses to related recurrent situations" (p. 393). He identifies four metagenres: (a) responses to academic situations that call for problem solving (plans, reports, proposals); (b) responses to academic situations that call for empirical inquiry; (c) responses to academic situations that call for research from sources; and (d)

responses to academic situations that call for performance. Lindenman (2015) extends the concept to describe the "metageneric connections" that students make for themselves, a type of connection making that may be a promising avenue to the metacognition some researchers say supports transfer.

Motivation. A complex construct defined in the transfer of training scholarship as a trainee characteristic—as opposed to an element of training design or the transfer climate. Developing out of Vroom's (1964) expectancy theory, current theories of motivation generally "refe[r] to the processes that account for an individual's intensity, direction, and persistence of effort toward attaining a goal" (Grossman & Salas, 2011, p. 109). Although researchers often distinguish between motivation to learn and motivation to transfer, they sometimes use the term in broader, less clearly defined ways as well. Scholarship has sought to understand both the causes and the effects of motivation—particularly its effects on transfer of training, which are generally (but not always) seen as positive.

Negative transfer. Negative transfer is considered evidence of interference into the process of language acquisition, what might in writing appear as an error. In psychology, Schunk (2004) defines negative transfer ("prior learning interferes with subsequent learning") in contrast to positive transfer ("when prior learning facilitates subsequent learning") and zero transfer ("one type of learning has no noticeable influence on subsequent learning" [p. 217]). Perkins and Salomon (1989) associate the operations of low-road transfer with negative transfer, noting that "people commonly ignore novelty in a situation, assimilating it into well-rehearsed schemata and mindlessly bringing to bear inappropriate knowledge and skill, yielding negative transfer" (p. 22). Within the field of second language acquisition, when learners transfer constructs among languages that are similar (in syntax, morphology, etc.), the transfer act is called "positive transfer"; when learners transfer constructs among languages that are different, the transfer is deemed more visible and called "negative transfer." L2 researchers often design studies to look for L1 interference or negative transfer that their research might offer pedagogical solutions to. There is a tradition of critiquing the concept of negative transfer, including

Nowacek (2011) in writing studies, Lobato's (2012) actor-oriented theory in mathematical education, and Goldstone and Day's (2012) observation that "All too often, negative transfer is shorthand for 'transfer in a way that conflicts with what the teacher/experimenter intended'" (p. 151).

Organizational memory. A concept central in knowledge management scholarship, it is, in essence, "the way organizations store knowledge from the past to support present activities" (Nevo & Wand, 2004, p. 549). Walsh and Ungson famously identified six repositories of organizational memories, including individuals but also routines, social roles, and the material contexts of work in an organization. In framing organizational memory as informed by material contexts and cultural tools, knowledge management scholars intersect with the scholarship on distributed cognition. See also distributed cognition.

Preparation for future learning. Preparation for future learning (PFL) explores how to make explicit use of learners' futures to guide them toward successful transfer (Bransford & Schwartz, 1999; Schwartz et al., 2005). Informed by situated learning theory, which foregrounds the social and participatory dimensions of learning, PFL approaches emphasize that transfer should be treated as forward-looking, leading learners to imagine future times and spaces for knowledge use. Within writing center research, Driscoll (2015) has developed and studied a tutor education course that brought together PFL with Perkins and Salomon's (2012) "detect-elect-connect" model, resulting in a course that asked students to actively connect learning to new or future contexts and finding that such a deliberate approach did activate transfer-like thinking to build connections among multiple contexts.

Rhetorical genre theory. An approach to genre that focuses on recurrent rhetorical situations—and repeated exigencies in particular—to understand how rhetorical response becomes "stabilized-for-now" (Schryer, 1993, p. 200) as genre. In this formulation, genres facilitate writers in performing socially shared actions made typical across a group based on a "mutual construing of objects, events, interests and purposes" (Miller, 1984, p. 30).

Scaffolding. Scaffolding involves a range of teacher or peer generated building blocks that move a learner through a task, activity, or conceptual problem by building from what a learner knows and forward toward more complex or sophisticated iterations of the task, activity, or conceptual problem. Scaffolding is often connected to Vygotsky's (1978) notion of the zone of proximal development (ZPD), defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or collaboration with more capable peers" (p. 86). Scaffolds take many forms, moving from simple to complex, feedback from an instructor, and so on. All aid the learner in moving toward independent action.

Schemata. See Concepts.

Self-efficacy. A concept developed by Bandura (1977) to describe the degree to which an individual believes their efforts will result in accomplishing a desired task. Unlike self-esteem, which is a more generalized and more stable trait, self-efficacy describes an individual's assessment of their capabilities on a particular task and can readily change based on brief interventions. For example, Gist et al. (1989) measured what they called "computer self-efficacy" at the start of a training module, then, after the training module was completed 90 minutes later, measured what they called "software self-efficacy." Many studies claim that higher levels of self-efficacy result in greater transfer of training (e.g., Blume et al., 2010; Brown, 2005; Gist et al., 1989; Gist et al., 1991; Stevens & Gist, 1997; Velada et al., 2007), but some warn that increasing self-efficacy without increasing actual skills can in fact decrease performance (Vancouver & Kendall, 2006). See also dispositions.

Self-regulation. The idea of self-regulation, or self-regulative metacognitive activity, is often framed as an issue of emotional control and has been crucial for industrial and organizational psychology theories focused on behavioral modeling and error management (Keith & Frese, 2005). Similarly, Wegner et al. (1985) describe the emergence of "a personal 'directory' for knowledge held by the dyad" (p. 265), which is a mechanism for monitoring who knows what so shared memories can be accessed when needed. In

their analysis of metacognition in writing studies, Gorzelsky et al. (2016) identify planning, monitoring, control, and evaluation as four metacognitive subcomponents that comprise "regulation of cognition" (p. 226). See also dispositions; metacognition.

Simulation. A training strategy used within a variety of educational contexts, simulations attempt to replicate—either through low- or high-tech means—elements of a target performance context. Simulations can be simple (a case study approach) or complex (a virtual world) and work from the concept of context fidelity.

Situated learning. A development of the sociocultural response to the tradition of cognitivist research within psychology (see Beach, 1999; Lave, 1988; Lave and Wenger, 1991), the situated learning perspective turns attention to how cognition unfolds in naturalistic contexts rather than laboratory studies. See also distributed cognition and embodied cognition.

Social cognitive theory. Rejecting both the behaviorist stimulus-response model and a purely cognitive assumption of a self-contained autonomous being, Bandura's (1986, 1999) social cognitive theory posits that learners operate at the juncture of three mutually influential forces: internal personal factors, behavioral factors, and environmental factors that provide affordances or constraints. Also central to Bandura's theory is the belief that human beings can learn not only from direct experience but through observation. Researchers—especially those in psychology—have often turned to this framework to study transfer of learning.

Teaching for transfer. A phrase frequently invoked in transfer of learning scholarship. Within the field of writing studies, it is often associated with a specific curricular approach to first-year writing developed by Yancey et al. (2014) focused on teaching methods, activities, and scaffolded assignments meant to foster transfer of writing knowledge. It is also the title of a frequently cited article by Perkins and Salomon (1988) and an edited collection in psychology (McKeough et al., 1995).

Transactive memory systems. First developed by Wegner (Wegner et al., 1985; Wegner, 1987) as a means of describing "cognitive interdependence" (Wegner et al., 1985, p. 254) between people in

an "intimate dyad" (p. 253), the concept was soon expanded to small groups and even larger workplaces (see a listing in Lewis & Herndon, 2011, pp. 1254–1255). Central to the notion of transactive memory is the claim that within a transactive memory system (TMS) the storage of memories is specialized. Not everyone in the system remembers all the information; individuals remember some higher-order and some lower-order information, but they also build "directories" that allow them to know that someone else actually remembers specific lower-order information that can be accessed through interaction. Transactive memory is related to transfer of learning for those who are interested in the more collaborative, interpersonal dimensions of transfer being studied in knowledge management.

Transfer climate. Together with trainee characteristics and training design, transfer climate (sometimes also called work environment) is one of the three major influences on transfer of training studied by researchers in human resources and industrial psychology. The transfer climate is those "work- environment factors perceived by trainees to encourage or discourage their use of knowledge, skills, and abilities learned in training on the job" (Cromwell & Kolb, 2004, p. 451). Importantly, this term focuses not on the objective existence of conditions but the *perception* of those conditions. Although some researchers have conceptualized transfer climate as an aggregate construct (e.g., Tracey & Tews, 2005), most consider it a matter of individual trainee perception (e.g., Cromwell & Kolb, 2004; Holton et al., 1997; Kraiger, 2003).

Transfer of training. A term commonly used by human resources and management scholars to describe the degree to which investments in professional development are put to use in the workplace; training is frequently defined as "a planned learning experience designed to bring about permanent change in an individual's knowledge, attitudes, or skills" (Noe & Schmitt, 1986, p. 497). This field of research draws heavily on work in industrial and organizational psychology. Baldwin and Ford (1988)—in addition to establishing the tripartite taxonomy of features that influence transfer of training including trainee characteristics, training design, and work environment—argue that transfer of training must include both generalization and maintenance: "For transfer to

have occurred, learned behavior must be generalized to the job con-
text and maintained over a period of time on the job" (p. 63).

Threshold concepts. Having recently gained traction within writing stud-
ies, threshold concepts refer to ways of thinking in a discipline that
can fundamentally transform a learner's access to and participa-
tion in that discipline's ways of thinking and doing. Described as
a "transformed way of understanding, or interpreting, or viewing
something without which the learner cannot progress," (Meyer and
Land, 2006, p. 3), threshold concepts are transformative, irrevers-
ible, integrative, bounded, and troublesome (pp. 7–8). Threshold
concepts and transfer are linked through the caveat in the preceding
quote that states that "without which the learner cannot progress."

References

Baldwin, T. T., & Ford, J. K. (1988). Transfer of training: A review and direc-
tions for future research. *Personnel Psychology*, *41*(1), 63–105.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral
change. *Psychological Review*, *84*(2), 191–215.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive
theory.* Prentice-Hall

Bandura, A. (1999). Social cognitive theory: An agent perspective. A*sian Jour-
nal of Social Psychology*, *2*(1), 21–41.

Beach, K. (1999). Consequential transitions: A sociocultural expedition beyond
transfer in education. *Review of Research in Education*, *24*(1), 101–139.

Blume, B. D., Ford, J. K., Baldwin, T. T., & Huang, J. L. (2010). Transfer of
training: A meta-analytic review. *Journal of Management*, *36*(4), 1065–1105.

Bransford, J. D., & Schwartz, D. L. (1999). Rethinking transfer: A simple
proposal with multiple implications. *Review of Research in Education*,
24(1), 61–100.

Brown, T.C. (2005). The effectiveness of distal and proximal goals as transfer
of training interventions: A field experiment. *Human Resources Development
Quarterly*, *16*(3), 369–387.

Carlile, P. R. (2002). A pragmatic view of knowledge and boundaries: Boundary
objects in new product development. *Organization Science*, *13*(4), 442–455.

Carlile, P. R. (2004). Transferring, translating, and transforming: An integra-
tive framework for managing knowledge across boundaries. *Organization
Science*, *15*(5), 555–568.

Carraher, D., & Schliemann, A. (2002). The transfer dilemma. *The Journal of
the Learning Sciences*, *11*(1), 1–24.

Carter (2007). Ways of knowing, doing, and writing in the disciplines. *College Composition and Communication*, *58*(3), 385–418.

Chase, W. G., & Simon, H. A. (1973). Perception in chess. *Cognitive Psychology*, *4*(1), 55–81.

Cromwell, S. E., & Kolb, J. A. (2004). An examination of work-environment support factors affecting transfer of supervisory skills training to the workplace. *Human Resource Development Quarterly*, *15*(4), 449–471.

Day, S. B., & Goldstone, R. L. (2012). The import of knowledge export: Connecting findings and theories of transfer of learning. *Educational Psychologist*, *47*(3), 153–176.

Donahue, C. (2012). Transfer, portability, generalization: (How) does composition expertise "carry"? In K. Ritter & P. Matsuda (Eds.), Exploring composition studies: Sites, issues, and perspectives, (pp. 145–166). Utah State University Press.

Driscoll, D. L. (2015). Building connections and transferring knowledge: The benefits of a peer tutoring course beyond the writing center. *The Writing Center Journal*, *35*(1), 153–181.

Driscoll, D. L., & Wells, J. (2012). Beyond knowledge and skills: Writing transfer and the role of student dispositions. *Composition Forum*, *26* (Fall). compositionforum.com/issue/26/beyond-knowledge-skills.php

Dweck, C. S. (2008). *Mindset: The new psychology of success*. Random House Digital.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, *95*(2), 256–273.

Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Orienta-Konsultit Oy.

Engeström, Y. (2007). From stabilization knowledge to possibility: Knowledge in organizational learning. *Management learning*, *38*(3), 271–275.

Engeström, Y., & Kerosuo, H. (2007). From workplace learning to inter-organizational learning and back: The contribution of activity. *Journal of workplace learning*, *19*(6), 336–342.

Engle, R. A. (2006). Framing interactions to foster generative learning: A situative explanation of transfer in a community of learners classroom. *The Journal of the Learning Sciences*, *15*(4), 451–498.

Fisher, S. L., & Ford, J. K. (1998). Differential effects of learner effort and goal orientation on two learning outcomes. *Personnel Psychology*, *51*(2), 397–420.

Ford, J. K., Smith, E. M., Weissbein, D. A., Gully, S. M., & Salas, E. (1998). Relationships of goal orientation, metacognitive activity, and practice strategies with learning outcomes and transfer. *Journal of Applied Psychology*, *83*(2), 218–233.

Gee, J. P. (1999). *An introduction to discourse analysis: Theory and method*. Routledge.

Gick, M. L., & Holyoak, K. J. (1980). Analogical problem solving. *Cognitive Psychology*, *12*(3), 306–355.

Gick, M. L., & Holyoak, K. J. (1983). Schema induction and analogical transfer. *Cognitive Psychology 15*(1), 1–38.

Gist M. E., Schwoerer, C., & Rosen B. (1989). Effects of alternative training methods on self-efficacy and performance in computer software training. *Journal of Applied Psychology, 74*(6), 884–891.

Gist, M., Stevens, C., & Bavetta, A. (1991). Effects of self-efficacy and post training interventions of the acquisition and maintenance of complex interpersonal skills. *Personnel Psychology*, *44*(4), 837–861.

Goldstone, R. L., & Day, S. B. (2012). Introduction to "New conceptualizations of transfer of learning." *Educational Psychologist*, *47*(3), 149–152.

Gorzelsky, G., Driscoll, D. L., Paszek, J., Jones, E., & Hayes, C. (2016). Cultivating constructive metacognition: a new taxonomy for writing studies. In C. Anson & J. Moore (Eds.), *Critical transitions: Writing and the question of transfer* (pp. 215–228). The WAC Clearinghouse; University of Press of Colorado.

Grossman, R., & Salas, E. (2011). The transfer of training: What really matters. *International Journal of Training & Development*, *15*(2), 103–120.

Hargadon, A. B. (1998). Firms as knowledge brokers: Lessons in pursuing continuous innovation. *California Management Review*, *40*(3), 209–227.

Hargadon, A. B. (2002). Brokering knowledge: Linking learning and innovation. *Research in Organizational Behavior*, *24*, 41–85.

Hargadon, A., & Sutton, R. I. (1997). Technology brokering and innovation in a product development firm. *Administrative science quarterly*, *42*(4), 716–749.

Holton III, E. F., Bates, R. A., Seyler, D. L., & Carvalho, M. B. (1997). Toward construct validation of a transfer climate instrument. *Human Resource Development Quarterly*, *8*(2), 95–113.

Hutchins, E. (1995). *Cognition in the wild*. MIT Press.

Judd, C. H. (1908). The relation of special training and general intelligence. *Educational Review*, *36*, 28–42.

Kahneman, D. (2003). A perspective on judgment and choice: mapping bounded rationality. *American Psychologist*, *58*(9), 697–720.

Katona, G. (1940). *Organizing and memorizing: Studies in the psychology of learning and teaching.* Columbia University Press

Keith, N., & Frese, M. (2005). Self-regulation in error management training: Emotion control and metacognition as mediators of performance effects. *Journal of Applied Psychology*, *90*(4), 677–691.

Kraiger, K. (2003). Perspectives on training and development. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of Psychology* (pp. 171–192). John Wiley & Sons.

Kren, L. (1992). The moderating effects of locus of control on performance incentives and participation. *Human Relations*, *45*(9), 991–1012.

Laurence, S., & Margolis, E. (1999). Concepts and cognitive science. In E. Margolis & S. Laurence (Eds.), *Concepts: Core readings* (pp. 3–82). MIT Press.

Lave, J. (1988). *Cognition in practice: Mind, mathematics and culture in everyday life.* Cambridge University Press.

Lave, J, and Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge University Press.

LeMesurier, J. L. (2016). Mobile bodies: Triggering bodily uptake through movement. *College Composition and Communication*, *68*(2), 292–316.

Lewis, K., & Herndon, B. (2011). Transactive memory systems: Current issues and future research directions. *Organization Science*, *22*(5), 1254–1265.

Lindenman, H. (2015) Inventing metagenres: How four college seniors connect writing across domains. *Composition Forum*, *31*(Spring). http://compositionforum.com/issue/31/inventing-metagenres.php

Lobato, J. (2003). How design experiments can inform a rethinking of transfer and vice versa. *Educational Researcher*, *32*(1), 17–20.

Lobato, J. (2012). The actor-oriented transfer perspective and its contributions to educational research and practice. *Educational Psychologist*, *47*(3), 232–247.

Lobato, J., & Siebert, D. (2002). Quantitative reasoning in a reconceived view of transfer. *The Journal of Mathematical Behavior*, *21*(1), 87–116.

Markman, A. B., & Ross, B. H. (2003). Category use and category learning. *Psychological Bulletin*, *129*(4), 592–613.

McKeough, A., Lupart, J., & Marini, A. (Eds.). (1995). *Teaching for transfer: Fostering generalization in learning.* Lawrence Erlbaum Associates.

Menary, R. (2010). Introduction to the special issue on 4E cognition. *Phenomenology and the Cognitive Sciences*, *9*(4), 459–463.

Meyer, J. H. F., & Land, R. (Eds.). (2006). *Overcoming barriers to student understanding: Threshold concepts and troublesome knowledge.* Routledge.

Miller, C. R. (1984). Genre as social action. *Quarterly Journal of Speech*, *70*(2), 151–167.

Nevo, D., & Wand, Y. (2005). Organizational memory information systems: a transactive memory approach. *Decision Support Systems*, *39*(4), 549–562.

Noe, R. A., & Schmitt, N. (1986). The influence of trainee attitudes on training effectiveness: Test of a model. *Personnel Psychology, 39*, 497–523.

Nowacek, R. S. (2011). *Agents of integration: Understanding transfer as a rhetorical act.* Southern Illinois University Press.

Perkins, D. N., & Salomon, G. (1988). Teaching for transfer. *Educational Leadership, 46*(1), 22–32.

Perkins, D. N., & Salomon, G. (1989). Are cognitive skills context bound? *Educational Researcher*, *18*(1), 16–25.

Perkins, D. N., & Salomon, G. (2012). Knowledge to go: A motivational and dispositional view of transfer. *Educational Psychologist*, *47*(3), 248–258.

Pigg, Stacey. (2020). *Transient literacies in action: Composing with the mobile surround*. The WAC Clearinghouse and University Press of Colorado.

Reiff, M. J., & Bawarshi, A. (2011). Tracing discursive resources: How students use prior genre knowledge to negotiate new writing contexts in first-year composition. *Written Communication*, *28*(3), 312–337.

Rifenburg, J. M. (2014). Writing as embodied, college football plays as embodied: Extracurricular multimodal composing. *Composition Forum*, *29*(Spring). compositionforum.com/issue/29/writing-as-embodied.php

Rifenburg, J. M. (2018). *The embodied playbook: Writing practices of student-athletes*. Utah State University Press.

Russell, D. (1995). Activity theory and its implications for writing instruction. In J. Petraglia (Ed.), *Reconceiving writing, rethinking writing instruction* (pp. 51–78) Lawrence Erlbaum.

Schryer, C. F. (1993). Records as genre. *Written Communication*, *10*(2), 200–234.

Schunk, D. H. (2004). *Learning theories an educational perspective* (4th ed.). Pearson.

Schwartz, D. L., Bransford, J. D., & Sears, D. (2005). Efficiency and innovation in transfer. In J.P. Mestre (Ed.), *Transfer of learning from a modern multidisciplinary perspective* (1–51). Information Age Publishing.

Scott, B. M., & Levy, M. G. (2013). Metacognition: Examining the components of a fuzzy concept. *Educational Research Journal*, *2*(2), 120–131.

Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, "translations," and boundary objects: Amateurs and professionals in Berkeley's museum of vertebrate zoology, 1907–1939. *Social studies of science*, *19*(3), 387–420.

Stevens, C. K. & Gist, M. E. (1997), Effects of self-efficacy and goal-orientation training on interpersonal skill maintenance: what are the mechanisms? *Personnel Psychology*, *50*(4), 955–78.

Sutton, J. (2006). Distributed cognition: Domains and dimensions. *Pragmatics & Cognition*, *14*(2),235–247.

Swales, J. M. (1990). *Genre analysis: English in academic and research settings*. Cambridge University Press.

Thorndike, E. L.1916). *The principles of teaching based on psychology*. AG Seiler. (Original work published 1906)

Thorndike, E. L. & Woodworth, R. S. (1901a). The influence of improvement in one mental function upon the efficiency of other functions.(I). *Psychological Review*, *8*(3), 247–261.

Thorndike, E. L. & Woodworth, R. S. (1901b). The influence of improvement in one mental function upon the efficiency of other functions: II. The estimation of magnitudes. *Psychological Review 8*(4), 384–395.

Thorndike, E. L. & Woodworth, R. S. (1901c). The influence of improvement in one mental function upon the efficiency of other functions: III. Functions involving attention, observation and discrimination. *Psychological Review 8*(6), 553–564.

Tinberg, H. (2016) Metacognition is not cognition. In L. Adler-Kassner & E. Wardle (Eds.), *Naming what we know: Threshold concepts of writing studies* (pp. 75–76). Utah State University Press.

Tracey, J. B. & Tews, M. J. (2005). Construct validity of a general training climate scale. *Organizational Research Methods, 8*(4), 353–374.

Tuomi-Gröhn, T. (2007). Developmental transfer as a goal of collaboration between school and work: A case study in the training of daycare interns. *Actio: An International Journal of Human Activity Theory, 1*, 41–62.

Tuomi-Gröhn, T., & Engeström, Y. (2003). Conceptualizing transfer: From standard notions to developmental perspectives. In T. Tuomi-Gröhn & Y. Engeström (Eds.), *Between school and work: New perspectives on transfer and boundary-crossing* (pp. 19–38). Emerald Group.

Tziner, A., Fisher, M., Senior, T. and Weisberg, J. (2007). Effects of trainee characteristics on training effectiveness. *International Journal of Selection & Assessment*, *15*(2), 167–174.

Vancouver, J. B. and Kendall, L. N. (2006). When self-efficacy negatively relates to motivation and performance in a learning context. *Journal of Applied Psychology*, *91*, 1146–53.

Velada, R., Caetano, A., Michel, J. W., Lyons, B. D., & Kavanagh, M. J. (2007). The effects of training design, individual characteristics and work environment on transfer of training. *International Journal of Training & Development*, *11*(4), 282–294.

Vroom, V. H. (1964). *Work and motivation*. Wiley.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Wagner, J. F. (2006). Transfer in pieces. *Cognition and Instruction*, *24*(1), 1–71.

Walsh, J. P., & Ungson, G. R. (1991). Organizational memory. *Academy of Management Review*, *16*(1), 57–91.

Wardle, E. (2009). "Mutt genres" and the goal of FYC: Can we help students write the genres of the university? *College Composition and Communication*, *60*(4), 765–789.

Wegner, D. M. (1987). Transactive memory: A contemporary analysis of the group mind. In *Theories of group behavior* (pp. 185–208). Springer.

Wegner, D. M., Giuliano, T., & Hertel, P. T. (1985). Cognitive interdependence in close relationships. In *Compatible and incompatible relationships* (pp. 253–276). Springer.

Yancey, K. B., Robertson, L., & Taczak, K. (2014). *Writing across contexts: Transfer, composition, and sites of writing*. Utah State University Press.