Here, There, and Anywhere: Transfer of Learning

Deanne Camp, Missouri State University

Introduction

Sam-I-Am, from the Dr. Seuss book, *Green Eggs and Ham*, tried many ways over a period of time before his friend agreed that he did, indeed, like the unique foods of green eggs and ham. In fact, he ultimately liked them *here, there, and anywhere*. A goal of literacy instruction is not only to teach students mastery of knowledge for immediate use in the classroom (*here*); but to, also, teach students to transfer the acquired learning to other subject areas and similar situations (*there*). Then, further, impress upon students to use the learned information outside of class in their everyday lives and in the future (*anywhere*). In a classic study, Desse (1958) stated "There is no more important topic in the whole psychology of learning than transfer of learning" (p. 213). He further emphasized, "Practically all educational and training programs are built upon the fundamental premise that human beings have this ability to transfer what they have learned from one situation to another" (p. 213). In a more recent study, Illeris (2010) stated the problem of transfer of learning has been an ongoing issue for more than a century. He stated the problem is "that what has been learned in one context often can be difficult to recall and apply in a different context" (p. 137).

Public education in the United States is sequenced in such a manner that a skill learned at one level is then transferred to a more complex skill at yet a higher level. In addition, the individual concepts or grade-level-expectations based on state Standards are designed this way. Bransford, Brown, and Cocking (1999) stated, "Educators hope that students will transfer learning from one problem to another within a course, from one year in school to another, between school and home, and from school to the workplace" (p. 39).

Graff (2010) emphasized most discussions of learning must eventually focus on transfer of learning. He continued with, "…our goal as teachers is not only to improve students' performance in the immediate moment of instruction but also to help them develop skills that they can take to future classes and experiences outside of school" (p. 377). Baldwin and Ford (1988) defined transfer of learning "as the extent to which the knowledge, skills, and abilities acquired…can be applied, generalized, and maintained over time" (p. 63). Transfer of learning is further defined as, "prior learning affecting new learning or performance" (Cree & Macaulay, 2000, pp. 2-3). Perkins and Salomon (1992) stated transfer of learning "occurs when learning in one context or with one set of materials impacts on performance in another context or with other related materials" (p. 2). They also emphasized, "metacognitive reflection on one's thinking processes appears to promote transfer of skills" (Perkins & Salomon, 1992, p. 5). It is imperative, then, that critical thinking and problem-solving skills be taught in a manner whereby they become automatic for students and they are able to use those skills in varying situations beginning in the early grades. Throughout this article are comments from graduate students, who are also classroom teachers, enrolled in a master's level online literacy education course during a discussion about *transfer of learning*. The comments allow us to see the practical side of the transfer of

learning research and how it affects students' literacy development. LaDonna, graduate student and second grade teacher, explained transfer of learning by stating, "Teachers have to make sure students understand and tuck the learning into their schema before moving on." In this way, transfer of learning occurs *here, there, and anywhere*.

Here – In the Classroom

The classroom where active learning occurs is a highly desirable place for students to practice new learning. Kolb (1984) stated learning is "formed and reformed through experience" (p. 28). Therefore, experiential learning occurs when the focus is on meaning-making aspects of learning from direct experiences. Many educators still believe teachers are the transmitters of learning. However, Vygotsky's theory "promotes learning contexts in which students play an active role in learning" (Social Development Theory, 2011, para. 3). Effective teachers make their classrooms a safe environment where students are not fearful of trying out new learning, making mistakes along the way, learning from those mistakes, and finally, mastering the particular objective. For many students, the *trying out* segment of learning takes the form of many mistakes. For others, of course, learning is less difficult and is without the need for several tries. But, either way, the community of learners in the classroom forms a safety net for practicing and learning. The first strings of that safety net must be woven by teachers who set the stage for even stronger ties, binding both students and teachers together within the classroom community. Only after students feel safe, valued, and affirmed will they become truly engaged in learning.

Engaged students are confident ones. They are confident in their own learning because they have a purpose for completing the reading or activity. They are also confident because their teachers provide a bridge for building on their prior knowledge for new learning to occur. Finally, students are confident because they know their teachers are there, when needed, to support and scaffold new learning.

Effective teachers know the grade level expectations (GLE) of their particular grade. However, they also acknowledge the need for reviewing both below and above GLEs in order to know what students previously learned and what they need to know once they leave their grade level. Embedded in this process are teachers' day-to-day lesson plans. Selecting a curriculum comprised of knowledge, skills, materials, dispositions, principles, and attitudes useful for students' learning in the classroom as well as beyond the classroom is the crux of highly effective and skilled teachers (Costa, 1991; Forgarty, Perkins, & Barell, 1991; Ip, 2003).

For learning to transfer to other situations, teachers employ various teaching strategies. Vockell (2004) discussed several ways to promote transfer of learning. Authentic instruction rather than rote memorization is used to make learning meaningful to students. Deliberate and explicit modeling of what the expected learning looks like is desirable. He further stressed teachers make certain students know *why* they are learning a particular strategy and *how* and *when* it might be used in another context. Of course, students must have time to practice new learning in a supportive classroom environment. Bransford, Brown, and Cocking (1999) cautioned, however, independent practice time must be spent on understanding, not simply on rote memorization of facts. Finally, Vockell (2004) emphasized students need to see teachers' positive attitudes toward the subject and learning because students are "more likely to draw upon learning about which they have positive feelings…" (para. 7). For broad and deep comprehension of new learning, teachers must continually remind students to make personal connections at all levels. In making connections, motivation tends to increase thus more time is willingly devoted to learn-

ing. Brandi, another graduate student, added this in a discussion about making connections: "Students need to see connections between concepts in order to build meaningful schema. I know I learn concepts much better when I am motivated and interested in the topic and make connections to already-learned material."

There – In Other Classrooms and Other Subject Areas

Teachers anticipate and expect students to transfer learning from one grade level to the next and from one subject area to another. This idea is crucial as students use information and material in novel, meaningful, and creative ways in other contexts. Ip (2003) stated, "The goal of all learning is to make information portable, so that learning travels with the learner to new locations" (p. 1). Teachers realize there is often a problem with this expectation. In fact, "Too often, what is practiced in one lesson fails to carry over into other lessons" (Bartel, 2005, para. 1). However, if transfer does not occur, students would need to relearn information every year and in every class.

Fortunately, teachers find creative ways of building bridges from old information to new as they tap into students' prior knowledge. Quite often, students have the knowledge needed to transfer to another context; but it is stored at a subconscious level. When this is the case, they need reminders of how to retrieve the information to apply it to a new learning situation. The use of questions is an effective way of tapping into prior knowledge. Teachers' lesson plans might make a point of referencing prior learning and how it is also relevant to new learning by noting specific questions to ask students when reviewing learned material (Bartel, 2005). In addition to specific questions, teachers should also be prepared to offer prompts to students who may need a slight nudge in responding to the questions. Since many schools use rubrics in assessment, Bartel further suggested wording on rubrics acknowledge transfer of learning such as, "Uses skills and knowledge gained in earlier assignments and other school subjects to noticeably improve the work of this assignment" (para. 8). Vygotsky believed that learning characteristics did not cease at a certain point as Piaget did (echeat, 2006). This study continued with the idea that "when one thing was learned, it was used from then on. It did not stop just because a child entered another stage of development. Everything was progressive" (echeat, 2006, para. 18). Dorn, French, and Jones (1998) stated, "The teacher designs instructional interactions that provide the learner with opportunities to transfer existing skills, strategies, and knowledge to new problem-solving activity across changing and varied situations" (p. 11).

Students must be able to perceive the connections to learned information and use the material in meaningful ways (Benander & Lightner, 2005). As in most instructional learning, modeling is another method teachers use to encourage transfer of learning. They frequently model explicitly and deliberately how new learning and old learning connects across and between disciplines. In addition to the graduate-level literacy course described earlier, I recently taught an undergraduate literacy methods course where pre-service teachers learned basic information about teaching reading, writing, and the other language arts. Students did not automatically recognize material from this course would need to transfer later to a more advanced literacy education course. Therefore, I frequently used modeling and think-alouds to make thinking visible and the information more meaningful to them. I also pointed out specific ideas, concepts, even vocabulary words they would need to take with them to a higher level methods course. My purpose for doing this, of course, was to impress upon them to truly learn and understand the information instead of memorizing it to simply pass an exam. As Bernander and Lightner (2005) pointed out,

"Decide what students really need to take with them to another course and spend the most time on that" (p. 205).

As teachers become more attentive to the importance of metacognitive skills, they should plan for students to practice the new learning in varied ways. This enables students' awareness of how they think and learn to grow making it easier to transfer the learning to new contexts (Halpern & Hakel, 2003; Perry, 2002). Graduate student Brandon, a middle school communication arts teacher, stated:

> Developing probing, challenging questions that lead to critical thinking, yet excites and interests students, is a skill in itself. By encouraging students to look beyond the surface of the printed page, they will begin thinking and questioning more on their own. With this analytical approach, I'm hoping students will carry these ideas over to personal reading and to other classes.

As students become more adept at verbalizing their thought processes, teachers must be aware of possible misconceptions and work to clear those up along the way.

Of course, initial learning takes time to comprehend so transfer to other contexts is possible. Bransford, Bown, and Cocking (1999) stated, "Providing students with time to learn also includes providing enough time for them to process information" (p. 42). They continued by pointing out, "Transfer is an active, dynamic process rather than a passive end-product" (p. 41); and it "requires learners to actively choose and evaluate strategies, consider resources, and receive feedback" (p. 54). Dewey (1938) stated, "What [the learner] has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with the situations which follow" (p. 44). Graduate student and preschool teacher, Sara, asked an obvious question: "How do we organize the knowledge we present to help students learn in ways they can apply their new knowledge to new situations?" Classmate Gracie replied: "Students who are actively engaged will organize ideas differently depending on their way of learning, their prior knowledge, and the various strategies that were meaningful to them in the initial learning." Olivia also commented: "Providing opportunities and time for students to become experts who organize their thoughts around big concepts and can then transfer their expertise to various other academic situations." And, further, Laura stated: "Making connections is absolutely vital in learning, retaining, and retrieving information. When students connect information between subjects, learning is much more seamless."

Anywhere – Outside of School and Into Everyday Lives

A major goal of education is to enable students to become productive, well-rounded, and self-regulated citizens who contribute to the well-being of themselves, their families, and the communities in which they live. Vockell (2004) stated, "The only reason for teaching most topics in the classroom is to enable students to use what they learn in settings beyond the school" (para. 7). Teachers recognize they are part of a huge puzzle resulting in the finished product of students' lives. Even though teachers cannot see the finished product, they do see overall concepts, which they try to teach students along the way. Graduate student and first grade teacher, Christina, offered this explanation:

> I enjoy putting puzzles together. Yet, I always look at the picture on the box before I try out the bits and pieces. Then I often refer back to the box to make cer-

> tain I'm on the right track with the picture. I tell my students this analogy, too. We may not get to the whole puzzle this year, but students leave my class with enough knowledge (and the puzzle box) to complete the picture in the future, in another class, or even as an adult as their knowledge increases.

While much teaching for transfer is shouldered by teachers, students must also carry their share of the load. Teachers may use strategies supported by the latest, evidence-based research; but it is ultimately up to individual students to learn, retain, and retrieve information when needed outside the school setting. Haskell (2001) emphasized it is students' responsibility to "apply what is learned in different contexts, and to recognize and extend that learning to completely new situations" (p. 3).

Students must be taught ways to use in-school learning in their everyday lives and, eventually, into the work place. Bransford, Brown, and Cocking (1999) stated, "Without specific guidance from teachers, students may fail to connect everyday knowledge to subjects taught in school" (p. 37). Frequent reviews of information learned from earlier settings is important. Modeling is another way to increase the likelihood of students' transfer of learning outside the classroom. Bernander and Lightener (2005) reported in a study about the concern of students not seeing how learning math skills was applicable to real life. However, as the teachers in the study began supplying real life examples, students' attitudes changed. They also began seeing the importance of math in science classes as well as in careers such as "navigation and engineering; and everyday uses such as interest rates and satellite dishes" (p. 201). Explicit and deliberate instruction made these connections possible and meaningful to students.

As stated earlier, students must have time to practice new learning before it becomes automatic for them. Guest speakers, who are experts from various fields, may speak to students about the importance of specific learning. For example, an engineer might speak to a math class; or a psychologist might speak to an English class. In fact, "Knowledge that is taught in only a single context is less likely to support flexible transfer than knowledge that is taught in multiple contexts" (Bransford, Brown, & Cocking, 1999, p. 66). Then students need time to discuss and practice what they learned from the guest speakers with emphasis on how the guest lecturer used the information in his/her position. This allows students to see how learning is transferred across and through all disciplines.

Students should be allowed and encouraged to read all types of print; not simply textbooks. This is easily done through modeling in the classroom. Students, supplied with newspapers, magazines, cell phone manuals, instructions for assembling items, appliance manuals, menus, cereal boxes, grocery ads, and of course, web-based text, are using reading situations they face in real-life. By using these materials, teachers show the roles comprehension, vocabulary, and fluency play outside the classroom.

Another area increasing transfer of learning is chunking ideas together for ease of retrieval when necessary. Students need ways of organizing information throughout their years of schooling. Teaching students how to chunk or sort ideas is a strategy teachers should begin in the early grades. Graduate student Jared stated: "Chunking information into relevant and meaningful groups contributes to how people are able to apply and understand information in different contexts." Then classmate Shauna, a high school English teacher, further explained:

> As a somewhat expert in identifying symbolism in novels, I chunk the concepts; and can easily see it in *To Kill a Mockingbird*. However, my students, as novices,

> struggle with this concept. Therefore, I must find a strategy to help them pull from previous learning in earlier grades and then teach them to chunk their learning, too.

Active, engaged students find ways to chunk big concepts and learn efficient ways of retrieval; and they see ways of inter-relating the chunks making connections even more viable (Bransford, Brown, & Cocking, 1999; Chi, Feltovich, & Glaser, 1981).

Summary – Here, There, and Anywhere

Perhaps teachers need to be more aware of non-school environments of students. Asking questions, such as the following, might help: What do I know about my students? Where do my students live? What is their background for learning a particular topic? Do I value and affirm each student? Do I see the big picture for teaching or am I only focused on my small part of their education? Are my instructions clear? How can I improve my instruction to meet students' needs? Do I frequently focus on transfer of learning from and to other grade levels? As Ip (2003) confirmed, "Teaching for transfer is, not just for a test, but for a lifetime" (para. 7). Further, Illeris (2010) stated "as long as learning psychology has existed, it has been imperative to discover what it would take for learning to obtain utility value across transitions to new situations or learning spaces" (p. 137). Graduate student, Christine, concluded: "Learning in the classroom goes far beyond academics. Students learn about people and especially about themselves. The more we learn now, the more we make connections to the real world 'stick' in our brains." Finally, Dorn and Soffos (2001) emphasized instruction is designed to provide learners with opportunities to transfer existing skills, strategies, and other knowledge to new problem-solving activities across changing and varied contexts.

Sam-I-Am was a persistent teacher who knew the delicious taste of green eggs and ham. His goal was to also teach his friend to relish the savory food. He tried *here*. He tried *there.* He tried *anywhere.* He even tried cooperative learning structures with a mouse, a fox, and a goat. He tried persuasion in various locations, such as a house, a box, a car, a tree, a train, a boat, even in the dark and in the rain. Nothing seemed to work. Finally, Sam-I-Am's passion for the food was understood as the friend also became fully absorbed with eating green eggs and ham. The persistence of Sam-I-Am is not unlike effective, passionate classroom teachers who know the value of initial learning, practicing the learning, and transferring the learning to new and innovative contexts throughout the grade levels and beyond to the workplace. Teachers know the deliciousness of learning lasts throughout a lifetime.

References

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

Bartel, M. (2005). *Teaching for transfer of learning.* Retrieved March 31, 2011, from http://www.bartelart.com/arted/transfer.html

Benander, R., & Lightner, R. (2005). Promoting transfer of learning: Connecting general education courses. *Journal of General Education, 54*(3), 199-208.

Bransford, J.D., Brown, A.L., & Cocking, R.R., (Eds.). (1999). *How people learn: Brain, mind,*

experience, and school. Retrieved March 31, 2011, from www.nap.edu/books/0309070368/html/

Chi, M.T.H., Feltovich, P.J., & Glaser, R. (1981). Categorization and representation of physics problems by experts and novices. *Cognitive Science* 5, 121–152.

Costa, A.L. (1991). Towards a model of human intellectual functioning. In Costa, A.L. (Ed.). *Developing Minds: A Resource Book for Teaching Thinking, Vol. 1*. Alexandria, VA: Associaton for Supervision and Curriculum Development, 137-140.

Cree, V.E., & Macaulay, C. (Eds). (2000). *Transfer of learning in professional and vocational education*. New York: Routledge Publishing.

Desse, J. (1958). *The psychology of learning*. New York: McGraw Hill.

Dewey, J. (1938). Experience & Education. New York: Touchstone. Malouf, D. (1994). *How to teach adults in a fun and exciting way*. Australia: Allen & Unwin

Dorn, L.J., French, C., & Jones, T. (1998). *Apprenticeship in literacy: Transitions across reading and writing*. York, MI: Stenhouse Publishers.

Dorn, L.J., & Soffos, C. (2001). *Shaping literate minds: Developing self-regulated learners*. Portland, MI: Stenhouse Publishers.

eCheat. (2006). *Comparison of Piaget*. Retrieved from http://www.echeat.com/essay.php?t=28727

Forgarty, R., Perkins, D., & Barell, J. (1991). *The mindful school: How to teach for transfer.* Palatine, IL: IRI/Skylight Publishing.

Graff, N. (2010). Teaching rhetorical analysis to promote transfer of learning. *Journal of Adolescent and Adult Literacy, 53*(5), 376-385.

Halpern, D., & Hakel, M. (2003). Applying the science of learning. *Change*, 36-41.

Haskell, R.E. (2001). *Transfer of learning: Cognitive, instruction, and reasoning.* New York: Academic Press.

Illeris, K. (2010). Transfer of learning in the learning society: How can the barriers between different learning spaces be surmounted, and how can the gap between learning inside and outside schools be bridged? *International Journal of Lifelong Education, 28*(2), 137-148.

Ip, Y.I. (2003). *Transfer of learning*. Retrieved March 31, 2011, from http://www.cdtl.nus.edu.sg/Ideas/iot18.htm

Kolb, D.A. (1984). *Experiential learning: Experience as the source of leaning and development*. Retrieved from http://academic.regis.edu/ed205/Kolb.pdf

Perkins, D.N., & Salomon, G. (1992). Transfer of learning. *International Encyclopedia of Education, Second Edition*. Oxford, England: Pergamon Press. Retrieved March 31, 2011, from http://learnweb.harvard.edu/alps/thinking/docs/traencyn.htm

Perry, N. (2002). Introduction: Using qualitative methods to enrich understandings of self-regulated learning. *Educational Psychologist, 37*(1), 103

Seuss, D. (1960). *Green eggs and ham.* New York: Random House Publishers.

Social Development Theory. Retrieved from http://www.learning-theories.com/vygotskys-sociallearning-theory.html

Vockell, E. (2004). *Transfer of learning*. Retrieved April 27, 2011, from http://education.calumet.purdue.edu/vockell/edpsybook/Edpsy6/edpsy6_transfer.htm

Dr. Deanne Camp is Professor of Literacy at Missouri State University in Springfield, MO. She is Coordinator of the Graduate Literacy Program and teaches both graduate and undergraduate courses in literacy/reading education. Deanne's research interests include assessment/evaluation, comprehension, and the affective area of learning. Her latest books are *Pairing Fiction and Nonfiction: Strategies to Build Comprehension in the Content Areas* and *Step-by-Step Writing Lessons in the K-1 Classroom*.