INTEGRATION OF LEARNING:
MEANING MAKING FOR UNDERGRADUATES THROUGH CONNECTION, APPLICATION, AND SYNTHESIS

by

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THE SCARECROW'S "GRADUATION"

The Great and Powerful Wizard of Oz,

in response to the Scarecrow's wish for a brain:

> Why, anybody can have a brain. That's a very mediocre commodity. Every pusillanimous creature that crawls on the Earth or slinks through slimy seas has a brain. Back where I come from, we have universities, seats of great learning, where men go to become great thinkers. And when they come out, they think deep thoughts and with no more brains than you have! But they have one thing you haven't got – a diploma. Therefore, by virtue of the authority vested in me by the Universitatus Committeatum E Pluribus Unum, I hereby confer upon you the honorary degree of Th.D....that's Doctor of Thinkology.

The Wizard of Oz

1939 Motion Picture

DEDICATION

To my wife, Catherine Willingham Barber

Carin, we're only at the beginning.

ACKNOWLEDGEMENTS

The support of my family has been very important to me throughout my education. My parents, John and Julia Barber, taught me everything I know about school and life, and always placed the highest value on education. Our home was one full of books, and my mom and dad passed on their love of reading and learning to me. They sacrificed much to send me to the best schools possible, and my experiences at Holy Innocents School, De La Salle Collegiate High School, Grand Valley State University, and Bowling Green State University certainly provided a solid foundation for me.

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My late Grandmother, Kathleen Sweeney, was one of the first in my family to pursue higher education. She became a Registered Nurse in 1927 when she graduated from the St. Joseph's School of Nursing in Guelph, Ontario, Canada. She often said to me when I was a boy, "James, you are a gentleman and a scholar." I trust that after my time here at the University of Michigan I am a bit closer to both.

October 8, 2008

Ypsilanti, Michigan

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ABSTRACT

INTEGRATION OF LEARNING:
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by

James Patrick Barber

Chair: Patricia M. King

Integration of learning has widely become recognized as an essential educational outcome for U.S. college students in the twenty-first century. This study investigates integration of learning as a collegiate outcome, defined as the demonstrated ability to link various skills and knowledge learned in a variety of contexts. A grounded theory approach was used to investigate the primary research question of how integration of learning develops in college students, identifying the smaller "microsteps" of development within integration of learning. This qualitative study focused on integration of learning among college freshmen by examining 194 interviews with 97 students (one interview at the beginning of their first year and another in the fall of the sophomore year) at two liberal arts colleges. These interviews were collected as part of the Wabash

National Study of Liberal Arts Education. There were 577 examples of integration identified among the 194 interviews.

Two conceptual frames were used in this study to investigate integration of learning: self-authorship and transfer of learning. Three distinct types of integration of learning emerged from analyzing the data: (a) *Connection*, the discovery of a similarity between ideas which themselves remain distinctive; (b) *Application*, the use of knowledge from one context in another; and (c) *Synthesis*, the creation of new knowledge by combining two or more insights. These three categories comprised the main microsteps of integration of learning.

A longitudinal analysis of these data showed a trend toward diversification of integrative method over time. In the second-year interviews, there were more examples of integration of learning, which were more evenly distributed among the three types of integration. This trend was also evident in developmental analyses. From a constructive-developmental perspective, students with a more advanced, internally-grounded level of self-authorship used the three types of integration of learning more equally than students with a less advanced developmental orientation. The contexts in which integration of learning happened varied widely and examples often bridged more than one context, indicating an intercontextual quality of integration of learning. Implications for practice are offered, which educators can use toward promoting the connection, application, and synthesis emblematic of integration of learning.

CHAPTER I: INTEGRATING DEFINITIONS

The ability to make connections among disparate elements of information and meaningfully synthesize concepts has been heralded as a necessary skill for success in the knowledge economy of the twenty-first century. There have been an increasing number of calls in American society for college and university graduates to possess this ability to make connections among life experiences, academic studies, and their accumulated knowledge, and from one context to another (AAC&U, 2002; AAC&U & Carnegie Foundation, 2004; ACPA, 1994; ACPA & NASPA, 2004; Joint Task Force on Student Learning, 1998; U.S. Department of Labor, 1991). In *Powerful Partnerships: A Shared Responsibility for Learning*, the Joint Task Force on Student Learning (1998), a commission assembled by three national higher education associations (The American Association for Higher Education, the American College Personnel Association, and the National Association of Student Personnel Administrators) suggested three categories of integrated learning, stating:

> Learning is fundamentally about *making and maintaining connections*: biologically through neural networks; mentally among concepts, ideas, and meanings; and experientially through interaction between the mind and the environment, self and other, generality and context, deliberation and action. (p. 3)

The general term "integration" has come into use in the field of higher education to describe the idea of making connections and applying learning in multiple contexts (AAC&U, 2002; Brown Leonard, 2007; Huber, Brown, Hutchings, Gale, Miller, &

Breen, 2007a; Huber & Hutchings, 2004; Joint Task Force on Student Learning, 1998). However, the concept of making such connections is not a new one in higher education. In 1852, John Henry Newman wrote in *The Idea of a University*, "I have said that all branches of knowledge are connected together, because the subject-matter of knowledge is intimately united in itself, as being the acts and the work of the Creator" (p. 99).

In recent years, the term "integration" has been used increasingly to describe this idea of connected learning, and has gained attention as an important outcome of a college education in the United States (Huber et al., 2007a; Huber & Hutchings, 2004; Leskes, 2004). However, the customary organization of higher education into disciplines poses challenges for integration on some campuses by limiting the literal and figurative proximity of disparate concepts and traditions. Three recent major reports have cited a lack of integration as a problem, and called for more intentional experiences to promote integration of learning among undergraduate college students (AAC&U, 2002; Huber et al., 2007a; Keeling, 2004). A second problem is that we know little about the mechanisms of development leading to integration of learning, particularly at the college level.

In this chapter, I will sort out the various definitions and derivatives of "integration" in the context of U. S. higher education, and frame integration of learning as a collegiate outcome. In addition, I will provide a brief critical review of the recent literature on integration of learning as an educational outcome.

Definitions

In the 2002 report *Greater Expectations: A New Vision for Learning as a Nation Goes to College*, the Association of American Colleges and Universities (AAC&U)

called for higher education institutions to develop students as "integrative thinkers who can see connections in seemingly disparate information and draw on a wide range of knowledge to make decisions" (p. 21). Other educators suggest that integrative learning should one day "take its rightful place alongside breadth and depth as a hallmark of a quality undergraduate education" (Leskes, 2004, p. iv). Although programs designed to integrate learning exist on many campuses within the United States, such interventions are often offered to a select few students, and segregated from the rest of the undergraduate curriculum (AAC&U & Carnegie Foundation, 2004). There has been both interest and progress in recent years with regard to designing integration of learning scales based on quantitative assessments of learning outcomes (Barnhardt, Lindsay, & King, 2006; Wabash National Study of Liberal Arts Education, 2007), but these measures are in the initial stages of development. At present, despite the growing call for integration of learning as an outcome of higher education, there is neither a widely accepted definition of what integration of learning is, nor a best practice for assessing it (Barber, 2007).

Investigating any problem concerning "integration of learning" must begin with a definition of the construct itself. In addition to the lack of a common definition, campuses, faculty, and students employ the language of integration inconsistently, which further complicates matters (DeZure, Babb, & Waldermann, 2005). This is not a new problem; a quotation from 1937 expresses much the same frustration with the lack of common terminology in education:

> With increasing frequency and with expanding meaning, the noun integration, or one of its grammatical associates, has been used during the past ten years [1927-1937] to designate educational goals, processes, and outcomes… The result has led to confusion rather than to clarity of thinking on educational problems. That

> the word has met a need for which educators have been groping seems generally agreed. The problem now is to examine these divergent meanings and uses in light of accumulating experiences so as to refine thinking in these areas, in order to better direct projected changes in present curriculum practices. (Hopkins, 1937, p. 1)

In reviewing the current literature on the topic primarily as it relates to higher education, three terms emerged as most common in describing the main concepts that are of interest in this paper: *integrative, interdisciplinary,* and *integration of learning*. These terms are related to one another, and I will explain their subtleties and illustrate how they are positioned with respect to each other. Figure 1.1 illustrates the range and relationships among these variations of integrative learning.

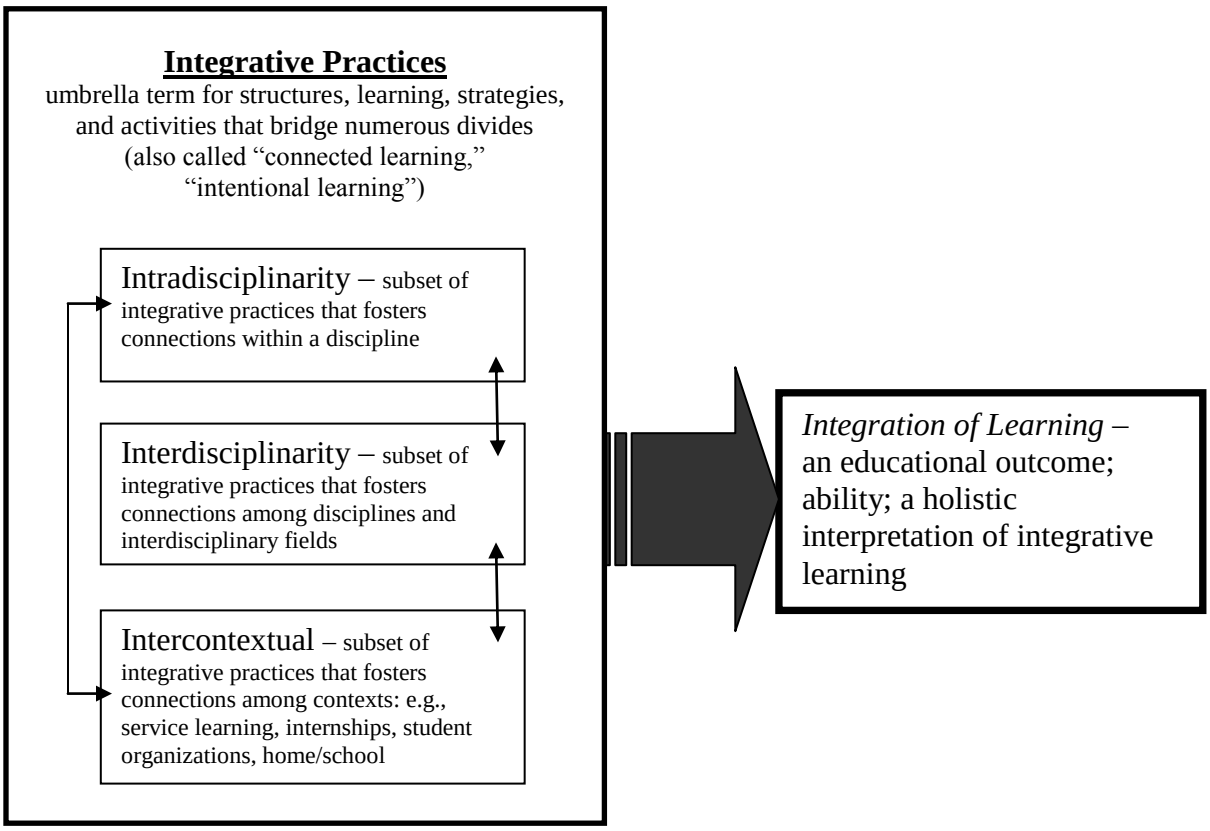

Figure 1.1. Positioning of definitions related to integration of learning as a collegiate educational outcome

Integrative Practices

Despite the confusion created by a lack of common terminology of integration for at least the past seventy years and perhaps longer, there does seem to be some convergence in the last two decades around the word "integrative." The term *connected learning* was widely used in the early 1990s by the Association of American Colleges [AAC] (now the Association of American Colleges and Universities [AAC&U]) to describe this same or a very similar concept (AAC, 1991a):

> There are two ways, by no means unrelated, in which the term "connected learning" may be employed. The first refers to the capacity for constructing relationships among various modes of knowledge and curricular experiences, the capacity for relating academic learning from one context to another. The second refers to the capacity for relating academic learning to the wider world, to public issues and personal experience. In either case, connected learning means generalizing learning: learning that extends beyond the necessary boundaries of any major and takes seriously its potential translation beyond the limits of a course or program. (p. 14)

One sign of the flux in usage of this term is the variability of terms used, even within organizations. Specifically, AAC&U has transitioned from "connected learning" (AAC, 1991a) to "intentional learning" (AAC&U, 2002) and now to "integrative learning" (AAC&U & Carnegie Foundation, 2004) which they defined as follows:

> Integrative learning comes in many varieties: connecting skills and knowledge from multiple sources and experiences; applying theory to practice in various settings; utilizing diverse and even contradictory points of view; and, understanding issues and positions contextually. Significant knowledge within individual disciplines serves as the foundation, but integrative learning goes beyond academic boundaries. Indeed, integrative experiences often occur as learners address real-world problems, unscripted and sufficiently broad to require multiple areas of knowledge and multiple modes of inquiry, offering multiple solutions and benefiting from multiple perspectives. (¶2)

I choose to use the term "integrative practices" to describe this category, rather than "integrative learning." Doing so helps avoid confusion with the term "integration of learning," which I describe as a skill and educational outcome, rather than a practice for achieving said outcome. Using these criteria, both integration of learning and interdisciplinary learning can be differentiated from integrative practices. Integration of learning is an educational outcome, a possible result of integrative practices, while interdisciplinarity is one specific type of integrative practice, which can also lead to the outcome of integration. Brown Leonard (2007) supports this positioning of integrative practices as an overarching term inclusive of many types of activities capturing "a variety

of integrative forms such as interdisciplinary study, service-learning, experiential learning, cooperative learning, and the blending of in class and out of class learning that could occur in almost any context (e.g., classrooms, student organizations, residence halls, work)" (p. 13).

Thus, *integrative practice* is the broadest of these three related terms (Klein, 2005), and serves as an umbrella term for structures, strategies, and activities that bridge various divides, such as high school and college, general education and the major, introductory and advanced levels, experiences inside and outside the classroom, theory and practice, and disciplines and fields.

Interdisciplinarity

Interdisciplinarity is a subset of integrative practices that fosters connections among disciplines and interdisciplinary fields (Klein, 2005; Newell, 2007). Berger (1972) further explains interdisciplinary as:

> An adjective describing the interaction among two or more different disciplines. This interaction may range from simple communication of ideas to the mutual integration of organizing concepts, methodology, procedures, epistemology, terminology, data, and organization of research and education in a fairly large field. (pp. 25-26)

Therefore, an interdisciplinary group consists of people trained in different fields of knowledge (disciplines) with different concepts, methods, and data and terms organized into a common effort on a common problem with continuous intercommunication among the participants from the various disciplines. I choose to use the term "interdisciplinarity" to describe this type of learning, instead of "interdisciplinary learning," again to avoid confusion with "integration of learning."

It should be noted that interdisciplinarity is just one type of many possible subsets of integrative practices, each with differing levels of interaction between disciplines and actors (Haynes, 2005; Klein, 2005; Lattuca, 2001). Another common variation is *intra*disciplinarity, which is by definition contained within one discipline. Other variations include adisciplinarity, which describes a theme (such as thirst or time) that does not reference disciplines in a traditional sense; multidisciplinarity, which describes the juxtaposition of various disciplines, sometimes without connection between them; pluridisciplinarity, which includes the juxtaposition of disciplines assumed to be more or less related; and transdisciplinarity, which involves establishing a common system of axioms for a set of disciplines (e.g., anthropology considered as "the science of man and his accomplishments") (Berger, 1972, pp. 25-26).

A third major subgroup of integrative practices is one that I call "intercontextual." This is kind of practice that fosters connections among contexts, such as service learning, internships, practica, student organizations, among other experiences. This group of experiences is often neglected in discussions of integration, although college students arguably spend more time engaged in intercontextual activities than in those related solely to the formal curriculum. In a broad conceptualization of integrative practices, I believe that intercontextual experiences figure prominently as forums for integration of learning by college students.

Like Berger, Lattuca (2001) eliminated integration from her definition of interdisciplinarity altogether, opting to define this term instead as "the interaction of different disciplines" (p. 78). She reasoned that while integration is a goal of interdisciplinarity, measuring the level of integration in a particular work or project is

difficult if not impossible to accomplish, so this is a challenging construct to use. She pointed out that some forms of integrative practice, such as transdisciplinarity, are more concerned with transcending disciplines than integrating them, and thus integration should not be a defining characteristic of interdisciplinarity. Based on her national study of interdisciplinary curricula, Lattuca focused on the types of questions asked, rather than the level of integration, in order to define interdisciplinarity. She constructed four broad categories of interdisciplinarity as a result: informed disciplinarity; synthetic interdisciplinarity; transdisciplinarity; and conceptual interdisciplinarity. For more information on this classification system, see Lattuca (2001). It is clear in this conceptualization that integration and interaction are not equivalent.

In this light, interdisciplinary work is an interaction, while integration of learning suggests something more intimate, where individuals or ideas actually come together (integrate), rather than simply interacting. Fischer's (1980) skill theory presented a framework for understanding the increasing cognitive complexity indicative of integration of learning. This theory posited that as people develop into adulthood, they have an escalating number of ways to make connections among the discrete facts that comprise their knowledge base and lived experience. The increasing complexity of Fischer's skill theory has been illustrated (Kitchener & Fischer, 1990) by a series of drawings progressing from a single dot, representing concrete concepts, to a line drawn between two dots, to a square formed with four lines, to a cube connecting six squares, and so on (see Figure 1.2) as the level of abstraction among the connections increases.

Just as there are a number of routes for "connecting the dots" in Fischer's theory as the level of abstraction increases, there are multiple potential pathways to integration

of learning. Interdisciplinarity suggests one mechanism, employing two distinct disciplines to solve a problem rather than a synthesis of two or more areas or fields (e.g., biology and chemistry, as opposed to biochemistry), for achieving integration of learning. King and VanHecke (2006, p. 16) applied Fischer's skill theory to student development and clarified that "cocurricular as well as curricular learning contexts offer many rich opportunities for students to learn and practice skills associated with making connections… developing these skills improves students' capacity to function in a complex world." This statement emphasizes the point that the study of integration of learning as a collegiate outcome should consider student experiences broadly, investigating learning within the disciplines (Schwartz & Fischer, 2006), and among disciplines (interdisciplinary), as well as with a keen interest in the cocurriculum (intercontextual).

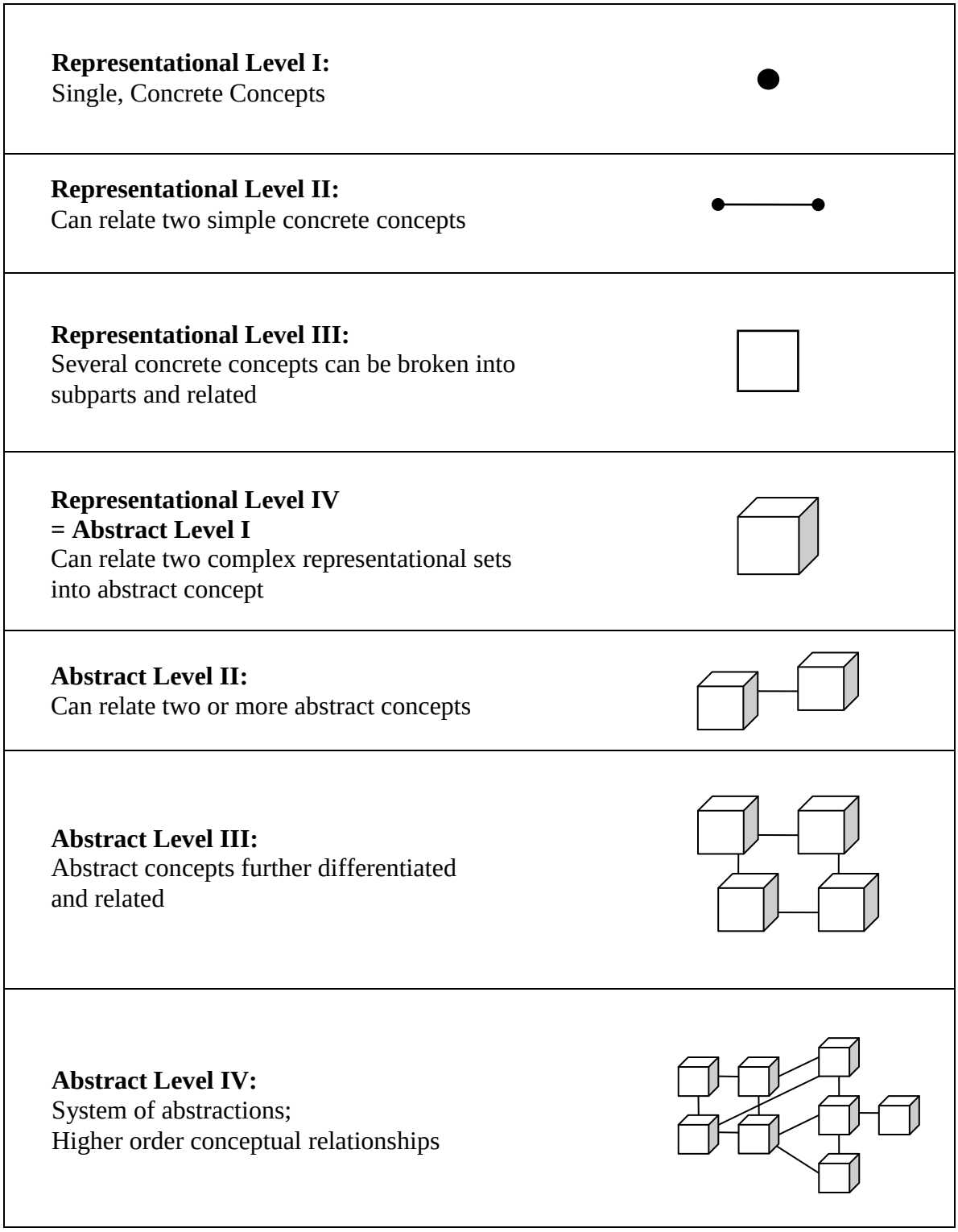

Figure 1.2. Illustration of Fischer's Skill Theory (Kitchener & Fischer, 1990)

Integration of Learning: Educational Outcome

The term "integration of learning" refers to an educational outcome of collegiate education based on the premise that intellectual study should connect in meaningful ways to everyday life (AAC&U, 2002; Wabash National Study of Liberal Arts Education, 2004). My interpretation is that this involves the ability to successfully draw together, evaluate, synthesize, and discerningly connect information gathered from a number of sources and contexts over time for the purpose of negotiating the everyday complexities of modern life. This construct includes the ability to integrate one's learning into both a larger framework and a frame of reference for making meaning from the information and knowledge one possesses. Douglas (1992) describes this integrative framework as:

> the mucilage to hold together the information they [students] do possess. The framework is at one and the same time something that the student has created for himself or herself and a set of shared values, a disposition to understand, evaluate, and stand open to the ideas of others. (p. 197)

This ability or outcome has received much attention as of late, and is also identified as a primary aim of a college education by AAC&U and Carnegie Foundation's (2004) *Statement on Integrative Learning*: "Fostering students' abilities to integrate learning – over time, across courses, and between academic, personal, and community life – is one of the most important goals and challenges of higher education" (p. 1). A recent study of this educational outcome describes the relationship of these terms as follows, "*integrative learning* is a dynamic synthesis of an individual's disparate thoughts, actions, and experiences" (Barnhardt et al., 2006, p. 6). In this conceptualization, *integration of learning* is a holistic interpretation of *integrative learning*, suggesting that integration of learning is "a multifaceted process that emerges from the cumulative exposure to and experiences in college" [emphases added]

(Barnhardt et al., 2006, pp. 5-6). Brown Leonard (2007) calls synthesis the most complex or intricate form of integration.

The conceptualization of this outcome by the Wabash National Study of Liberal Arts Education (King, Kendall Brown, Lindsay, & VanHecke, 2007) is that:

> Integration of learning is the demonstrated ability to connect information from disparate contexts and perspectives. This includes the ability to connect the domain of ideas and philosophies to the 'real world,' from one field of study or discipline to another, from the past to the present, from one part to the whole, from the abstract to the concrete—and vice versa. (p. 5)

This definition emphasizes the fluid, back-and-forth nature of integration of learning as a skill that allows for facile movement among disciplines, contexts, and concepts. I have highlighted several examples selected from the higher education literature to illustrate that varied terms and models are used to describe this idea of intentionally making connections among different courses, experiences, skills, and ideas, over time. This array of descriptors and criteria reflects both a terminology problem and a conceptual problem for those in higher education interested in promoting and assessing integrated learning among college students.

The definition that I propose to use for this study takes into consideration the various definitions I have discovered in a review of the literature:

> Integration of learning is the demonstrated ability to connect, apply, and/or synthesize information coherently from disparate contexts and perspectives, and make use of these new insights in multiple contexts. This includes the ability to connect the domain of ideas and philosophies to the everyday experience, from one field of study or discipline to another, from the past to the present, between campus and community life, from one part to the whole, from the abstract to the concrete, among multiple identity roles—and vice versa.

Although there has not been a consistent use of or distinction among the terms "integration," "interdisciplinary," and "integrative" in the existing literature, I have

endeavored to distinguish between the disparate uses and intentions, and seek clarity in the concepts presented in the literature. I see *integrative practices* as the overall umbrella term for educational practices and conditions that intentionally help students make connections, *interdisciplinarity* as one type of integrative practice focusing on interactions between and among academic disciplines, and the *integration of learning* as an educational outcome characterized by an individual's ability to make connections among various types of information and contexts. In the course of this study, I use the definition of integration of learning provided above.

Historical Development of Integrative Practice in Education

The history of integrative practice in American higher education is in essence a tale of gradual dis-integration. Until the late 1800s, the curricula in United States colleges and universities were more cohesive than it is today, with most institutions favoring a common curriculum for students (AAC, 1991a). *The Yale Report of 1828* defended the common curriculum of the time, stating,

> But why, it is asked, should *all* the students in a college be required to tread in the *same steps?* Why should not each one be allowed to select those branches of study which are most to his taste, which are best adapted to his peculiar talents, and which are most nearly connected with his intended profession? To this we answer, that our prescribed course contains those subjects only which ought to be understood, as we think, by every one who aims at a thorough education. (p. 18)

In fact, the "major" was not first introduced in U.S. institutions of higher education until fifty years later in 1878 when Johns Hopkins University adopted it as a means of allowing specialization in undergraduate studies (AAC, 1991a, p. 1). Just four years later, the University of Michigan was the first institution to end the use of common examinations for each class of students. In 1882, the university discontinued its comprehensive exams in favor of testing in each discipline under the jurisdiction of

faculty members and departments. This was the beginning of an increasing trend toward specialization that characterizes most higher educational institutions in the United States today (Levine, 1998). Historian John Higham has argued that the contemporary academy is like "a house in which the inhabitants are leaning out of the many open windows gaily chatting with the neighbors, while the doors between the rooms stay closed" (AAC, 1991a, p. 15).

It seems that almost since this trend toward specialization began, there have been educators trying to reverse it in favor of a more holistic experience. Educational theorist Alfred Whitehead wrote extensively on the subject of the lack of integration in American education resulting from disciplinary divides. He suggested a unified curriculum which he called simply "Life:"

> The solution which I am urging, is to eradicate the fatal disconnection of subjects which kills the vitality of our modern curriculum. There is only one subject-matter for education, and that is Life in all its manifestations. Instead of this single unity, we offer children—Algebra, from which nothing follows; Geometry, from which nothing follows; Science, from which nothing follows; a Couple of Languages, never mastered; and lastly, most dreary of all, Literature, represented by the plays of Shakespeare, with philological notes and short analyses of plot and character to be in substance committed to memory. (Whitehead, 1929, pp. 10-11)

Other likeminded educators and researchers over the years have supported this idea, including some of the most influential educational scholars and researchers of the last century. Boyer (1987) called for an "integrated core" for undergraduate general education.

> We conclude that general education urgently needs a new breath of life. More coherence is required to relate the core program to the lives of students and to the world they are inheriting. There is a need for students to go beyond their separate interests and gain a more integrated view of knowledge and a more authentic view of life. (p. 90)

Boyer (1990) also called for the recognition of the "scholarship of integration," which he defined as "making connections across disciplines, placing the specialties in larger context, illuminating data in a revealing way, often educating non-specialists, too" (p. 18).

Calls for Increased Integration of Learning

In 1991, the Association of American Colleges issued a report titled *The Challenge of Connecting Learning*, which delineated two ways in which "connected learning" (later, integrated learning) could be employed. The first was to build relationships among "various modes of knowledge and curricular experiences, the capacity for applying learning from one context to another" (p. 14). The second way that the report sought to promote connected learning was through relating academic learning to practical situations in the real world, in both public and private experiences.

The report envisioned the discourse of undergraduate education as a means to an end, one step in a larger journey that takes students well beyond institutions of higher education. Thus, "for students in most major programs, fostering capacities for reflection on what happens beyond the academy must be the larger goal," according to this report (p. 14). The authors of *Connecting Learning* suggested that the application of learning from one context to another (i.e., transfer of learning, discussed further in Chapter Two) had been left almost entirely to students as a result of a curriculum that focuses on the major or discipline. They suggested that their second type of connected learning, the nexus of academic learning and personal epistemology (a link which has similarities to the theory of self-authorship, discussed later in this chapter and in Chapter Two), had been even more neglected by colleges and universities. They called for this integration to

take place in public, accredited, curricular space for all students, rather than privately among only those students with the initiative to explore how their academic experiences affect them personally and pragmatically (AAC, 1991a).

Business and government leaders have also echoed the call for greater integration of learning in undergraduate education (AAC&U, 2005a). The U.S. Department of Labor reported in 1991 that "reading, writing and basic arithmetic are not enough. These skills must be integrated with other kinds of competency to make them fully operational." The same governmental report stated that:

> Workers are expected to identify, assimilate, and integrate information from diverse sources; they prepare, maintain, and interpret quantitative and qualitative records; they convert information from one form to another and are comfortable conveying information, orally and in writing as the needs arises. (U.S. Department of Labor, 1991, p. 11)

Similarly, the mission statement of the National Skill Standards Board reads in part, "in a high performance work organization, academic, occupational, and employability skills are not independent of one another. It is the integration of all three that is necessary to function effectively" (AAC&U, 2005a, p. 13)

There was a movement in the late 1980s and early 1990s in U.S. higher education that spurred many new campus programs to focus on integration of learning among students. The AAC's study, *Liberal Learning and the Arts and Sciences Major*, approached the topic from within academe in collaboration with twelve national learned societies such as the American Chemical Society, the American Sociological Society, and the Association of Departments of English (AAC, 1991b). This movement toward integration coincided with an increase in co-curricular experiences designed to be more intentionally integrative, such as living learning communities, freshman seminar courses,

and common reading programs for first-year students. This increase can be at least partly attributed to a widely-read report entitled the *Student Learning Imperative*, challenging the learning mission of student affairs that called for a more "seamless" college experience in terms of student learning (ACPA, 1994).

Academic disciplines have also been supportive of goals of integration, though with a more *intra*disciplinary outlook. For example, the American Psychological Association (APA) established integration of learning *within* the psychology knowledge base as a key learning outcome for undergraduate majors, as well as integrating psychology with broader liberal arts learning (Task Force on Undergraduate Psychology Major Competencies, 2002).

Organizations in student affairs recognized integration of learning as an important outcome of an undergraduate education as well. The *Student Learning Imperative* declared that professionals working in "student affairs must model what we wish for our students: an ever increasing capacity for learning and self-reflection" (ACPA, 1994, p. Conclusion). A decade later, *Learning Reconsidered* (ACPA & NASPA, 2004) argued for the use of all available resources in higher education, inside as well as outside the classroom, to develop the whole student. This report supports the call issued in *Greater Expectations* (AAC&U, 2002) for producing intentional learners who have the ability to integrate knowledge from different sources, and expands this effort to include student affairs functions as well as traditionally academic affairs areas.

Lastly, the *Integrative Learning Project*, cosponsored by the Association of American Colleges and Universities and The Carnegie Foundation for the Advancement of Teaching, recently added another appeal to the higher education community:

> Developing the ability to make, recognize, and evaluate connections among disparate concepts, fields, or contexts is what integrative practice is all about. Breadth and depth of learning remain hallmarks of a quality liberal education. Yet, today, there's a growing consensus that breadth and depth are not enough. (Huber et al., 2007a, p. 1)

This wide-ranging coalition of forces in education, business, labor, and government signal the importance of this topic and the broad interest in promoting integration of learning among our college undergraduates.

The number of calls for increased integration of learning on American campuses has increased steadily over the last 20 years, with representation from a variety of organizations and associations in academe, student affairs, and federal government. This is significant, as it indicates a societal interest in integration of learning as an outcome of higher education, and might predict an interest in learning more about how to effectively promote this outcome on U.S. college and university campuses.

Sensitizing Concepts and Subjectivities

As I consider the issues surrounding integration of learning as a college outcome today, I also consider what draws me to this topic as a researcher. Within the qualitative research tradition, it is important to discuss the personal assumptions and biases that I bring to the study. As the researcher, I am intimately involved in the interpretation of the data I analyze in this study. As such, it is relevant to disclose my own background and the sensitizing concepts that accompany me in my inquiry.

For many years I was a student affairs practitioner and I have a strong belief that learning takes place both inside and outside of the classroom. That is one reason I am drawn to the concept of integration of learning, because I see it as essential for college students to integrate the learning they are doing in the formal curriculum with the

learning they are doing at home, at work, with family and friends, through student organizations, etc. As a result, I may be tempted to privilege this type of integration in my analyses.

Second, much of my work in student affairs was as a fraternity/sorority advisor, which brings both positive and negative biases. I personally am a fraternity member and have remained involved with my organization (Sigma Phi Epsilon) beyond my undergraduate years as an alumni advisor and volunteer. I believe that fraternal organizations can have an important and positive role in a student's life, and have had an overall positive experience as a member myself. However, as a fraternity affairs professional on several college campuses, I have also seen the destructive power of these groups, and have a disdain for hazing, alcohol abuse, and other abusive behaviors that are often associated with fraternities and sororities. As a result, I will likely be more attuned to both positive and negative experiences reported by students who may be members of fraternities or sororities.

It is also relevant to note my own identifying characteristics, which influence my perception of the world, as well as how others perceive me. I identify as a White male, in my 30s, and have Irish, English, and Native American (Ojibwa/Chippewa) heritage. I am married. I am Catholic, and attended parochial schools through high school. I attended public institutions of higher education for all of my postsecondary study, although my undergraduate institution (Grand Valley State University) prides itself on offering a liberal arts education. These are my lenses. All of these characteristics, and certainly others, affect the ways in which I interact with college students and interpret reports regarding students' experiences.

Just as interpersonal relationships are affected by perceptions and biases, so are characterizations of places. The campuses that I visited as an interviewer for the Wabash National Study influenced my way of thinking about the students enrolled there. The campuses from which I drew my sample (discussed in Chapter Three) are both small, private, liberal arts colleges. This specific type of higher education environment is laden with stereotypes in the Western/American culture where I have grown up. The thought of such institutions, for me, conjures up visions of ivy covered walls and a campus experience somewhere out of the film "Dead Poet's Society." Private liberal arts colleges also carry a connotation of elitism and wealth for me that I attempted not to project onto the students enrolled on such campuses.

As I work with the data for this study, I endeavored to keep these sensitizing concepts in the foreground of my mind. While it is not possible to remove these sensitizing concepts from my own perception of the world and the data I analyze, I acknowledge their influence upon my perception to the extent I am able. It is not a goal (nor an option) to be a wholly objective observer in this type of qualitative research, but I will attempt to remain aware of my own subjectivities and keep them in check throughout the data collection and analysis processes.

Conceptual Framework

Lens of Self-Authorship Theory

Many theories and models of human development position integration or synthesis as a complex, higher order cognitive skill (Baxter Magolda, 2001; Bloom, 1956; Fischer, 1980; Kegan, 1982, 1994; King & Kitchener, 1994; Kitchener & Fischer, 1990; Kohlberg, 1984; Loevinger & Wessler, 1970). Of these, Kegan's (1994) holistic

self-authorship model in particular has great potential to inform the development of integration of learning. The work of early developmental researchers, especially Jean Piaget, provided a foundation for Robert Kegan (1994), who argued that the complexity of life in modern America called for increasingly complex forms of education and methods for organizing our experiences and thoughts. Kegan combined Piaget's concepts of constructive-developmentalism with the psychoanalytic tradition to create a new framework that described how the human mind develops over time and in response to a wide array of life challenges. Kegan employed Piaget's notion of "constructive-developmentalism" to illustrate that this theory is both constructive, dealing with how people construct meaning, and developmental, indicating evolution in their ways of making meaning. This "evolution of consciousness" (Kegan, 1994, p. 9) is what lies at the heart of the development of self-authorship.

Kegan's framework describes how he envisions human consciousness unfolding and developing over the course of a lifetime. His model consists of five "orders of consciousness" or phases that people move through as they grow and change in the way that they think about the world, themselves, and their relationships with others. Each order describes a way in which people make meaning of themselves, their relationships, and the world around them, and organize these thoughts and feelings in relation to one another. The term "self-authorship" was coined by Kegan to describe the fourth order of his framework, where individuals begin to carry out such mental tasks internally, rather than based upon external approval or formulae. Marcia Baxter Magolda (2001) applied this theory to postsecondary pedagogy, and stated that "constructive-developmental

pedagogy is essential for a multi-layered approach that prepares college graduates to be lifelong learners who can keep pace with the evolution of knowledge" (p. 233).

Self-authorship as conceptualized by Kegan (1982; 1994) and Baxter Magolda (1998; 1999; 2001) locates development within three dimensions of developmental psychology: the epistemological or cognitive dimension (i.e., how one makes meaning of knowledge); the intrapersonal dimension (i.e., how one views one's sense of identity); and the interpersonal dimension (i.e., how one constructs one's relationships with others). Students who are "self-authored" consider multiple perspectives, reflect on their own values and motivations, and utilize these internally-grounded and -evaluated goals and perspectives as a foundation for meaning making. Baxter Magolda described students as progressing through four phases of development, which she called the "journey toward self-authorship" to convey both the continuum of development and its on-going nature. These four phases are, sequentially, (1) Following Formulas, (2) The Crossroads, (3) Becoming the Author of One's Life, and (4) Internal Foundation. These categories overlap with (but are not identical to) Kegan's five orders of consciousness. These two theories are both based upon the concept of human development as an evolutionary process over a lifetime, and are firmly grounded in longitudinal research on the development of adults in their 20s, 30s, and 40s.

These conceptualizations of development are closely linked to student learning, which is at the heart of my research question. As people progress toward self-authorship, their ways of thinking about knowledge, their identities, and their relationships change. Such changes in perspective necessarily affect the learning process; in this light, learning is itself a developmental activity (King & Baxter Magolda, 1996). Mezirow's (2000)

transformational learning theory also describes the relationship between development and learning. He wrote,

> Transformative learning refers to the process by which we transform our taken-for-granted frames of reference (meaning perspectives, habits of mind, mind-sets) to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action. Transformative learning involves participation in constructive discourse to use the experience of others to assess reasons justifying these assumptions, and making an action decision based on the resulting insight. (p. 7-8)

This "resulting insight" is per se the "integration of learning" that I investigate in this study. I explore the position of integration of learning at the nexus of learning and development in much greater detail in the following chapter.

Microsteps of Development

Then how does one come to transformational learning's resulting insight? How does one integrate learning? Despite the growing interest in integration of learning, the substantial literature on development, learning, and the developmental nature of learning, little has been explored about the process. This gap in the literature of learning and development has piqued my curiosity and is where I have subsequently focused my interest. An individual does not become "self-authored" overnight in Kegan's or Baxter Magolda's model; a person is not "transformed" instantaneously in Mezirow's theory. Several developmental theories introduce transitional scoring systems to reflect this phenomenon. For example, Kegan referred to the "shifts" between orders of consciousness (e.g., 3/4 Shift), researchers from the Wabash National Study of Liberal Arts Education identified transitions within external meaning making (e.g., Ea, Eb, Ec) (Baxter Magolda, King, Taylor, & Perez, 2008), and Baxter Magolda (2008) did the same for internal meaning making (e.g., Ia, Ib, Ic). Likewise, I argue that there are more subtle

increments that comprise integration of learning. I call these increments "microsteps" to indicate the small strides I envision carry young adults forward as they develop the capacity for integration of learning.

Given the relevance of integration of learning as an educational outcome as discussed in this chapter, and given the need for additional knowledge about how students navigate through learning and development as young adults, the confluence of these topics is ripe for investigation. Figure 1.3 illustrates the conceptualization of microsteps of integration of learning within the larger self-authorship framework, here, within the first phase of this journey. I expect that microsteps exist at all levels of development toward self-authorship. I only highlight the initial phase of self-authorship here for clarity, and also because I anticipate this will be a common position developmentally for many college students.

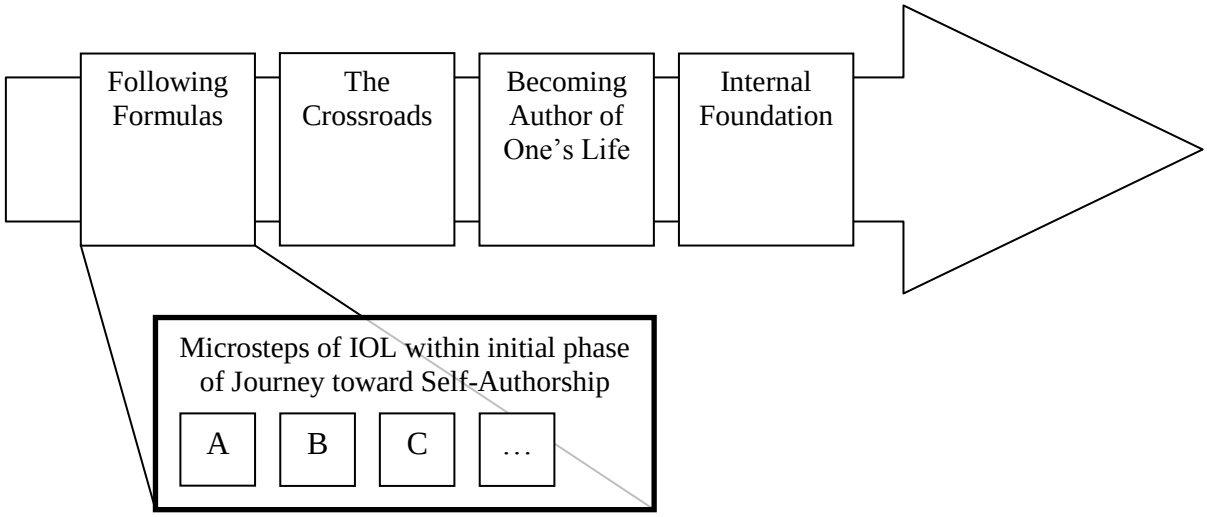

Figure 1.3. Conceptualization of Microsteps of Integration of Learning (IOL)

Conclusion

My interest in this study is not only with the experiences that college students have that promote integration of learning, but also with the developmental steps prompted by experiences that comprise progress toward integration of learning, starting with the small "microsteps" of development that occur within the first year of college. In contemplating the nexus of these significant issues in higher education, and my personal research interests, I have undertaken a study that examines how integration of learning develops among first-year college students. In the study, I investigate integration of learning as an educational outcome through the lenses of student development and educational psychology in an effort to shed additional light on this emerging topic, and contemplate how experiences in college may promote this outcome more effectively. The focus of this inquiry is on the first year of college, in an effort to identify smaller developmental steps in relation to students' abilities to integrate learning.

As the ability to make connections between seemingly disparate concepts becomes an increasingly important outcome of a college education, it is important to discover more about the nature of integration of learning in the context of liberal education. It is my intention for this study to advance knowledge in the fields of higher education, outcomes assessment, and self-authorship. To heed the call for increased accountability of college and universities, and an increasing desire for integration of learning as an outcome of higher education, educators will require a fuller understanding of integration of learning and how this ability develops among young adults.

CHAPTER II: NEXUS OF LEARNING AND DEVELOPMENT

Integration of Learning as a Collegiate Educational Outcome

Integration of learning is widely becoming recognized as an essential educational outcome for U.S. college and university students in the twenty-first century (AAC&U, 2004, 2005a; King et al., 2007). The Association of American College and Universities (AAC&U) recently selected integration of learning as one of five key educational outcomes deserving of more concentrated attention and assessment. As highlighted in their 2002 report titled *Greater Expectations: A New Vision for Learning as a Nation Goes to College*, AAC&U defined this essential outcome as "achieved and demonstrated through advanced research and/or creative projects in which students take the primary responsibility for framing questions, carrying out an analysis, and producing work of substantial complexity and quality" (AAC&U, 2004, p. 6).

In this chapter, I examine two bodies of literature that are helpful in considering how integration of learning develops among college students: self-authorship and transfer of learning. *Self-authorship* theory originated in psychology in the late twentieth century, and has been imported into the field of college student development as a holistic model for describing the manner in which individuals develop in the context of a college or university. Self-authorship describes how people develop increasing capacities to respond to and address life's challenges in three overlapping dimensions of development (cognitive, intrapersonal and interpersonal).

The concept of *transfer of learning* also has its roots in the field of psychology, and posits a number of ways individuals apply learning from one context to another. The transfer of learning literature includes over a century of thinking about learning, and offers a broad knowledge base to this study. Transfer of learning has been focused largely in the cognitive domain of development, and I believe the language and concepts can be readily adapted to the intrapersonal and interpersonal domains of development as well. These two theories complement one another in that transfer of learning addresses how individuals transfer skills and knowledge learned in one context to other contexts, while self-authorship focuses on the developmental changes on the individual level that enable or influence a person's ability to draw such connections between contexts. Both offer conceptual frameworks that can inform inquiry into the development of integration of learning.

Self-Authorship

Major Elements of Theory

In order to understand the essential elements of self-authorship model, it is helpful to review the foundations of constructive-developmentalism. The origins of constructivist philosophy lie with the work of Swiss psychologist Piaget (Flavell, 1963; Piaget, 1932) and Soviet psychologist Vygotsky (1978), who each independently advocated moving away from a behaviorist view of learning. Behaviorism suggested that the learner was a passive part of the learning process, one who simply reacted to stimuli and served as a receptacle for information. Tolman (1932) and Hull (1943) were vocal proponents of behaviorism in the first half of the twentieth century, and became known for their debates about the nature of behaviorism, specifically regarding the role of stimuli in behavior.

Skinner (1974), also a leading proponent of behaviorism, claimed in his learning theory that human behavior was "attributable to contingencies of reinforcement—or…to the subtle and complex relations among three things: the situation in which behavior occurs, the behavior itself, and its consequences" (p. 148). Psychologists such as Piaget and Vygotsky guided the literature in a new direction, one that sought to acknowledge the individual's ability to make meaning of a situation and play an active role in the experience.

Piaget suggested that the learner and environment could not be separated, and instead interact and affect one another. According to this theory, an individual literally "constructs" knowledge that aids in interpreting, navigating, and adapting to the environment; thus, the term *constructivism*. Of particular importance in Piaget's theory is the learner's interaction with peers and the environment. Flavell (1963) summarized the fundamental thesis of Piaget's theory, stating:

> Piaget asserts that experience is a subtle and complicated affair, the role of which varies with development, and that contact with things always involves the apprehension of a complex of events within a meaning system which organizes them….The cognizing organism is at all levels a very, very active agent who always meets the environment well over halfway, who actually constructs his world by assimilating it to schema while accommodating these schemas to its constraints. (p. 71)

The foundation of constructivism rests on this principle championed by Piaget that meaning is made (or constructed) by individuals in response to experiences and interactions with the environment.

Working in the same era, but in vastly different geographic and political worlds, Vygotsky's philosophy complemented that of Piaget. Vygotsky lived in the Soviet Union, and Piaget worked mainly in Switzerland. Vygotsky (1986) suggested that language and

culture played important roles in constructivism, and greatly influenced how an individual understood the world and concepts constructed. His theory focuses on context as a critical element of development, and emphasizes the importance of an individual's cultural, historical, and social environment, in contrast to Piaget's ideas of universal stages of human development. Thus, Vygotsky's work is often referred to as cultural-historical psychology, and Piaget's work as cognitive psychology. Vygotsky (1978) believed that knowledge was created through interaction with what he called discourse communities. As Vygotsky's view was applied to educational settings, the teacher was seen as a learning guide or architect rather than an all-knowing authority figure. In this vision, the instructor facilitated discourse, analysis, and critical reflection. This concept of communities as a context for learning and development is an important one. Lave and Wenger (1991) also discussed the importance of context in their work on situated learning and communities of practice. Through five case studies on apprenticeship, they found that although apprenticeship is usually thought of in terms of a teaching relationships between a master and an apprentice, learning often happened in the context of larger groups of peers and mentors. Lave and Wenger called these larger groups *communities of practice*.

Gavriel Salomon, an educational psychologist at the University of Haifa in Israel and an expert on transfer of learning (to be discussed in greater detail later in this chapter), supported the important role of community in the construction of knowledge. He asserted that:

> … a clearer understanding of human cognition would be achieved if studies were based on the concept that cognition is distributed among individuals, that knowledge is socially constructed through collaborative efforts to achieve shared

> objectives in cultural surroundings and that information is processed between individuals and tools and artifacts provided by the culture. (Salomon, 1993, p. 3)

These definitions of discourse communities and communities of practice emphasize the role of society in constructivism and individual meaning making. The notion of Vygotskian discourse communities strikes me as particularly salient to the study of integration of learning. Although I am interested in how an individual integrates learning, I understand that each individual is embedded in several societies or communities which contribute to his or her meaning making and process for integration of learning. The importance of communities in constructivism is a point that I will return to later in this chapter as I explain my conceptual framework for the study.

Robert Kegan's (1982; 1994) theory of self-evolution follows human development throughout the lifespan, and draws directly on Piaget's notion of constructivism. Kegan advances a holistic approach to human development that includes three dimensions of development: the cognitive (epistemological) dimension (i.e., how one makes meaning of knowledge); the intrapersonal dimension (i.e., how one views one's sense of identity); and the interpersonal dimension (i.e., how one perceives one's relationships with others). Individuals make meaning in all three of these domains. Development proceeds within these three dimensions (cognitive, intrapersonal, and interpersonal) in a basic pattern of moving from concrete, externally-generated ways of knowing to more complex, internally-derived frameworks. Kegan (1994) asserts that development proceeds in each of the three overlapping dimensions (cognitive, intrapersonal, and interpersonal); due to this overlap, progress in one area may influence progress in the other two. In his approach to human development, Kegan makes concerted efforts to consider and synthesize the work of Piaget (1932), Vygotsky (1978;

1986), Dewey (1938), Perry (1970), Erikson (1963; 1968), and other educators and developmental theorists into an interdisciplinary, coherent, and holistic model of development, which is precisely why his work is key to an investigation of integration of learning.

Kegan (1994, p. 34) calls the phases of development in his model "orders of consciousness," and organizes them based on the increasingly complex ways in which people think about or make meaning of experiences. Therefore, Kegan's model is both *constructivist*, based on individuals' making meaning of situations, and *developmental*, proposing that there is progressive change to more complex meaning making patterns over time.

His method of organization for these developmental phases is based on changing ways of knowing in which ideas at differing levels of abstraction alternate as *subject* and *object*. Individuals are aware and in control of certain meaning making structures (which affect what one can think about outside one's original frame of reference; this is object), and not conscious of nor capable of controlling other meaning making structures, and thus, are subject to them. In Kegan's (1994) model, individuals progress developmentally through the orders of consciousness in a way in that the meaning making structures that are subject in one phase gradually become object in the next as the individuals develop more complex ways of understanding. This progression of subject-object pairs is detailed in Table 2.1 below.

Table 2.1

Kegan's Model of Self-Evolution, Orders of Consciousness

Order	**Subject**	**Object**	**Underlying Structure**
1	Perceptions Social Perceptions Impulses	Movement Sensation	Single point/ Immediate/Atomistic
2 Instrumental	Concrete Point of View Enduring Dispositions	Perceptions Social Perceptions Impulses	Durable Category
3 Socialized	Abstractions Mutuality/Inter-personalism Inner States	Concrete Point of View Enduring Dispositions	Cross-categorical Trans-categorical
4 Self-Authorship	Abstract systems Institution Self-Authorship	Abstractions Mutuality/Inter-personalism Inner States	System/Complex
5	Dialectical Inter-Institutional Self-Transformation	Abstract systems Institution Self-Authorship	Trans-System Trans-Complex

(Kegan, 1994, pp. 314-315); titles for orders adapted from (Boes, 2006)
* Shading indicates the orders of consciousness most prevalent among college students, and therefore most applicable to a study of traditional-aged college student development

Self-authorship as conceptualized by Kegan (1982; 1994) and later refined as it applies to college students by Baxter Magolda (1998; 1999; 2001) describes a developmental level at which one has the ability to consider multiple perspectives, reflect on their own goals, and utilize internally derived goals and perspectives as a foundation for meaning making. Baxter Magolda titled the developmental progression leading to this level the *Journey toward Self-Authorship*, which captures the developmental nature of the process. As Baxter Magolda (1999) stated: "Self-authorship means believing one can construct knowledge claims, make one's own inner psychological life, and regulate

relationships with others to maintain one's own identity. Genuine self-authorship occurs when one reaches self-authorship in all three dimensions" (p. 39).

Studies suggest that between one-half and two-thirds of the adult population of the United States does not reach the fourth order of consciousness, or the self-authorship level of meaning-making (Kegan, 1994). Therefore, one can conclude that most college students are working with meaning-making orientations between the second and fourth orders (Baxter Magolda, 2004c; Boes, 2006; Kegan, 1994; Pizzolato, 2003). Self-authorship, which is of particular interest in this chapter, is Order Four of Kegan's model.

Baxter Magolda (2001) has explored self-authorship over the course of a 21+ year longitudinal study. Based on the data from this study, she developed a model that describes four main phases along the journey toward self-authorship, through which individuals progressively move from externally-defined to internally-defined orientations. As briefly summarized in Chapter One, these four phases are: (1) *Following Formulas*, where most cues about beliefs, identity, and relationships come from external sources; (2) *The Crossroads*, where an individual sees the need to bring more internal thought to his or her life and struggles with previously dominant external ways of thinking; (3) *Becoming the Author of One's Own Life*, which is the transition to self-authorship, where an individual begins to choose his or her own beliefs and values; and finally (4) *Internal Foundation*, where an individual gains internal control over how he or she makes meaning of himself or herself, relationships, and the broader world. Baxter Magolda subsequently developed a more nuanced view of the Becoming the Author of One's Own Life and Internal Foundation phases. She found that three elements comprise and extend these phases: *trusting the internal voice*, *building an internal foundation*, and *securing*

internal commitments (Baxter Magolda, 2008). Trusting the internal voice is an important part of Becoming the Author of One's Own Life, and could be called the beginning of self-authorship. Building an internal foundation is aligned with the previous Internal Foundation phase, and securing internal commitments describes an even more advanced developmental level than expressed by the Internal Foundation phase. These distinctions only became clear as her longitudinal participants moved into their mid-to-late 30s.

The three dimensions of self-authorship (cognitive, intrapersonal and interpersonal) are intertwined with one another, and woven throughout the four phases of the journey. As one progresses toward self-authorship, he or she grows in the cognitive, intrapersonal and interpersonal domains. These three domains become more closely integrated the further a person moves along the path toward self-authorship. The phases of the journey toward self-authorship as described by Baxter Magolda overlap with, but are not equivalent to Kegan's five orders of consciousness. For example, Kegan's Order Three shares many characteristics with Baxter Magolda's *The Crossroads* category, and *Becoming the Author of One's Life* covers the transition between Kegan's Orders Three and Four, sometimes referred to as the 3/4 Shift.

Assessment of Self-Authorship

Qualitative. Due to the complexity of meaning making structures and the fact that individuals cannot always readily identify their own ways of making meaning, self-authorship is difficult to assess. This highlights the subject/object divide. To use Kegan's language, individuals can only identify and organize those meaning making structures that they are able to make object. By contrast, people can often demonstrate *but do not recognize* those meaning making structures to which they are subject. For this reason in-

depth personal interviews have been shown to be effective in assessing self-authorship because of their ability to probe into an individual's way of making meaning (Baxter Magolda & King, 2007). However, in assessment in interview settings, there must still be acknowledgement of the distinction between the cognitive demands of production and recognition tasks (King, 1990; Rest, 1979); sometimes participants can recognize a response that suggests a particular meaning making level, but they cannot produce the same meaning making if probed directly about it.

Kegan utilized the Subject-Object Interview (SOI) to assess development (Lahey, Souvaine, Kegan, Goodman, & Felix, 1988). This interview is approximately 60 minutes long, and begins with the interviewer asking the interviewee to record real-life experiences and reactions on a series of ten cards which are labeled "anger, anxious/nervous, success, strong stand/conviction, sad, torn, moved/touched, lost something, change, important to me" (Lahey et al., 1988, p. 291); these cards are used to prime the interviewee with discussion topics for the interview. These experiences are then drawn upon as topics of conversation in the interview. The interviewer is trained to employ probing questions to follow up on initial responses in a way that uncovers people's constructions of knowledge. This system is designed to access all three dimensions of self-authorship, including not only the cognitive aspects of psychological organization, but the ways individuals organize their understanding of intrapersonal and interpersonal dimensions as well.

Baxter Magolda described a similar interview technique employed in her longitudinal study of self-authorship. The Baxter Magolda Self-Authorship Interview (2001), which has been administered to her longitudinal sample annually over the past 20

years, begins with the interviewee providing a summary of the previous year's events, and continues with an open invitation to discuss those experiences that were most meaningful. Similar to the Subject-Object Interview, this method allows the interview participants to choose which topics they would like to discuss in more detail. The interviewer uses probing questions to follow up on information the participant shares in an attempt to uncover the meaning making structures that reflect developmental levels; this conversational exchange comprises most of the 90-minute interview. The final section is reserved for the participant to conclude, make connections between his or her present perspective and those of past years, and ask questions about the interview or research process (Baxter Magolda, 2001; Baxter Magolda & King, 2007). This opportunity for making connections and synthesizing information is of particular interest when considering assessment techniques for studying development of integration of learning. Baxter Magolda employed grounded theory (Charmaz, 2003, 2006) to analyze these data and allow themes to emerge from the data rather than be established a priori. For in-depth descriptions of this process, see key works by Baxter Magolda (1992; 2001; 2004a).

A third interview strategy for assessing self-authorship is the Wabash National Study of Liberal Arts Education (WNSLAE) Interview. This interview was adapted from Baxter Magolda's Self Authorship Interview (2001) to meet the needs of the Wabash National Study, and was designed to trace development in terms of seven liberal arts outcomes, as well as the underlying journey toward self-authorship. The liberal arts outcomes of interest in this national research project are: leadership, well-being, inclination to inquire and lifelong learning, intercultural effectiveness, effective reasoning

and problem solving, moral character, and integration of learning. For definitions of these outcomes and a description of how they were chosen, see King et al. (2007). The WNSLAE Interview is organized into three sections, the first of which is intended to build rapport between the interviewer and participant (if they have not previously met). The middle section of the interview focuses on the student's significant experiences, allowing the student to choose which experiences he or she wishes to discuss. The interviewer engages the student in conversation and uses probing questions to encourage reflection and articulate how she or interprets these experiences (such as how they affected subsequent decision making). The purpose here is to elicit information about the student's underlying meaning making structures within the three dimensions of development (cognitive, intrapersonal and interpersonal). The final portion of the interview offers an opportunity for the student participant to synthesize the information and experiences she or he has discussed, and offer any additional observations. As with Baxter Magolda's (2001) Self Authorship Interview, a grounded theory methodology (Charmaz, 2003, 2006) serves as the foundation for data collection and analysis for the Wabash National Study.

Mixed method. Over the last two decades, interview techniques have been the primary mode of assessing self-authorship, but there have been recent attempts to design quantitative measures of self-authorship. Pizzolato (2005b) created two instruments to measure self-authorship, which she called the Self-Authorship Survey (SAS) and the Experiences Survey (ES). The SAS consisted of 29 statements on a five-point Likert scale ranging from strongly agree to strongly disagree. The statements were designed to evaluate achievement of self-authored ways of knowing (e.g., "I often can't do things if

people I admire think I shouldn't") (Pizzolato, 2005a, p. 52). Pizzolato also administered the questionnaire-style ES which utilized students' written narratives of their most important decisions and the processes they used to come to said decisions. The Experiences Survey was administered in conjunction with the SAS, and asked students to describe in writing an important decision they had made; the written component was used in an effort to access their developmental orientation.

Quantitative. Elizabeth Creamer (2008) has explored a fully quantitative measure of self-authorship. She used a questionnaire, The Career Decision Making Survey, as the instrument for her study. This instrument is a written assessment that contains 119 items and takes approximately 20 minutes to complete; students respond to each of the items using a 4-point Likert scale to indicate the degree to which they agree with the statement. Based on the responses of 183 students on the survey, Creamer developed a set of scales using factor analysis, and then employed path analysis to explore the relationship among the factors to demonstrate the construct validity of self-authorship. She commented on this method of assessment that "although the exercise has been an intellectually invigorating one, I share a healthy skepticism about the ability to capture the complexity of self-authorship in a brief questionnaire" (Creamer, 2008, p. 24).

There are many practical advantages of a survey approach. Many more participants can be evaluated with the Career Decision Making Survey, SAS and/or ES, with less expenditure of resources than an interview. Conducting personal interviews is time intensive, as is the subsequent transcription, coding, and analyses. Even considering the coding involved with scoring the written narratives of the Experiences Survey, the resources necessary to administer and evaluate a survey are less than those necessary to

interview a similar number of participants. A preliminary analysis of the quantitative data from the SAS indicated that the measure was statistically sound; however the results did not correlate highly with the qualitative ES, which was coded using a grounded theory approach similar to those described earlier in regard to interview assessments.

This review of self-authorship assessment illustrates some of the challenges inherent in evaluating individual meaning making and developmental orientation. Based on the assessment methods reviewed, personal interviews seem to have the advantages of allowing for probing questions to "dig deeper" into a person's meaning making structures, and at the same time providing the flexibility to explore in depth experiences of the participant's choice. The interview technique also remains closer to constructivist paradigm, allowing the interviewer and participant to co-construct the conversation.

Summary of Research

The theory of self-authorship is relatively new, and all of the scholarship conducted on self-authorship in the college setting has taken place in the last twenty-five years, with Baxter Magolda's work as the longest-running. Kegan (1994) first introduced the construct of self-authorship as one of his orders of consciousness (described earlier). Kegan and his associates conducted a longitudinal study of adult orders of consciousness, with a sample of 22 adults who were interviewed using the Subject Object Interview annually for four years and then again five years after the last interview. He found a strong developmental pattern in the interviews, and stated:

> …the overwhelming impression from the data is that an increasingly complex way of constructing reality gradually unfolding. With very few exceptions, if a person's order of consciousness changes from one year to the next it changes only very gradually (never more than two discriminations, that is "fifths" of the way from one order of consciousness to another). Given that the interviews were assessed without knowledge of assessments from prior years (and with high

> interrater agreement), these are quite remarkable findings. If the orders of consciousness assessed by the study are not developmental but susceptible to being taught or learned in and of themselves, why is there such overwhelming directionality to them over time?...It seems much more likely that what the data are chronicling is the gradual evolution or unfolding of a mental capacity. (p. 188)

Through his research, Kegan established the developmental nature of the orders of consciousness over the course of an entire lifespan. Baxter Magolda later documented the developmental nature of a narrower slice of this process, focusing on the journey toward self-authorship, through her longitudinal research.

As mentioned earlier, Baxter Magolda (1992; 1999; 2001) has taken a grounded theory approach (Charmaz, 2003, 2006) to researching self-authorship development among undergraduate college students (who then became alumni/ae) in the course of a longitudinal study for over 20 years. This study is based on a constructive-developmental view that relies on two basic concepts: (a) students construct knowledge through a form of meaning making where they reflect upon and organize their experiences, and (b) that this construction occurs in the midst of their own evolving assumptions about knowledge itself and their role in (or ability to) create it (Baxter Magolda, 1999, p. 6). This study began with *n*=101 students as freshmen in college; 39 of the participants continued through their twenties, and 30 remain in the sample today (Baxter Magolda, 2008). She found that most participants "left college having made little progress toward self-authorship," and the subsequent interviews with participants in their twenties uncovered the crucial role of internal self-definition in achieving self-authorship (Baxter Magolda, 2001, p. xvii). Baxter Magolda's (2001) study contributed to greater understandings of how people experience the journey toward self-authorship, and the practices and experiences that promoted development toward this end.

Pizzolato (2003) found a much different picture in her qualitative study of 35 high-risk college students, where "high-risk" was defined as being at high risk for failing or withdrawing from college due to poor academic performance. Pizzolato's results demonstrated that low-privilege students (*n*=22) often developed the capacity for self-authorship before college, while high-privilege students (*n*=13) did not achieve self-authorship as early. She attempted to clarify the types of provocative experiences that promoted self-authorship among college students, and determined a hypothesis for the discrepancies in timing of the emergence of self-authorship between her work and that of Baxter Magolda in terms of the timing of self-authorship development (pre-college versus well after college). Pizzolato found that simply having a provocative experience was not alone enough to trigger a student to enter the crossroads of self-authorship. Furthermore, she suggested that privilege can in fact hinder or delay self-authorship in some situations where students do not have to figure things out for themselves (e.g., full scholarships, freshman orientation). She concluded that "the most helpful relationships are ones wherein the students are actively engaged to think through not only how to achieve their possible selves, but also the implications of achieving these possible selves" (Pizzolato, 2003, p. 811).

Pizzolato (2003) found that students' primary source of behavioral regulation also appeared to be linked to self-authorship level. Those students with high levels of self-regulation more often were able to carry out a plan (that is, exhibit volitional efficacy), and thus self-author. External regulation, in the form of others or circumstances, appeared to hinder provocation and ultimately development of self-authorship. This seems to be a Catch-22 from my point of view, and begs the question, how does one construct an

(external) experience to promote self-authorship among students that is internally catalyzed? This particular question is important for consideration in the design of undergraduate college experiences, both curricular and co-curricular.

Although students who approached challenges utilizing the tools of self-regulation, reflection, and volitional efficacy tended to develop self-authorship, other choices for coping with the situation resulted in different outcomes that utilized external opinions or frameworks to recreate equilibrium in one's life without truly addressing the challenge of the situation (Pizzolato, 2003) and bypassing an opportunity to enter Baxter Magolda's *The Crossroads* phase of the journey toward self-authorship. This strategy is essentially choosing to change the environment or situation rather than changing one's self or beliefs.

Data from the pilot phase of the Wabash National Study of Liberal Arts Education supported this finding, and suggested that the students may move toward self-authorship in differing ways depending on the challenges (i.e., demands) posed by their experiences. An analysis of interviews with 94 students on two campuses revealed three distinct ways in which students reacted to challenging situations: 1) passive exposure to new ideas, perspectives, and diverse others, 2) discomfort leading to action, and 3) reliance on organizational structures or routines. Some students quietly "took in" new information and perspectives, processing internally, while others actively sought to take action to change the environment in an effort to avoid the uncomfortable disequilibrium, and still others sought shelter within the structures of the environment to face the challenge (Barber & King, 2007).

Pizzolato (2004) identified three very similar coping styles utilized by the high-risk college freshmen in her sample: avoidance coping (*n*=7), in which students retreated from challenge; self-regulatory coping (*n*=6), in which students focused on their personal goals when challenged; and supported coping (*n*=14), in which students turned to peers or authorities for support during challenge. She suggested that the process of transitioning to college was in itself an important developmental crossroad that promoted self-authorship for the high-risk students in her sample.

Avoidance coping was of particular interest to me because it highlighted an oftern overlooked aspect of development, backward trajectory or regression. Self-authorship was most often discussed as slow but steady forward motion, or a "one-way street" toward self-authored thinking. Pizzolato's work drew connections between the possibility of regression in self-authorship and Perry's (1970) description of retreat. Although Pizzolato found avoidance coping detrimental to high risk students' adaptation to college as well as their self-authorship development, it was interesting to note that over a quarter of the students in her study employed this coping strategy.

Pizzolato (2004) made a provocative argument in an attempt to reconcile her findings with both the self-authorship and coping literatures, suggesting that:

> This pattern of retreat from and reemergence of self-authorship suggests self-authorship might come in two forms: action and reasoning, where action involves behaving in ways consistent with self-authored thinking, and reasoning is an ability to cognitively and intrapersonally make sense of situations. (p. 439)

This is an interesting hypothesis because it returns to the conflict between constructivism (making meaning of a situation) and behaviorism (reacting to a situation) discussed in the introduction to this chapter. In other words, whether the student translated reasoning into

action. Pizzolato also suggested this action-reasoning split may explain the discrepancy between the SAS and ES instruments described earlier.

Creamer and Laughlin (2005) also encountered situations where students at less-advanced meaning making levels rejected advice or avoided decision making. A key contribution of their research on the career decision-making of college women was the important role that others play in influencing decisions. This study supported the idea that self-authorship affects decision-making by investigating its role in the specific context of career choice. They found that women using an external meaning making orientation often rejected advice from a career counseling professional in favor of advice from parents or trusted peers. They theorized that this was not based on the merit of the advice or the qualifications of the individuals, but rather because the student was not yet sufficiently advanced to consider multiple perspectives or opinions in making a decision (and thus, not self-authored). This study also revealed the key role that parents play in a student's development of decision making skills and self-authorship. Creamer and Laughlin concluded that female students had to be able to use an intermediate or advanced level of meaning making in order to choose a career that was outside of their own life experience or the experience of trusted others.

Similarly, the effect of students' meaning making structures on student's perceptions of their experiences was also a key finding in Boes' (2006) research. Boes conducted a study of constructive-developmental pedagogy involving eight undergraduate students, in an effort to explore the gap between service-learning theory and practice. She introduced students' interpretations of their experiences as a new analytical lens for examining service-learning, and described service-learning as an

inherently developmental experience. Boes found that students with more advanced levels of self-authorship were more successful in achieving the learning goals of the service-learning course. She said:

> the greater capacity students had to view themselves as creators of knowledge, distinguish roles from relationships, maintain boundaries and manage relationship, hold and prioritize internal and external demands, see themselves as generators of their own emotions and take responsibility for them, and be self-evaluative, the more they reported learning about community learning and themselves, and the more favorably they viewed their learning experience in this course. (Boes, 2006, pp. 234-235)

Boes concluded that her work supported Kegan's (1994) theory that meaning-making structures are exhibited across contexts (i.e., work, school, family, community), and also across domains (cognitive, interpersonal, intrapersonal). Boes found consistency across contexts and domains, as well as differences that suggested students may utilize a range of meaning making structures rather than operating at one consistent level; this supported Pizzolato's (2004) work that revealed avoidance coping in some circumstances. Since her research focused on students in a class context, Boes' study also raised questions about whether and how *groups* of learners fit into the established models of constructive-developmental pedagogy (as opposed to *individual* students) and how student experiences in class (and therefore possible outcomes) could be different if a level of trust and community is not established within the group. This line of thinking is reminiscent of Vygotsky's (1978) discourse communities which highlighted the important roles that context, culture, community, and environment played in the learning process. Throughout the majority of research on self-authorship, the results clearly demonstrate the importance of a student's meaning making level to their perspectives on and reactions to their experiences.

Self-authorship and marginalization. As the communities on American college and university campuses become more diverse, new findings are emerging about how different groups of students progress on the journey to self-authorship. Although Kegan's (1994) research indicated that over half of adults in the United States do not reach self-authorship within their lifetime, recent research suggests that some individuals are thinking in self-authored ways during, or even before entering college. In particular, students who have experienced marginalization or oppression in their lives appear to develop the capacity for self-authorship earlier than other individuals. These differences related to marginalization are intriguing and I want to discuss them briefly at this point. While not a focus of my study, there are certainly students from marginalized communities within my sample (primarily in terms of racial/ethnic background and sexual orientation) and I think it is valuable to consider how their life experiences may relate to their self-authorship level and how they see the world around them.

As described earlier, Pizzolato (2003; 2004) conducted two exploratory studies of self-authorship in "high-risk" college students (defined as those with a high risk for withdrawal from college). Employing interviews and the SAS and ES instruments, Pizzolato (2003; 2004) found that some students came to college already thinking in self-authored ways. Her data were different from the findings from both Baxter Magolda's (2001) longitudinal study and Kegan's (1994) research; for some individuals in Baxter Magolda's (1992; 2001) longitudinal study, this transition occurred during their undergraduate years; however for most, the characteristics of self-authorship did not emerge until they encountered the combination of challenge and support in during post-college experiences (typically in graduate education or their first work environment).

Kegan (1994) found similar results in his study, which indicated that many adults did not reach self-authorship until they were into their 40s.

This result is not wholly unexpected, since Pizzolato's sample was much more diverse than those of either Kegan or Baxter Magolda, and likely had a very different life experiences prior to their college years. For example, several low-privilege students in Pizzolato's sample talked in their interviews about the realization that their mothers could no longer help them. A participant named April recalled,

> There came a point when my mom just didn't have the answers, and I'm like, "How do I get in this school?" And [she said], "I don't know. You'll have to find out. I'll help you once you find out, but I don't know." So it's kinda like I had to figure these things out. (Pizzolato, 2003, p. 807)

Pizzolato's study included mostly students of color, a contrast to the participants in Baxter Magolda's longitudinal study, who are mostly White. In Pizzolato's 2003 study of 35 students, 16 identified as Black or African American, one was Asian, eight described themselves as Hispanic or Latino/a, and three students indicated more than one race, for a total of 28 students of color. Her 2004 study included the 27 students from the 35 in the previous sample who were college freshmen, 24 of whom identified as non-White; the students described their race as follows, Black or African American (n=13), Latino/a (n=7), more than one race (n=3), and Asian (n=1). The racial and ethnic composition of the samples in these studies are important to note because of the effect that challenges to identity (as well as evolution of identity) have on an individual's progress toward self-authorship, particularly within the intrapersonal domain of development (Torres & Hernandez, 2007).

Torres and Hernandez (2007) conducted a longitudinal assessment of self-authorship with a group of Latino/a college students over the course of three to four

years. This study employed a semi-structured interview with probes used to gain more information about decision-making and important experiences. However, this assessment is different from the others discussed in this chapter, particularly the longitudinal work, for two reasons: the sample all self-identified as non-White, and self-authorship was used as an interpretive frame, not as the primary research focus. Findings of this assessment indicated that although researchers observed all of the phases of self-authorship described by Baxter Magolda, they also had the additional developmental experience of understanding racism and how it affected them. Torres and Hernandez's work highlights how identity can affect (and should be considered in) the assessment of self-authorship. Abes and Jones (2004) reported similar findings of self-authored ways of knowing in their study of lesbian college students.

The nature of the stimulus is important in considering questions about the role racial/ethnic identity has regarding self-authorship (as well as other marginalized groups related to gender, sexual orientation, immigration status, English Language Learners, etc.). The work of Baxter Magolda, Kegan, Pizzolato and others suggests that internally-grounded challenges or decisions more often prompted students to reflect on their options, encouraging the reflective ways of meaning making that are characteristic of self-authorship. By contrast, students reacting to dilemmas that were externally-imposed more often followed formulas or made decisions without enough personal reflection to bring about a level of disequilibrium high enough to prompt development toward self-authorship.

The results of Pizzolato's studies with high risk students (2003; 2004) suggested, however, that too much disequilibrium in students' experience may halt or delay self-

authorship. This effect was seen with transfer students as well as with high-risk students (Pizzolato, 2004; Wawrzynski & Pizzolato, 2006). Therefore, it is important to note that the appropriate level of disequilibrium is required to catalyze self-authorship as well as to keep it moving in a forward direction. In particular, there is a need for further research into how privilege and oppression affect the development of self-authorship among college students.

Practice: Promoting Self-Authorship

The previous sections provided a review of the methods used to assess self-authorship, and a summary of key research findings about self-authorship among college students. Now I would like to shift the focus from research to practice, and discuss strategies for promoting self-authorship. This informs my inquiry into integration of learning since self-authorship is theorized to be the foundation for achievement of liberal arts outcomes, including integration (King et al., 2007). Therefore, the practices that effectively promote self-authorship among college students will directly or indirectly play a role in the cultivation of integration of learning.

The research reviewed in the preceding section illustrated the importance of the experiences that one encounters, and how he or she makes meaning of them, to the ability to self-author. The notion that balanced levels of challenge and support can promote development is a cornerstone of developmentally-informed educational practice (Sanford, 1962). Kegan employed the metaphor of a bridge as a way of illustrating how proper support can lead to development and growth:

> …it is *not* necessarily a bad thing that adolescents are in over their head. In fact, it may be just what is called for *provided they also experience effective support*. Such supports constitute a holding environment that provides both welcoming acknowledgement to exactly who the person is right now as he or she is, and

> fosters the person's psychological evolution. As such, a holding environment is a tricky transitional culture, an evolutionary bridge, a context for crossing over. It fosters developmental transformation, or the process by which the whole ("how I am") becomes gradually a part ("how I was") of a new whole ("how I am now"). (Kegan, 1994, pp. 43, italics in original)

Kegan continued this metaphor, and suggested that curriculum, broadly speaking, is co-constructed by the makers of the curriculum and the way in which students understand it. In his words:

> We cannot simply stand on our favored side of the bridge and worry or fume about the many who have not yet passed over. A bridge must be well anchored on both sides, with as much respect for where it begins as for where it ends. (Kegan, 1994, p. 62)

The assessment techniques described earlier in this chapter provide such an anchor or foundation from which to launch experiences or interventions for promoting self-authorship among college students. It is the capacity to assess self-authorship that allows educators to know where a student's "bridge" begins. A firm understanding of how to assess self-authorship is necessary to develop practices that effectively promote it. A description of a holistic model for practices that promote self-authorship for college students follows.

The *Learning Partnerships Model* is a specific paradigm designed to build the type of evolutionary bridge that Kegan envisioned. A pedagogical model for promoting self-authorship (see Figure 2.1), the Learning Partnerships Model operates on three key assumptions and three key principles for educational practice (Baxter Magolda, 2004b). These insights are derived from the data collected for Baxter Magolda's longitudinal study (1992; 2001). The three core assumptions about educational practice are accepted as the basis for developing self-authorship, and three related principles are important to connecting the assumptions to individual learners' development. These principles and

assumptions form the basic foundation of the Learning Partnerships Model, discussed in detail next.

The assumptions offer challenge for learners, and the principles offer support, reminiscent of Sanford's (1962) idea that both challenging situations and supportive structures need to be in place for optimal college student development. When these assumptions and principles operate together in the conceptualization of the Learning Partnerships Model, the context is conducive to development, and individuals begin to shift from an external orientation to an internal orientation, thus progressing on the journey to self-authorship.

Kegan viewed a balance between challenge and support as one of the fundamental notions of development. In summarizing what he has learned about human development, Kegan (1994, p. 42) wrote:

> People grow best when they continuously experience an ingenious blend of support and challenge; the rest is commentary. Environments that are weighted too heavily in the direction of challenge without adequate support are toxic; they promote defensiveness and constriction. Those weighted too heavily toward support without adequate challenge are ultimately boring; they promote devitalization. Both kinds of imbalance lead to withdrawal or dissociation from the context. In contrast, the balance of support and challenge leads to vital engagement.

This balance of challenge and support forms the basis for the Learning Partnerships Model (see Figure 2.1).

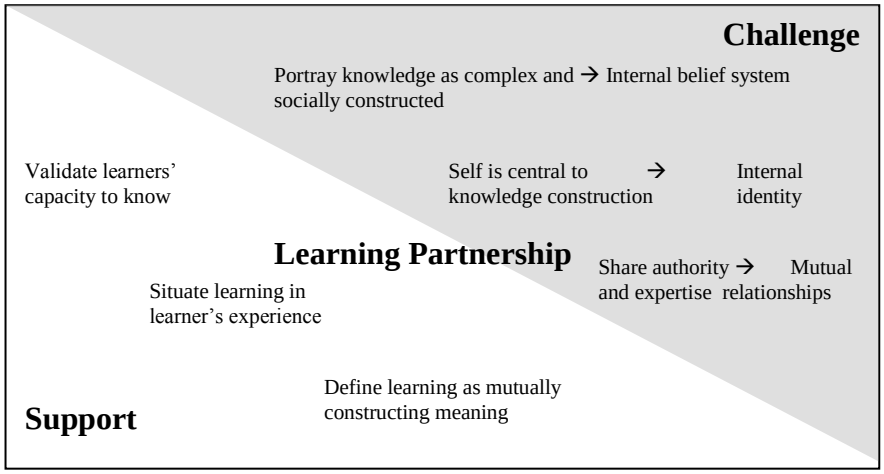

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Figure 2.1. The Learning Partnerships Model (Baxter Magolda, 2004b, p. 41)

Baxter Magolda found that environments that successfully promoted self-authorship shared three key assumptions, which challenged students, and three key principles, which served as support structures for students. The developmentally effective environments, those that effectively promoted development of self-authorship, assumed (a) that knowledge as complex and socially constructed, (b) that self is central to knowledge construction, and (c) that authority and expertise were shared between equal partners (Baxter Magolda, 2001). These three challenges illustrate the aims of the three dimensions of development, the cognitive, intrapersonal and interpersonal domains, respectively. These assumptions were not explicit in the environments, but rather created through the actions of the teachers, employers, and other adults in the manner they interacted with others.

To balance the challenging aspects of an effective learning environment, three principles for educational practice serve as support mechanisms for students. These

principles were originally identified during the college phase of Baxter Magolda's (1992) longitudinal study: (a) validating students' capacity to know; (b) situating learning in the context of the student's experience; and (c) defining learning as mutually constructing knowledge. Again, these three principles align closely with the three domains of development toward self-authorship. Validating learners' capacity to know supports the cognitive dimension of development, placing learning within the student's experience buttresses identity (or intrapersonal) development, and setting an expectation for co-constructed knowledge encourages interpersonal growth. When these three principles and three assumptions come together, a true learning partnership occurs, and both student and teacher become fully engaged in the process of learning (Baxter Magolda, 2004b; Baxter Magolda & King, 2004).

In identifying the three principles for educational practice, three constructive-developmental pedagogical processes emerged as helpful for promoting the development of self-authorship. These processes modeled a balance of challenge (via the key assumptions) and support (via the key principles) which is sought after in a learning partnership, and were found to effectively promote self-authorship. These three processes include interactive lecture, teachers and learners investigating together, and the use of narrative in teaching and learning (Baxter Magolda, 1999, 2001). Pedagogical practices such as these are "essential for a multi-layered approach that prepares college graduates to be lifelong learners who can keep pace with the evolution of knowledge" (Baxter Magolda, 2001, p. 233). Detailed descriptions of the LPM in practice in a range of disciplines and contexts are presented in the edited volume, *Learning Partnerships Model: A Framework for Promoting Self-Authorship* (Baxter Magolda & King, 2004).

Relation of Self-Authorship to Integration of Learning

Despite the recent research on the development of self-authorship in young adults, there is little known about the beginning of this sequence of development, or the "early" end of the continuum. This presents a challenge for me in studying integration of learning among students entering college through their first year (my area of interest). Baxter Magolda's (1992; 2001) longitudinal work has demonstrated that many college students do not achieve self-authorship until well after their graduation from college, and data from the pilot and longitudinal phases of the Wabash National Study support this finding (Baxter Magolda, King, Stephenson, Kendall Brown, Lindsay, Barber, & Barnhardt, 2007; Baxter Magolda et al., 2008; Baxter Magolda, King, Taylor, & Wakefield, 2009; Kendall Brown, 2008). While most undergraduate students in college are working with externally-driven developmental orientations in the cognitive, intrapersonal, and interpersonal domains, little is known about the *how* students progress through this external phase in general, and specifically in terms of how they integrate their learning.

Pizzolato's (2003; 2005b) research on provocative moments gives some clues about what might characterize these early steps in the journey toward self-authorship: disorientation, challenge, and dissonance. Likewise, the Learning Partnerships Model provides a framework for both challenge and support with promotion of self-authorship as its main objective. More research is needed to discern the smaller units of development that comprise the journey to self-authorship, and more specifically the journey from *Following Formulas* to *The Crossroads*, to use Baxter Magolda's terminology (Barber & King, 2007). This parallels my own search for the microsteps of development related to integration of learning among first year college students.

Baxter Magolda states that the development of self-authorship is the common goal of twenty first century education. Further, the Wabash National Study positions self-authorship as the foundation for all of the selected liberal arts outcomes, including integration of learning (King et al., 2007). The increasing complexity that is indicative of the journey toward self-authorship seems aligned with the increasing complexity of integration of learning described in Chapter One. I suggest that these two outcomes are intertwined, with advancement in one area prompting advancement in the other. This could be illustrated as a double-helix, with self-authorship and integration of learning distinct yet linked, progressing in a symbiotic relationship (Barber, 2007).

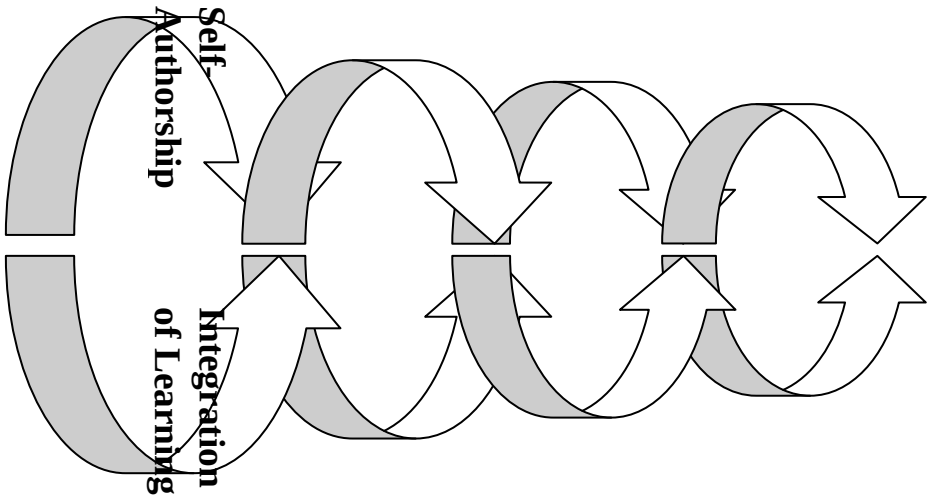


Figure 2.2. Self-authorship and integration of learning as a linked relationship

In addition, integration of learning and self-authorship are certainly linked in their desirability as outcomes of collegiate education in the twenty-first century. As such, college educators need to know more about the development of integration of learning and how to promote it as an outcome for students. One way we might learn about these

developmental steps toward integration of learning is by studying the theoretical steps of the similar-sounding *transfer of learning*, which are discussed next.

Transfer of Learning

Transfer of learning as a body of knowledge is concerned with how individuals think about ideas, beliefs, and information; it is centered on how people know and apply knowledge. In this respect, the focus of transfer of learning research has been within the epistemological or cognitive domain of development, neglecting the intrapersonal and interpersonal dimensions. Baxter Magolda (2001) acknowledged this bias in her early work as well, and expanded her scope as her longitudinal participants moved into the post-college phase of her study. She recalled, "recognizing that I had focused too narrowly on intellectual development (an issue in the overall college environment as well…), I expanded the focus of the study to include participants' sense of their identity and their relationships with others" (Baxter Magolda, 2001, p. xvii). In this spirit, I argue that the language and theoretical concepts that comprise the transfer literature can be applied to describe development within the intrapersonal and interpersonal dimensions as well, and are therefore applicable to a holistic study of integration of learning.

As King and Baxter Magolda (1996) noted, "how individuals construct knowledge and use their knowledge is closely tied to their sense of self" (p. 166). For example, a person could apply what he has learned in one identity or role and apply it to another role, such as applying what he has learned about being a supportive husband to being a supportive colleague. Conversely, an individual may find it difficult to progress to more complex ways of thinking about knowledge if his or her main priority is pleasing

others, or is fearful of others' judging him. I expect that the transfer literature will be a helpful reference in describing some of the microsteps leading to integration of learning.

As with the usage of the term "integration," as discussed in Chapter One, there is a lack of consistency among the terms used to describe the transfer phenomenon. The phrases "transfer of learning" and "transfer of knowledge" are often used interchangeably. "Transfer of training" is also used, but mainly in describing vocational or human resource settings rather than educational settings such as a school or university campus. Many articles investigating this phenomenon refer to it simply as "transfer." This poses challenges in defining the characteristics of transfer of learning, as well as differentiating it from integration of learning. Despite the similar terminology, I make a distinction between *transfer of learning* and *integration of learning* as follows: Transfer of learning is applying the skills and knowledge from one context to another, while integration of learning is a more complex, iterative version of transfer. Integration of learning involves applying knowledge across contexts, as well as synthesizing knowledge, making decisions about its relevance, and incorporating the selected skills and knowledge into one's established belief system or perspective. So, why would one turn to a non-developmental approach such as transfer to inform a developmental concept such as integration of learning? I am including transfer of learning literature in this review because of its rich history, and the manner in which the literature tries to explain how information or concepts learned in one context can be moved or applied to another context. This focus on mobility and application resonated with the notion of integrating learning and concepts. It is helpful to review the ways that researchers and scholars have already thought and written about how these connections might be made. I do not think

transfer of learning is identical to integration of learning, but the two certainly include similar concepts.

Major Elements of Theory

Classical theories of transfer. The current understandings of cognitive and learning processes are the result of over a century of research and theorizing on how, why, where, and when a transfer of learning takes place. The origination point for what is now considered transfer theory is known as the *doctrine of formal discipline,* which assumed that particular courses in school, including Latin and geometry, would improve students' intelligence and reasoning abilities by training them to be more logical and disciplined (Tuomi-Gröhn & Engeström, 2003).

There are two main classical theories of transfer of learning in the literature about transfer. The first is the idea of *general principles* by Judd (1908; 1939), and the second is Thorndike's (1924) concept of *identical elements.* Thorndike's work built upon an earlier study (Thorndike & Woodworth, 1901) that investigated the impact of learning in one context upon learning in other contexts. That study failed to find much influence, and the researchers concluded that the ability to transfer learning depended not on learning general subjects like Latin or geometry, but rather on the presence of "identical elements" in two situations.

Judd (1939) disagreed with Thorndike's theory of identical elements, and posited that understanding the general principles of subject matter was most important (rather than the specific context or task). This shift to focusing on general principles rather than discrete details set the stage for a new way of thinking about teaching and learning, which privileged conceptual learning over memorizing pieces of information. These seminal

ideas are critical to the conceptualization of integration of learning as an educational outcome, and paved the way for more recent theories about transfer of learning, which explore in more depth issues of how influential the environment is upon individuals' cognition and ability to transfer learning. There is a major disagreement between the classical theories of transfer presented by Thorndike and Judd, and more recent *cognitive* and *situated* views of transfer. The main criticism of the classical theories is that they reinforce a separation of education from life, both institutionally and epistemologically (Tuomi-Gröhn & Engeström, 2003).

Cognitive views of transfer. Cognitive psychologists rely on schema theories to understand transfer of learning. These theories describe how information is stored in the mind, and how the structures of memory are created, used and maintained. A schema is defined as a collection or cluster of concepts that provides a framework or scaffolding for a concept that can be illustrated with examples from an individual's lived experience. Schemas are formed inductively from prior experiences, using noteworthy experiences as exemplars of a general concept.

According to schema theory, transfer occurs if an individual recognizes a situation to conform to a previously constructed schema, and then applies the framework associated with that particular schema to the situation at hand (Tuomi-Gröhn & Engeström, 2003). Reed (1993) described a schematic view of transfer using mathematical problems, specifically algebra word problems. He suggested that students categorize problems by type, and associate certain equations as solutions for different categories of problems. This categorization typology is not limited to mathematics, and can be applied to a number of areas. However, schema theory becomes more difficult to

apply with increasing levels of abstraction. The further situations move from having identical elements, the less applicable this conceptualization of transfer becomes because individuals find it more difficult to make a connection with a previously constructed schema.

Situated views of transfer. The second major branch of transfer theory is known as the situated view of transfer. While cognitive theories suggest that transfer of learning involves applying knowledge between two similar tasks, situated theories of transfer argue that this conceptualization removes cognition from its contexts. Greeno, Smith, and Moore (1993) proposed a situated view of transfer that relies on the notion of an individual as a participant in an environment or situation. This view is in line with the constructivist paradigm described in the introduction to this chapter. Greeno et al. considered the socially constructed meaning of objects and activities, and believed that the potential for transfer between situations was driven by the social practices through which people experienced the activities (Tuomi-Gröhn & Engeström, 2003).

Greeno et al.'s (1993) view of teaching consisted of an apprenticeship model that brought unknowing individuals in from the periphery and transformed them into knowledgeable experts in the center. This is a vocation-based model which places emphasis on principles of good practice as what should be learned. In the situated view of transfer, teaching occurs via example and observation; there is little need for formal schooling as it is known in the American educational system. Tuomi-Gröhn and Engeström (2003) find this approach to be effective in practice: it is both motivational, because activities are practical and applied, as well as supportive, because everyone in the community is a teacher of some kind in this apprentice model.

The view of transfer that Greeno et al. (1993) theorize is compelling because it shifts the focus of learning from a single individual acting alone to a "novice participating in a community of practice" (Tuomi-Gröhn & Engeström, 2003, p. 26). Greeno et al. (1993) also include physical artifacts and recurring patterns of social practice in the learning process, which expands the boundaries of the learning environment beyond the individual student and his or her classroom. While learning is still viewed as an individual activity, it is an activity situated in a communal environment. However, Greeno et al.'s theory of situated transfer does not address change within communities; these structures are assumed to be stable. (From personal experience, this assumption is problematic, as those working regularly in the field of education realize that these community structures are rarely static.) Another characteristic of this theory is that it suggests that an individual's learning is unidirectional, moving from the outer edges of not knowing toward the center of knowledge (assuming there is one central truth) without the possibility of relapse or regression (Greeno et al., 1993; Tuomi-Gröhn & Engeström, 2003).

In considering the evolution of theory about transfer of learning from the doctrine of formal disciplines in the early twentieth century to the more recent cognitive and situated conceptualizations of transfer, it is important to keep in mind that research and practice have contributed to the advancements of thought regarding transfer. The subsequent sections of this chapter will present the relevant assessment, research, and practice related to transfer of learning that have contributed to progression in theory.

Assessing Transfer of Learning

From the early days of Thorndike and Judd, scientists have sought means for assessing transfer. As with self-authorship, transfer is a complicated phenomenon to assess because individuals can often demonstrate transfer but not describe it. Hickey and Pellegrino (2005) described three dimensions to be considered when thinking about assessment of transfer: (1) types of knowing and learning (empiricist, rationalist, and socioculturalist); (2) levels of assessment (immediate, close, proximal, distal, and remote); and (3) functions of assessment (summative and formative). They posit that effective assessment of transfer of learning must consider and balance all three of these dimensions. Despite this recommendation from Pellegrino, I found much of the assessment of transfer of learning failed to consider the types of knowing and learning.

Transfer of learning is defined by Perkins and Salomon (1992) as occurring for an individual "when learning in one context or with one set of materials impacts on performance in another context or with other related materials" (p. 1). However, Larkin (1989) argues that transfer is more than simply applying old knowledge in new situations. She suggests that transfer of learning is "applying old knowledge in a setting sufficiently novel that it also requires learning new knowledge" (p. 283). Since some knowledge is transferred from earlier experience, while other knowledge needs to be learned in a new situation, an accepted measure of transfer (by Larkin and others in the field) is the difference in time required to learn a new task between individuals with some prior experience with the task and others with no previous experience. For several detailed examples of transfer experiments focused on response time, I recommend Chapter Three of *How People Learn* (Bransford, Brown, & Cocking, 2000).

An example of a transfer assessment instrument is the Learning Transfer System Inventory (Holton, Bates, & Ruona, 2000) which was developed within the human resource development community in an effort to maximize the return on employee training. They identified 16 factors that influence transfer and measured transfer before, during and after a training program. It was developed from a synthesis of the transfer of learning/training literature (Holton et al., 2000; Lundin, 2006); the findings from initial studies have applicability to higher education research.

Although instruments such as the LTSI and experiments measuring response time are more common methods of assessment for transfer of learning, individual interviews have also been utilized. In the volume *How People Learn*, Bransford, Brown and Cocking (2000) recommend taking an active approach to transfer of learning and said:

> It is important to view transfer as a dynamic process that requires learners to actively choose and evaluate strategies, consider resources, and receive feedback. This active view of transfer is different from more static views, which assume that transfer is adequately reflected by learners' abilities to solve a set of transfer problems right after they have engaged in an initial learning task" (p. 66)

Campione, Shapiro and Brown (Campione, Shapiro, & Brown, 1995) described a clinical interview used in their study of transfer among school-aged children as follows:

> These interviews take place irregularly during the year: at the beginning of the year, after the introduction of some new information, and so forth. In each case, the interviewer elicits basic expository information. If the student cannot answer adequately, the interviewer provides hints and examples as necessary to test the student's readiness to learn that concept. If the student seems knowledgeable, the experimenter might question that understanding by introducing counterexamples to the student's beliefs, and again if appropriate, she might ask the student to engage in thought experiments that demand novel uses of the information. (p. 54)

The use of interviews in the assessment of transfer is not as common as it is in the assessment of self-authorship, but there are similarities in the semi-structured format of interviews and the probing questions used to assess both constructs.

Despite recommendations from researchers on best practices for assessing transfer of learning (Bransford et al., 2000; Hickey & Pellegrino, 2005), the actual methods used often favored efficiency and survey methodology. In the next section, I provide a brief summary of research on the transfer of learning as it relates to higher education.

Summary of Research

Early research on the topic of transfer of learning sought new paradigms for thinking about learning. Much of Thorndike's work was conducted in attempts to refute the once widely accepted doctrine of formal discipline, which held that *particular courses* in school (e.g., Latin and geometry) improved students' intelligence and reasoning abilities. Thorndike disagreed with this doctrine, and set out to empirically test it. To do so, he conducted a study of high school students to investigate his early ideas of transfer. His study found that on tests of reasoning and intellectual development, students who took Latin and geometry courses performed no better than students who studied other subjects such as "shop-work" and dramatic arts; confidence in the doctrine of formal discipline was weakened within the psychology community as a result. Thorndike (1924) concluded that performance was correlated to individual ability rather than to any particular area or subject of study. This conceptualization has influenced the structure of American system of education, calling for a largely disintegrated curriculum (to facilitate contexts of "identical elements") and courses which are highly sequenced, teaching one particular skill in order to then teach another slightly more advanced skill. Thorndike's findings have also been suggested to influence the drill and practice approach to teaching (Mayer & Wittrock, 1996).

Judd's theory of general principles was based in part upon a study that he conducted with Scholckow (Judd, 1908) in which two groups of children practiced throwing darts at an underwater target. One group was given a lesson on the refraction of light, explaining that the apparent location of the target is distorted by the water and light. The other group was given no instruction at all. Both groups performed similarly when the target was submerged 12 inches, but the group with the conceptual instruction performed better when the target was moved to a place where it was only submerged four inches. Judd viewed this result as evidence of transfer, and as support for his idea that general principles were vital to transfer of learning, in opposition to Thorndike's belief that the specific details learned were of utmost importance (Tuomi-Gröhn & Engeström, 2003).

More recent research has continued this interest in optimizing teaching and learning environments. The "Fostering Communities of Learners" project reconceptualized and redesigned grade school classrooms to better facilitate transfer of learning (Campione et al., 1995). Student learning was evaluated using both quantitative methods such as learning inventories and qualitative methods including observation and student interviews with a group of n=19 students (9 in experimental group; 10 in control). The use of reciprocal teaching, a form of group study designed to increase reading comprehension, was found to be a most influential element of this program because it involved students directly in the teaching process by asking them to explain what they are learning to others. For more information on Reciprocal Teaching, see the work of Palincsar and Brown (1984).

Campione, Shapiro and Brown found that by including students as active participants in the program, fully aware of their learning processes and progress, transfer increased significantly. The researchers identified four characteristics that were imperative for success in increasing transfer among students: a) atmosphere of individual responsibility and communal sharing; b) respect between all members of the extended community, including students as full members of the knowledge-building community; c) a community of discourse where meaning is negotiated and renegotiated; and d) ritual in the form of repetitive activities or frameworks that encourage student participation (Campione et al., 1995). These findings align closely with the principles of educational practice that Baxter Magolda advanced with the college phase of her longitudinal study (1992) and later with development of the Learning Partnerships Model (1999; 2004b).

As was the case with assessment of self-authorship, interviews and observation were more resource-intensive than survey methodology. Lundin (2006) used the Learning Transfer System Inventory to create a modified questionnaire that was used to assess transfer of learning in the context of a grant writing workshop for faculty members, and found that learners with a significant level of self-efficacy were more likely to transfer learning than those with lower levels. In addition, she found it was beneficial to the participants to use their individual interests and backgrounds to learn the general concepts about writing a grant proposal. She also found additional evidence of transfer was most apparent *after* the workshop; over 77% of participants utilized their new skills to write and submit a grant. Time (or lack thereof) was a major obstacle to those who did not apply their new skills and produce a grant:

> Once the workshop was over and they re-entered the transfer environment, the participants encountered their other duties that had been left behind while in the

> workshop; papers to write, syllabi to develop, committee meetings to attend, etc. (Lundin, 2006, p. 104)

Lack of support or perceived lack of support was also cited as a barrier to transfer, and over half of the sample indicated some doubt about being supported by peers and supervisors in their grant writing endeavors.

The finding regarding the benefit of learning general concepts is similar to constructive-developmental pedagogical elements found in Baxter Magolda's (2004b) Learning Partnerships Model discussed earlier in this chapter, as well as Judd's (1908) general principles, in that all three focus on situating learning in the learner's experience and actively bringing student's previous knowledge and experience into the learning process. Assessment of transfer has greatly influenced educational practice in the past century, particularly in the K-12 segment of the educational system. This link to practice is most evident in the efforts to teach elements of transfer in the classroom, and position transfer of learning as an educational outcome in its own right.

James (2003) found evidence of transfer in a study of students taking an English as a Second Language (ESL) class as part of their first-year college curriculum, and he found that learning did transfer from their ESL class to their other courses. He identified eight factors that influenced this transfer of learning: (a) requirements for learning transfer in activities in other courses; (b) affordances for learning transfer in activities in other courses; (c) existence of challenging situations that learning transfer could support; (d) existence of personal weaknesses that learning transfer could support; (e) availability of alternative support; (f) similarity between the content-based ESL course and other courses; (g) relative timing of instruction; and finally (h) the relative demand of instruction. Although James' factors of influence for transfer of learning focus narrowly

on contexts across courses (that is, within the university institutional environment), others have pointed out that transfer across contexts is a more difficult task that students are not well prepared for by schools.

Resnick (1987) pointed out three main contrasts between schools and everyday settings that may pose challenges to transfer of learning: (1) schools place a greater emphasis on individual work than most other settings, (2) the considerable use of tools or resources to solve problems in the real world, as opposed to the mental problem solving encouraged in schools, and (3) schools place much more emphasis on abstract reasoning, whereas contextualized reasoning is most used in non-school environments. Bransford, Brown and Cocking's (2000, p. 53) work supported this concept, and stated "knowledge that is overly contextualized can reduce transfer; abstract representations of knowledge can help promote transfer."

James' (2003) study also revealed that the equilibrium between challenge and support is essential to a productive learning environment, a point also made by many others studying human development, teaching and learning (Barber & King, 2007; Baxter Magolda, 2004b; Baxter Magolda & King, 2004; Kegan, 1994; Pizzolato, 2004; Sanford, 1962). Timing of instruction (meaning at what point in the curriculum concepts were introduced) also emerged as a consideration in his study. Choices about the timing of instructuion, as well as curricular content, are often at the discretion of the instructor. In the next section, I address the role of the teacher in transfer of learning, and consider the much debated question of whether one can intentionally teach for transfer.

Practice: Teaching for Transfer

The work of Perkins and Salomon (1992) describes nuanced variations of transfer that are characterized as contextually situated (see Table 2.2). Their work is at the center of the "teaching for transfer" movement, which advances the notion that intentional educational practice can indeed promote transfer of learning. The language associated with teaching for transfer describes some of these gradations of transfer, and I find the distinctions applicable to studying the holistic development of integration of learning in a college setting. Descriptions and illustrations of these applied terms follows.

Perkins and Salomon (1988; 1992) categorize transfer into two dichotomies, positive and negative, and near and far. Positive transfer occurs when learning in one situation improves learning in another. For example, learning a new language such as French might help a student to learn another similar language, such as Spanish. Negative transfer occurs when learning in one area inhibits learning in another. Language acquisition can also provide an example here. New learners of a language often apply the grammar, pronunciation or syntax of an already known language, creating a challenge for learning; for instance, a native Mandarin speaker might initially engage in negative transfer when learning German (Perkins & Salomon, 1992).

Near transfer refers to learning transfer between similar contexts (suggesting a contextual version of Thorndike's *identical elements* concept), while far transfer involves larger leaps between situations. For example, near transfer could be illustrated by a student taking an exam in algebra who is presented with problems similar to those he or she has worked on during class and homework. This concept is sometimes called reflexive or "low road" transfer, indicating that there is not a great leap involved in the

transfer of learning. However, far transfer is more abstract. Perkins and Salomon (1992, p. 1) use the example that "a chess player might apply basic strategic principles such as 'take control of the center' to investment practices, politics, or military campaigns." This situation is also referred to as mindful or "high road" transfer, illustrating the fairly complex nature of the transfer process at this level of abstraction.

This notion of levels of abstraction is a useful lens for studying the microsteps of how learning is integrated. Development of integration of learning may follow the same pattern as transfer of learning exhibits, and thus increasing level of abstraction might be one way of ordering microsteps toward integration of learning.

High road transfer can be forward reaching (e.g., preparing for a future application), or backward reaching (e.g., looking back over one's previous experiences for help). In both cases, high road transfer depends on reflective thought (James, 2003; Perkins & Salomon, 1988). Maclellan (2005) described high road transfer as conceptual learning because of the emphasis on abstract ideas rather than concrete skills. She suggested that from a constructivist point of view, "all knowledge is created as individuals (and groups) adapt to and make sense of their experiential worlds" (p. 139). This perspective alters the conceptualization of transfer, for if all knowledge is co-constructed, then "knowledge" cannot simply be "transferred" as an object would be. It would have to be re-constructed with each individual. This concept is an important one that will need to be addressed in the course of this study; it illustrates some of the "dis-integration" among the various fields of literature from which I am drawing. Maclellan stated that "this view of knowledge construction represents a very significant move from

behaviourism, in that it recognises that knowing is active and that it is based on previously constructed knowledge" (p. 139).

Table 2.2.

Definitions within Perkins & Salomon's Teaching for Transfer Theory

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; something learned in one context is applied in another
Positive Transfer	Learning in one context improves performance in some other context
Negative Transfer	Learning in one context impacts negatively on performance in another
Near Transfer	Making connections to closely related contexts and performances
Far Transfer	Making connections to rather different context and performances
Low Road Transfer	Triggering of well-practiced routines by stimulus conditions similar to those in the learning context; also reflexive transfer
High Road Transfer	Deliberate effortful abstraction and a search for connections
Hugging	Facilitation of low road transfer by pointing out resemblances between knowledge, or presenting related information in succession
Bridging	Facilitation of high road transfer by mediating the necessary processes of abstraction and connection-making for students

(Perkins & Salomon, 1988, 1992)

Two additional terms, "hugging" and "bridging," refer directly to the pedagogy involved in teaching for transfer (Perkins & Salomon, 1988). Hugging characterizes

teaching for low-road transfer, representing that a new concept introduced to students closely relates to (or hugs) concepts recently taught. This allows for students to make small, sequential steps to learn increasingly complex information. Bridging, on the other hand, is related to teaching for high-road transfer. Teachers and mentors using this approach serve as guides to bridge the gaps between seemingly disparate information and concepts. In this scenario, teachers help students make connections between concepts by explicitly pointing out the general principles at work behind specific skills or knowledge.

Mentkowski and Associates (2000) supported this notion of intentionally designing experiences and situations for students to practice transfer across contexts:

> Students ground their performances in a particular context, learn to construct effective interpretations of their roles and evolving situations in that context, and begin to connect disciplinary learning to real-world performing. By also practicing across diverse settings, undertaking field experiences, and completing various performance assessments in the same ability in different disciplines, they are then able to internalize curriculum abilities as a metacognitive framework for constructing and improving performance. As a result, students can transfer college learning from one context to another, so that performing after college usually becomes a relatively smooth transition. (p. 243)

Relation of Transfer of Learning to Integration of Learning

The connections between the concepts of integration of learning and transfer can be traced back to the early researchers involved with transfer theory. Judd (1936) called his theory one of "higher mental processes," and argued that a broad view of transfer was essential to his conceptualization. Tuomi-Gröhn and Engeström (2003) summarize the relationship between Judd's and Thorndike's theories as follows:

> The essence of Judd's argument was that transfer occurred because of *what* was transferred, namely principles, and *how* instruction of principles was undertaken, namely, <u>intentionally, self-consciously, and reflectively</u>. Transfer does not occur effortlessly and mindlessly, as a reflex. The contrast between learning as reflection, and learning as reflex, identifies the fundamental difference between Thorndike and Judd [italics and underline emphases original]. (p. 21)

This positioning of transfer as a complex, higher mental process is similar to the characterization of integration of learning as a higher-level function in Chapter One.

While Thorndike's concept of "identical elements" influenced schools to adopt a highly structured and disintegrated curriculum, Judd's ideas suggested that for teaching and learning to be fully effective, teachers must actively teach for transfer, and students must learn with the concepts of transfer in mind. This concept of "teaching for transfer" is still very much a part of both the education and psychology literatures today, and has been the topic of much debate about whether it is in fact possible to teach students how to transfer learning (and if so, what the best pedagogy for transfer is).

Mezirow (2000) provides a perspective on this idea with his work on transformative learning. He describes an active process of learning that requires an acute awareness of the learning process and the individual's cognition. Mezirow characterizes transformational learning as follows:

> This rational process of learning within awareness is a metacognitive application of critical thinking that transforms an acquired *frame of reference*—a mind-set or worldview of orienting assumptions and expectations involving values, beliefs, and concepts—by assessing its epistemic assumptions. This process makes frames of reference more inclusive, discriminating, open, reflective, and emotionally able to change. Frames with these qualities generate beliefs and opinions that will prove more true or justified to guide action. (Dirkx, Mezirow, & Cranton, 2006, p. 124)

This concept of awareness of learning implicit in teaching for transfer and the notion of transformational learning is an important link between many of the constructs discussed in this study: transfer of learning, self-authorship, college experiences, constructivism, and the integration of learning.

At the heart of transfer theory is the belief that in order to apply knowledge, one must be aware of and able to envision how that knowledge will affect new situations. This application of learning is necessary for integration, which is a more complex and iterative process than transfer, and thus the ability to integrate learning is evidence of successful transfer (Heinemann, 1997). Caffarella (2002) pointed out that the concept of transfer of learning is not new, but there is more attention paid to it because "as both participants and sponsors of education and training programs demand more concrete and useful results" (p. 205).

Conceptual Framework

The conceptual framework for this study is anchored in the literature describing transfer of learning and self-authorship, two models that have an established foundation of theory, research, and practice that is robust enough to provide theoretical support for an in-depth inquiry into the development of integration of learning among college students. Both theories discuss smaller steps within their process, which is applicable to the microsteps of integration of learning central to my research question.

Transfer of learning literature contributes a sense of *how* connections and synthesis of knowledge is prompted for individuals (e.g., through hugging, bridging, etc.), and self-authorship provides a framework for how such connections affect meaning making structures within three overlapping domains of development as well as how one's meaning making affects integration of learning. These two bodies of literature provide analytical lenses for studying the development of integration of learning among undergraduate students. The Vygotskian (1978) idea of discourse communities serves a foundation for the conceptual framework for the study in exploring how integration of

learning develops in college students. Figure 2.2 illustrates the conceptual lenses derived from the literature review that informed this study of integration of learning: self-authorship, transfer of learning, and discourse communities.

The *self-authorship* conceptual lens inspired by the theories and research reviewed in the first half of this chapter, drawing largely on the self-authorship model (Baxter Magolda, 1998; Kegan, 1994) as well as transformational learning (Mezirow & Associates, 2000). This lens allows me to look at integration of learning from a developmental perspective. The idea that there are microsteps toward increasingly complex integration of learning assumes that a developmental process is at work, and that there is a progression from simpler forms or integration to more complicated patterns. The self-authorship framework provides a well-established and useful pattern for examining the potential developmental aspects of integration of learning.

The *transfer of learning* conceptual lens draws on literature describing the learning process, including transfer of learning (Mestre, 2005; Perkins & Salomon, 1992), and teaching for transfer (McKeough, Lupart, & Marini, 1995; Perkins & Salomon, 1988). Investigating integration of learning with this lens allows for attention to the process of learning, as well as what information is being learned. As I mentioned earlier in this chapter, the transfer of learning literature is the richest source I have found for a discussion of how information or knowledge is transferred. I see this as an important component of integration of learning, and believe the transfer theory and research provide a strong foundation for building understanding about how individuals integrate.

Finally, the environment and communities in which a student is involved create the context for integration of learning. In the conceptual framework, the context piece is

illustrated as a circle in which integration of learning is embedded. This represents the idea that knowledge is socially constructed and that the environments in which we live, work, and think play a significant role in how an individual understands knowledge and integrates learning. The concepts of context and environment undergird both the self-authorship (developmental) literature and transfer of learning theory. Vygotsky's notion of discourse communities and the salience of culture and history are a foundation of the constructivist paradigm. I see content, curriculum, and pedagogy as characteristics that may influence integration of learning, and that may be found within this realm of environment and communities.

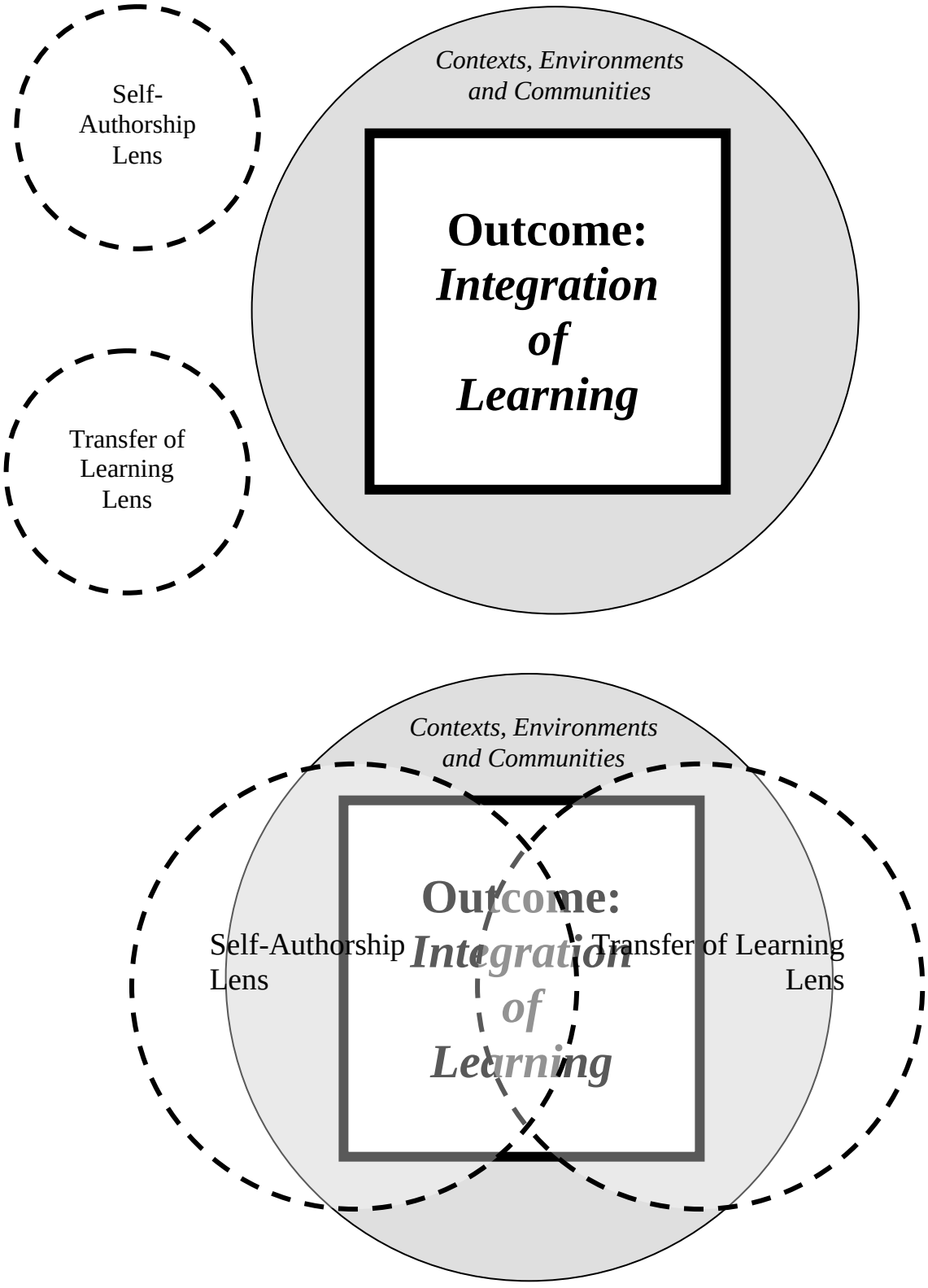


Figure 2.3. Conceptual map for investigating integration of learning in college

A topic as abstract as the development of integration of learning is difficult to capture in a diagram on paper, and I acknowledge that the model as presented certainly oversimplifies some of the complexity of the relationships among integration of learning, transfer, self-authorship and their contexts; these relationships are discussed in greater detail in Chapters Four, Five, and Six. With that caveat, Figure 2.3 illustrates how I view three items of interest: (1) the achievement of the outcome integration of learning, (2) the conceptual lenses to be utilized for analysis (self-authorship and transfer of learning), and (3) the contexts of an individual's first year in college (environment and communities).

The first illustration of the model depicts integration of learning as an educational outcome (the square) embedded within the contexts of a student's first year in college, including the environments he or she inhabits, and the communities with which her or she interacts. The lenses of self-authorship and transfer of learning are off to the side, and separate, to represent how I see these two bodies of literature – relatively isolated and not used together to investigate student learning, until in this study. The second illustration shows these lenses used to examine integration of learning within the contexts it occurs. There is some overlap between the lenses, but the two need not both be used to investigate integration. Either, or both, can be used as appropriate and helpful for data analysis.

Another connection occurs between the major concepts in the literature, and the three developmental dimensions theorized in developmental psychology. Development, learning and context all figure prominently in how I am thinking about integration of learning. These three factors that have surfaced as themes throughout the literature align well with the three dimensions of development advanced by the work of Kegan (1994)

and Baxter Magolda (2001), with transfer of learning related to the cognitive dimension, development aligned with the intrapersonal dimension, and social context associated with the interpersonal. This mirrored conceptualization is not a perfect representation, because of course development, learning and context all have cognitive, interpersonal and intrapersonal dimensions. However, this illustration provides a way to consider the similarities and possible relationships between the factors influencing integration of learning.

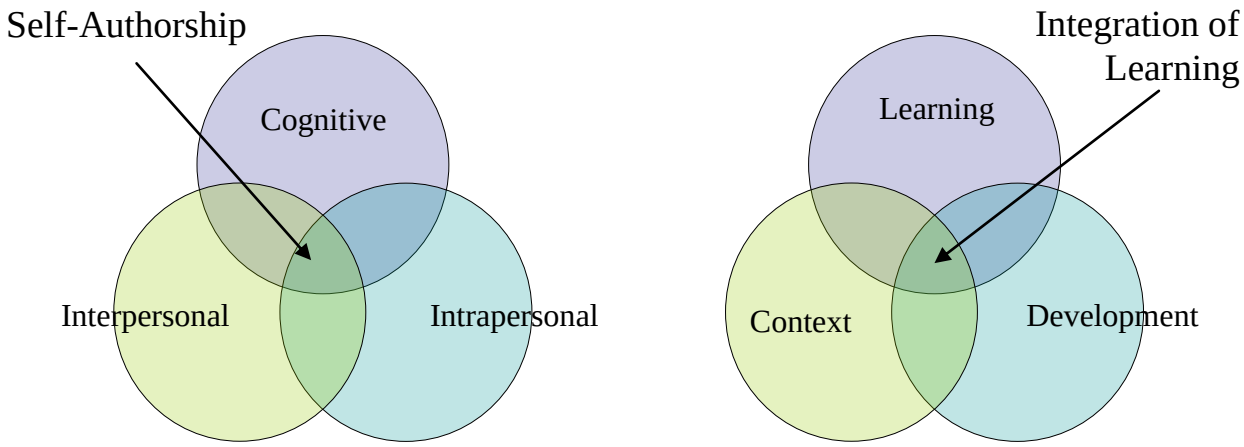


Figure 2.4. Comparison of self-authorship dimensions and integration of learning concepts

In retrospect, this connection (or reflection) is somewhat intuitive: Self-authorship could alternately be called self-integration, since it is in essence an integrating of the cognitive, interpersonal and intrapersonal dimensions of oneself into a progressively internal configuration or locus. However, I want to be clear that I do not see these two outcomes as one in the same. Integration of learning is a distinct outcome, separate from self-authorship, although they seem to share a developmental path in individuals. It is

conceivable that there is a "leading edge," one of these constructs with paves the way for the other, but this was not a phenomenon that was apparent to me in the literature.

There is an assumption in this study that integration of learning is a developmental process, meaning that it evolves or develops in complexity over time. In order to intentionally work to promote integration of learning, it is important to understand how it develops. The microsteps involved in developing of the ability to integrate learning are illustrated by the boxes on the arrow illustrated below, and I argue are conceptually similar to the smaller units which comprise both self-authorship (e.g., following formulas, the crossroads, etc.) and transfer of learning theory (e.g., hugging, bridging, etc.).

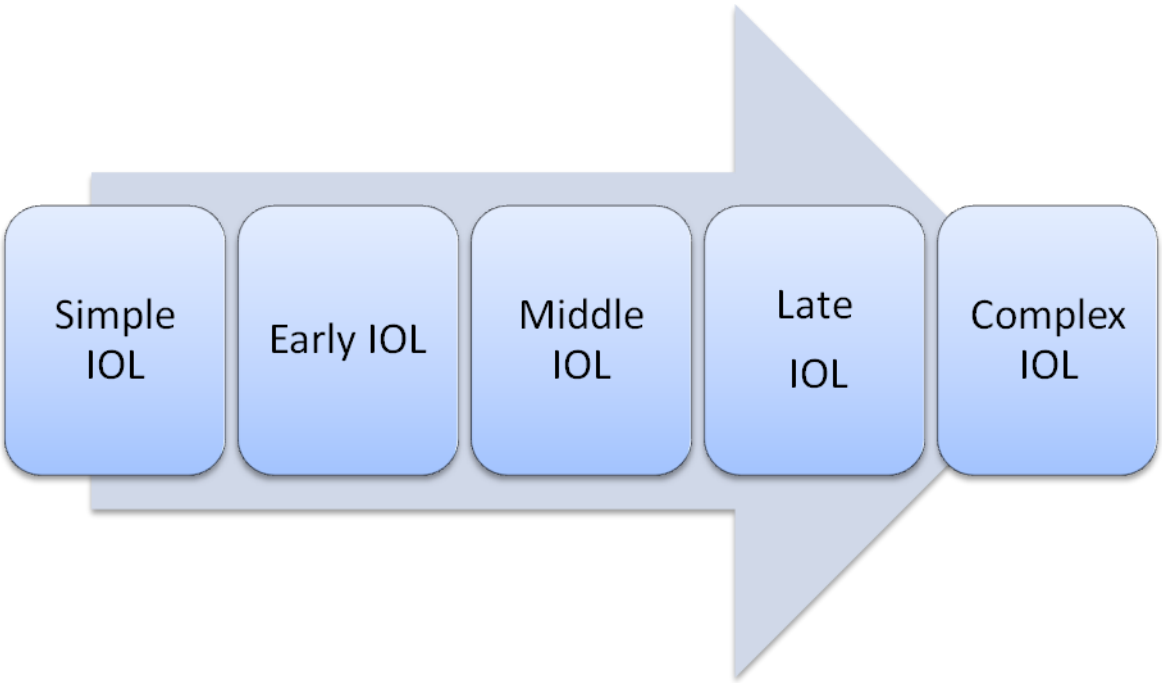


Figure 2.5. Microsteps toward development of integration of learning (IOL)

The question at hand is what are the phases or steps on the journey to integration? What are the paths or steps along the road to greater complexity of integration? Based on existing research, we simply do not know. I suggest that these paths or steps along the way are the microsteps of development which is the focus of this study. The theories of transfer of learning, specifically the practical notions of teaching for transfer, are anticipated to be useful in conceptualizing these microsteps. There is the possibility that some of the ideas advanced in the transfer literature represent microsteps toward integration of learning themselves.

Conclusion

In conclusion, the education and psychology literatures are rich with theory, assessment, research, and practice that will be useful in an examination of the development of integration of learning as a collegiate outcome. The self-authorship

model, based in the constructivist-developmental philosophy, is a strong framework for investigating integration of learning. The holistic nature of the self-authorship model (including the cognitive, intrapersonal, and interpersonal domains), is of particular interest based on my desire for a broader understanding of integration of learning which takes into consideration learning outside the classroom and traditional disciplinary boundaries. The transfer of learning literature is broad as well as deep, and although it is rooted within the cognitive domain of development, the principles can be extrapolated to application within the intrapersonal and interpersonal dimensions. Transfer of learning ideas and conceptualizations may be of use in identifying the microsteps leading toward integration of learning.

Integration of learning is a process that (like the journey toward self-authorship) has multiple facets, begins before students enter college and continues beyond graduation. There is merit in studying how the integration of learning develops during the undergraduate years in order to more effectively promote it. Determining the microsteps along this path toward more complex integration of learning will be useful to developmental scholars, as well as university administrators responsible for funding, programming, and curricular decisions. Based on this context of self-authorship and informed by research on transfer of learning and teaching for transfer, the focus of this study is the microsteps associated with the development of integration of learning among students. The following chapter will discuss methodology and additional details on how this proposed area of study will be feasible.

CHAPTER III: METHODOLOGY

This chapter details the methodological underpinnings of the study. Specifically, it explains the method of selecting the sample to be analyzed, and positions the sample within its larger data set. Grounded theory is explored as the analytical framework, and a comprehensive summary of data coding is presented. The chapter concludes with a consideration of the main limitations of the study. Instrumentation and analytical guidelines are presented as appendices.

Research Question

Based on the student development and psychology literature reviewed in the previous chapter, it is apparent that there is no clear description about how students develop integration of learning as an educational outcome. Likewise, there is a gap in the literature related to how students progress through the external meaning making orientation in Baxter Magolda's self-authorship model (1998; 2001) en route to more complex ways of viewing the world, oneself, and relationships with others. Therefore, this study will explore how integration of learning develops in college, focusing on the changes that occur during the first undergraduate year. In particular, I am interested in studying the "microsteps" of development within the initial stages of integration during college. To answer these questions, I plan to examine student reports of experiences involving integration of learning during the first year of college.

Wabash National Study of Liberal Arts Education

The interview data for this study originated with the Wabash National Study of Liberal Arts Education (WNSLAE), a longitudinal, mixed methods study of liberal arts education which involved 19 campuses and 4501 students throughout the United States. A variety of different institutional types were included in this sample, based on the premise that liberal arts education may take place at all types of higher education institutions, not solely at liberal arts colleges. The Wabash National Study aims to study liberal arts education as it pertains to seven liberal arts outcomes, including integration of learning. The other six outcomes are: inclination to inquire and lifelong learning, leadership, well-being, intercultural effectiveness, moral character, and effective reasoning and problem solving. Definitions of these seven outcomes and a description of how they were chosen have been described by King, Kendall Brown, Lindsay and VanHecke (2007). The Wabash National Study began with a pilot phase in 2005 that included four institutions: a community college, a liberal arts college, a regional university and a research university. Both the quantitative and qualitative assessments were piloted and adjusted for the launch of the longitudinal study in Fall 2006.

The data for the quantitative (survey) portion of the study are derived from a number of assessments administered to students on all 19 campuses in the study at three points in time: the beginning of the freshman year (Fall 2006), the end of the freshman year (Winter 2007), and the end of the senior year (anticipated Winter 2010). The qualitative (interview) data are generated from student interviews that are scheduled to take place in the fall semester of each academic year (completed for Fall 2006 and 2007, and anticipated Fall 2008 and 2009). These interviews were conducted on six of the 19

campuses involved in the Wabash National Study, selected to represent a wide variety of institutional types (liberal arts, research universities, single-sex institutions, minority-serving, etc.) The qualitative sample is a subset of students who participated in the Wabash National Study quantitative assessments on their campus in the Fall of 2006, and who volunteered to participate in the in-depth interview. Individuals were then selected from this group with a target sample size of at least 50 interviews per campus. The Year 1 data collection yielded 315 student interviews from these six campuses, and 226 remained in the sample for Year 2.

This study will use the qualitative interview data of the Wabash National Study for a number of reasons: 1) The richness of the data gained from personal interviews lends itself well to the type of in-depth analysis necessary to explore the microsteps leading to integration of learning; 2) integration of learning is a key liberal arts outcome; 3) in-depth constructivist interviews have been found to be effective in assessing the complex meaning making associated with self-authorship (Baxter Magolda & King, 2007; Lahey et al., 1988); and 4) there is a section within the Wabash National Study interview that specifically aims to access the way(s) in which students integrate learning.

WNSLAE Interview

The interview protocol used for this study was Baxter Magolda and King's (2007) Wabash National Study of Liberal Arts Education Interview (WNSLAE Interview), which was designed to yield information about important student experiences and how students make meaning of them. This semi-structured interview protocol lays the foundation for a conversation between the interviewer and student, which is co-constructed based on the experiences the interviewee selects for discussion. The

interviewer responds to the student using a variety of prompts designed to draw out descriptions of important experiences. These descriptions are important data in and of themselves, as they reveal the nature and quality of students' experiences. The benefit of the semi-structured format of the WNSLAE Interview is that interviewers have the flexibility to probe further with the participant in these conversations to elicit relevant contextual details about the experiences. The conversations as a whole, including prompts about how students are interpreting their experience, also allow access to information that reflects their meaning-making structures.

The WNSLAE interview is comprised of three sections. The first is designed to establish rapport between the interviewer and the student, and collect basic background information about the student (e.g., hometown, information about family, intended major). The second section seeks to access the student's meaning making structures through asking questions about significant experiences and challenging decisions for the student that reveal how they thought about and interpreted the experiences. This type of interview has been found to be an excellent means of accessing the meaning making structures that indicate a person's developmental orientation. The third and final section of the interview is specifically targeted toward synthesis of information and the assessment of integration of learning as a liberal arts outcome. However, examples of integration of learning may appear at any point in the interview due to the conversational and semi-structured design. The interview protocols used for Year 1 and Year 2 of the Wabash National Study can be found in Appendices A and B, respectively.

True to the constructivist paradigm, the interviewer is not assuming that there is are "correct" answers to the questions posed; the ways in which students answer the

questions, and the stories that they choose to tell, direct the interview. Patton (1990) describes these exchanges as "informal conversation interviews," and Baxter Magolda (2001) has relied upon similarly structured interviews during her 21+ year longitudinal study.

Over 30 interviewers were trained in conducting the WNSLAE interview during the first two years of the longitudinal phase of the study. These individuals were most often graduate students (doctoral or master's level) in higher education administration or college student personnel. A selection criterion for the interviewers was a basic understanding of student development theory because the nature of the WNSLAE interview calls for interviewers to make decisions about which experiences (and which aspects of experiences) to investigate further within the course of the conversation, and familiarity with student development provided a framework for making these choices to yield the deepest reflection possible. Interviewer training consisted of approximately 15 hours of in-person instruction lead by one or both of the authors of the WNSLAE interview, Marcia Baxter Magolda and Patricia King. Each interviewer also conducted at least one practice interview prior to collecting data for the study.

Grounded Theory

I find grounded theory the qualitative methodology best suited to this study of integration of learning as an educational outcome because of the flexibility that it allows in analyzing and conceptualizing the data. Since the aim of this study is to elaborate the steps within a specific phase of an already established theory (self-authorship) in relation to the achievement of a particular educational outcome (integration of learning), it was necessary to engage in theory-building. I wanted to allow the *ways* in which students

integrate learning (or fail to do so), *what* learning they integrate, and *how they make meaning* of that process to emerge from the data rather than to establish a priori the microsteps of this developmental process.

However, I recognized the consideration of transfer of learning concepts as a starting point from which to evolve had the potential to direct the initial coding phase away from pure grounded theory, which avoids bringing any preconceived notions into the analytical process (Glaser & Strauss, 1967). The implications of this idea for coding in terms of grounded theory are discussed later in this chapter.

Sampling

Data collection for the qualitative Wabash National Study interviews occurred over a six-week span in Fall 2006, and again in Fall 2007. Over 20 trained interviewers traveled to six campuses across the United States to conduct interviews with 315 entering college freshmen in Fall 2006 (Year 1); over 20 interviewers also returned to interview the same students in Fall 2007 (Year 2). For the Year 2 interviews, the sample only included those students who returned to the same campus for their second year (n=226). Those who were enrolled in Fall 2007 but unable to meet with an interviewer during the scheduled site visit were given the option of interviewing by phone at a later date; one individual took advantage of this option, for a total of 226. The interviews were approximately 60-90 minutes in length, recorded digitally, and transcribed verbatim. Students were compensated $30 for participating in each interview. I was a member of this research team, and personally traveled to three campuses in this two-year period to collect interviews.

Identification of Transcripts for this Study

For purposes of this study, I selected interviews from those collected at two of the six "interview campuses" in the longitudinal study, Hudson College (a pseudonym) and Wabash College (actual name). I chose these two interview campuses for several reasons. The richness of the data from student interviews was compelling. In addition, these two sites offered a variety of experiences that were intentionally designed to promote integration of learning in both curricular and cocurricular settings. Thus these campuses had high potential to offer data related to integration of learning. In addition, these two campuses also had very high Year 2 return rates, yielding nearly 100 pairs of longitudinal transcripts. (The Hudson College sample includes 45 longitudinal pairs from 59 original participants in Year 1, and the Wabash College sample includes 52 longitudinal pairs from the 61 original participants). There were an additional 23 students on these two campuses (14 from Hudson and nine from Wabash) who completed first year interviews, but did not return to the study for the second year; these students were omitted from the sample. The data from these two campuses provide 194 longitudinal interviews (from 97 individuals) for this study. I personally conducted interviews on both of these campuses. Further, both of these institutions are within the same Carnegie Classification, Baccalaureate Colleges-Arts & Sciences, which enabled me to write more specifically about phenomenon at a specific type of institutional context.

To assess the feasibility of this approach, I conducted a preliminary review of six Year 1 and two Year 2 interviews from students at these two institutions, and determined that there was sufficient information within the interview data to study integration of

learning as an outcome and also to conduct longitudinal analyses (changes over time) on an individual basis. (I explain this process more fully below.)

An additional benefit of selecting the data in this way was that by looking in more depth at a smaller subset of campuses, I could realistically incorporate more institutional context by looking at documents from the campuses describing the programs, initiatives, and curricula that students mentioned in the interviews. This also opened the opportunity to return to the campus and personally observe particular learning environments, and/or talk with faculty and staff members responsible for implementing the program(s) to clarify the details and intended outcomes of the programs I learned about through the student interviews in an effort to triangulate the data (which I did at Wabash College, where I conducted classroom observations in Fall 2008 for a subsequent publication). Brief descriptions of each of these campuses follow.

Hudson College. This institution is a small, private, liberal arts college in the eastern United States. The institution is situated in a small rural town, with approximately 10,000 residents. The institution was founded in the mid-1800s as a Christian institution for men. The school became coeducational in the 1940s and as a result became independent and secular, though still retained affiliation with its founding religious denomination. Approximately 1,600 undergraduates attend Hudson College today, representing all 50 U.S. states and 51 foreign nations; 76% of students are from out of state. There is a student-to-faculty ratio of 9:1. The institution also has seven graduate programs which lead to a master's degree (one to a doctorate); several hundred students are enrolled in these programs.

The institution prides itself as a residential liberal arts college, and 85% of students live on campus in one of 40 student residences. There are no fraternities or sororities on the Hudson campus. There is a small athletics program which hosts six intercollegiate teams and over 20 intramural and club sports.

Hudson College has two academic programs that are of interest to my study of integration of learning: the Liberal Arts Workshop, and the Freshman Symposium. The Liberal Arts Workshop is an intentionally integrative program in which students take part for the three weeks immediately preceding their first year in college. The aims of this program are for students to learn to read and listen more thoughtfully, to express ideas, to review their own work critically, and, to recognize the connection between thinking and expressing. The curriculum of this program culminates in a written assignment that a student must satisfactorily pass in order to matriculate to the college. First year students live on campus during these three weeks, and participate in the Liberal Arts Workshop before upperclassmen return to campus.

Upon matriculating to the college, all freshmen must enroll in First Year Symposium. This is a two-semester sequence focused on what the college considers the important cultural and intellectual ideas that form a basis for liberal arts education. This texts and materials for this course are centered on a common theme each year, which is designed to elicit connections between the core texts and students' daily lives. The material is presented in the framework of an historic tradition and on as broad a scale as possible within a context that promotes analytical thinking through class discussions and numerous writing assignments.

Wabash College. Wabash College is an all-male private liberal arts college in rural western Indiana. The institution is located in the town of Crawfordsville, which has approximately 14,000 residents, and is 45 minutes outside Indianapolis. Wabash was found in 1832 as a private, non-sectarian institution for men, and remains as such today. There are currently 900 students enrolled, with over 70% coming from within the state of Indiana. The others represent thirty-four U.S. states and 24 foreign nations. There is a faculty-to-student ratio of 10:1 or less at the college (Wabash College, 2008a).

Most of the students (789 of 910 current students, 86.7%) live on-campus in one of four residence halls or ten fraternity houses as of Fall 2008 (McDorman, 2008). The fraternity system is a central component of student life, as over half of men join one of the ten national fraternities hosted on campus. Students are recruited by fraternities when they come to visit the campus as high school seniors. Invitations to join fraternity chapters are extended and accepted beginning in mid-March, well before new students come to campus as new students, and most freshmen move into fraternity houses in their first semester at Wabash and continue to reside there all four years (Wabash College, 2008c). Athletics are also a substantial part of student life at Wabash; over 75% of students participate in at least one intramural sport, and over 40% of students are varsity athletes (Wabash College, 2008a).

A program at Wabash that is of interest in terms of integration of learning is the Freshman Tutorial, which students take either first or second semester during their first year. Each section of the Tutorial enrolls approximately 15 students, and is organized around a common theme; two examples from the Fall, 2006 term are *Political Cartoons: The Serious Business of Making Light of Politics and Government*, and *Life Stories and*

Vietnam War Stories: The Life and Writings of Tim O'Brien. The main objective of the Wabash Freshman Tutorial is to give students the skills they need to be critical thinkers, successful in a discussion-based seminar environment, and well-prepared for the intensity of college writing (Wabash College, 2006).

Freshman Tutorial is a common experience for all first year students at Wabash, and this course is followed in the second year with *Cultures and Traditions*, otherwise known as C&T. This is a requirement for all sophomores, and according to the Wabash College curriculum and policies guidelines, "the course is designed to give all students an experience of engaging the products, practices, and ideas of a variety of cultures and periods. There is a strong focus on discussion although skills in both writing and reading are given significant attention" (Wabash College, 2008b, p. 3). This is a two-semester sequence, which all students take during the first and second semesters of their sophomore year.

The student body is governed by a single code of conduct called the "Gentleman's Rule." This honor code is pervasive, and applies to students in all areas of their lives. It reads simply, "The student is expected to conduct himself at all times, both on and off the campus, as a gentleman and a responsible citizen" (Wabash College, 2008d). This statement applies to academic honesty as well as student behavior, and is largely peer-enforced, with serious violations referred to the Dean of Students.

Data Analysis

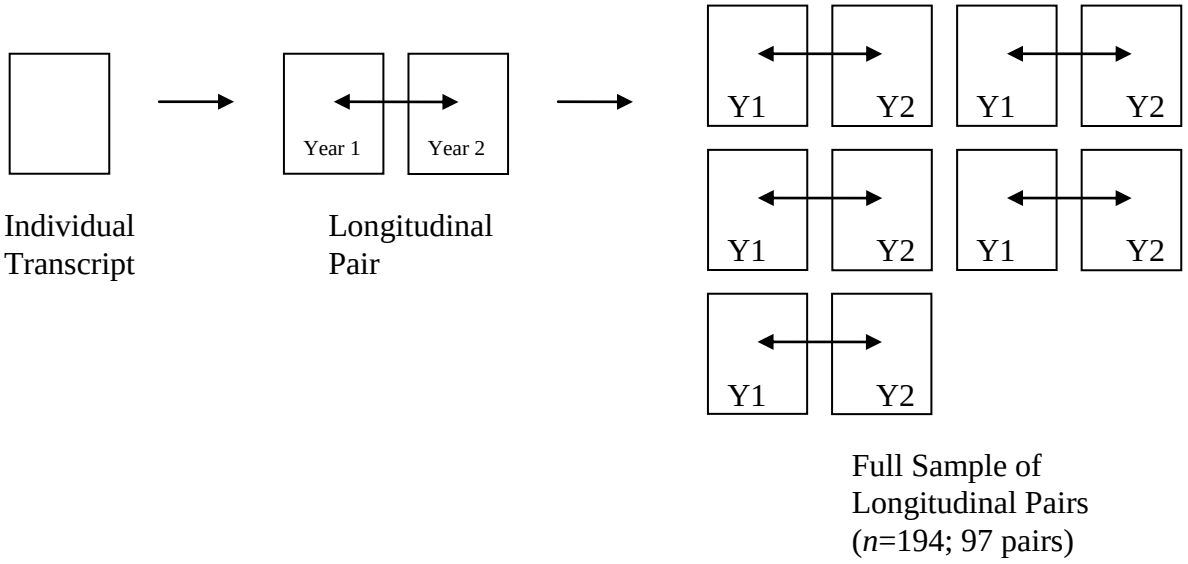
The process of identifying the microsteps of development of integration of learning began with what Strauss and Corbin (1998, p. 57) called microanalysis, "the detailed line-by-line analysis necessary at the beginning of a study to generate initial

categories (with their properties and dimensions) and to suggest relationships among categories." My general approach to analysis was to code individual interviews broadly for integration of learning, starting by identifying those interviews that contain particularly rich data regarding integration. I then coded each passage to capture the characteristics of each example of integration of learning. I later compared individuals' Year 1 interviews to their Year 2 interviews, to search for emergent trends in development of integration of learning.

To operationalize this overall plan for examining the data, I have organized my analytical process into six basic steps: 1) review transcripts for evidence of integration of learning; 2) code transcripts; 3) write memos on my thoughts regarding each of the transcripts coded; 4) compare longitudinal pairs (that is, the Year 1 and Year 2 interviews for a particular student); 5) observe emergent themes across the sample, including changes between Year 1 and Year 2 for individuals; and 6) link the students' self-authorship levels to capacity for integration of learning. I explain each of these steps in more detail below. This process is illustrated in Figure 3.1 in an effort to demonstrate visually how the unit of analysis moves from individual transcript, to longitudinal pair, to the entire selected sample over the course of analysis.

I used qualitative research software called NVivo (QSR International, 2008) for the management and analysis of these data, including but not limited to those gathered through transcripts, summaries, coded documents, and memos.

Figure 3.1. Diagram of Units of Analysis for Data



Peer debriefer. I recruited a *peer debriefer* to review my coding as I went along, providing a check against biases that I bring to the process, and also to aid with consistency and reliability throughout the coding process. This bolsters the trustworthiness of my work. This peer debriefer was Kelley K. Walczak, a doctoral student at the University of Michigan with an interest in qualitative research methods. I recruited Kelley because of her experience with qualitative research and grounded theory, and her previous work with the Wabash National Study qualitative data. I selected her to provide an alternative perspective of the coding process, and I encouraged her to challenge me to acknowledge my sensitizing concepts as they may influence my work.

Step One: Transcript and Summary Review

All transcripts were summarized as the first step in the analysis for the larger Wabash National Study of Liberal Arts Education. The summary has four main purposes:

1) collect background information about the student, including demographic information, interests, and previous formative experiences (often from high school); 2) identify experiences that were effective in promoting development of self-authorship; 3) assess the self-authorship orientation of the individual; and 4) identify conditions and practices that were important to the student and related to the achievement of the seven liberal arts outcomes of the Wabash National Study. These documents were of use in recording the self-authorship levels of each individual (step six in previous paragraph).The complete guide to creating an interview summary (Baxter Magolda & King, 2008) is included in Appendix C.

In terms of the self-authorship assessment, there were actually four assessments contained in each interview summary: an overall assessment, and a separate one for each dimension of development (cognitive, intrapersonal, and interpersonal). This was necessary to remain true to the holistic nature of self-authorship as conceptualized by Kegan (1994) and Baxter Magolda (1999), as well as my own interest in applying a developmental framework to integration of learning. For purposes of this study, I used the overall assessment of self-authorship in my analysis. Assessment of self-authorship is complicated, as discussed in Chapter Two. The assessments contained in each interview summary consisted of a narrative describing the self-authorship observed in the interview, supported by quotes from the transcript to support the evaluation. This narrative is accompanied by the assignment of a position on a ten-point continuum from externally-based developmental orientation to internally-based orientation. See Appendix C for a more detailed description of each point on this continuum. Interview summaries and self-authorship assessments were constructed by graduate students trained in this

method of evaluation, with efforts made to allow interviewers to summarize the interviews they conducted whenever possible.

Despite the ready availability of these interview summaries, it was necessary to return to the complete original transcripts for the coding process because the summaries were not designed to capture all instances of integration of learning that appeared in the interviews. Thus, all occurrences of integration of learning (or lack thereof) were not captured in the summaries unless the quote also illustrated an interesting experience or the student's meaning making structures. I read each transcript line-by-line in order to identify any instances of integration of learning; this process took me about 60 minutes per interview (n=197). My peer debriefer conducted this same process for 48 of the 197 (24%) interviews; 12 interviews from each year at each institution. I provided her with a full transcript of the interview, as well as my coding and memo; however, she did not review my coding or memos until after completing her own review and coding of the document. Then, we met in person to discuss the similarities and differences in our coding of each of the 48 interviews. Any discrepancies were resolved during the meeting; the peer debriefer's memo and notes from the peer debriefing meeting were added to the file for each interview we discussed.

Step Two: Coding Plan, Initial and Focused

Charmaz's (2006) coding process for grounded theory was utilized for coding the integrative experiences, including both initial coding and focused coding. The initial coding was provisional, comparative, and grounded in the data. In Step One, I reviewed each interview transcript, noting whenever I perceived an occurrence of integration of learning (referencing the definition developed in Chapter One, is there evidence of a

connection, application, or synthesis of information, skill, or role/identity?). In Step Two, the initial phase of the coding scheme brought to the surface at least three aspects of integration for each example identified: (1) *what* is being integrated? (e.g., information from two classes, work and school skills, past knowledge with new knowledge); (2) *where* is the context? (e.g., living situation, formal coursework, relationship, work/internship); and (3) *how*, or in what way are they being integrated? (e.g., near transfer, far transfer, levels of abstraction). This general scheme evolved into the Content, Context, and Process coding categories described in greater detail later in this section.

Much of the literature describing ideas about the "how" of integration is distilled in the teaching for transfer theory (Perkins & Salomon, 1988, 1992) discussed in Chapter Two. Therefore, I drew on the transfer of learning literature as a starting point for identifying differing means of integrating learning; that is, *how are elements being integrated*? Examples of these concepts are: positive transfer, negative transfer, near transfer, far transfer, high road transfer, low road transfer, hugging, and bridging (see also Table 2.1 in Chapter Two). Some of these terms (e.g., high road and low road transfer) described the level of abstraction involved in making a connection between different ideas. Others describe the pedagogical structures involved in the process (e.g., hugging and bridging).

The methodological and analytical challenge was determining when and how to incorporate existing transfer categories, acknowledging this important work but not allowing these concepts to limit the initial coding process. Strict grounded theory does not allow for this type of inclusion. I used these concepts as a *starting point* for conceptualization during the initial coding phase, and used the definitions of these terms

as listed in Table 2.1. I only used these exact terms in the coding process when they occurred to me as an excellent match; I did not attempt to fit examples into these categories otherwise. Additional codes to describe the experiences were immediately necessary, and quickly subsumed the original transfer terminology that all of the descriptors will evolve as trends emerge from the data. Charmaz noted:

> Initial codes are provisional, comparative, and grounded in the data. They are provisional because they are open to other analytic possibilities and create codes that best fit the data you have. You progressively follow up on codes that indicate that they fit the data. Then you gather data to explore and fill out these codes…realizing that your data have gaps—or holes—is part of the analytic process. It is inevitable when you adopt an emergent method of conducting research. After all, making 'discoveries' about the worlds you study and pursuing these discoveries to construct an analysis is what grounded theory is about. Such discoveries reflect what you learn and how you conceptualize it. (Charmaz, 2006, p. 48)

Keeping this in mind, additional codes to describe the nuances of the data were defined as they were created in this emergent coding model.

Remaining true to grounded theory, I did not look to these possibilities as a priori codes for level of abstraction or context of what is being integrated. I anticipated the initial codes to emerge from reading the data, and evolve as I progress with analyses of the interviews. However, these transfer concepts played a substantial role in how I became interested in the development of integration of learning; they were on my mind and influenced my ways of thinking about codes. I acknowledged this struggle and while eschewing the establishment of a priori codes, I believe it is important to firmly ground these initial concepts of coding in the literature reviewed in Chapters One and Two (namely, the definitions of integration of learning and theories of transfer of learning). As Dey (1999, p. 251) stated, "there is a difference between an open mind and an empty head."

To summarize this discussion about my approach to initial coding of the interview transcripts, there were four main elements to look for and record in initial coding:

1. Is this an example of integration of learning (i.e., is there evidence of a connection, application, or synthesis of information or roles)?
2. [Content] What is the content? That is, what is being integrated (e.g., information from two classes, work and school skills, information from high school [past] and college [present])? What elements/ideas are connected? What skill/knowledge is applied?
3. [Context] What is the context (e.g., living learning community, Freshman Symposium, Liberal Arts Workshop, internship)? What facilitates the connection? What fostered the integration?
4. [Process] What is the student's process for integration? How are they being integrated (e.g., near transfer, far transfer, one context to another)? What is my best read of how the student is putting these things together?

The four items listed above were central to the research question, and essential in identifying the microsteps associated with development of integration of learning within the first year of college. They formed the basis of the coding scheme, and each example of integration of learning was categorized using them. I did this stage of coding by hand, working from a printed list of all the examples of integration of learning originally identified. I carefully reread each example, and asked myself the above questions about each one. I wrote notes about each example in the margins of the paper, and later transferred these to the NVivo software as well as a spreadsheet for easy sorting. I recorded the Content, Context, and Process for each example, and these three items lead

to assignment to an existing category, or creation of a new one. This process took five to ten minutes per example of integration of learning (*n*=662). A more detailed description of the process of category formation is found later in this chapter.

The peer debriefer played a valuable role at this stage of the coding process as well. She reviewed 138 of the 662 (21%) examples of integration of learning identified. Similar to the process for transcript review, I provided the peer debriefer with the text of several examples of integration of learning. She reviewed and coded each one independently, compared it to my coding, and then we met in person to discuss any discrepancies.

In focused coding, I refined the codes that emerge from initial coding and compared the transcripts in longitudinal pairs, within campus samples, and among the entire sample for the study (both campuses). This segment of the coding was closely aligned with a pure grounded theory approach, using a constant comparative method for analysis. The flexibility of this coding plan to grow and change is essential to successfully implementing grounded theory. As Charmaz stated:

> Coding is the first part of the adventure that enables you to make the leap from concrete events and descriptions of them to theoretical insight and theoretical possibilities. Grounded theory coding is more than a way of sifting, sorting, and synthesizing data, as is the usual purpose of qualitative coding. Instead grounded theory coding begins to unify ideas analytically because you kept in mind what the possible theoretical meanings of your data or codes might be. (Charmaz, 2006, p. 71)

Step Three: Memo Writing

As a means for collecting information about emerging codes and themes, as well as a way to capture thoughts and construct meaning from the data, I engaged in the practice of writing memos during the analysis. Charmaz (2006) stated:

> Memo-writing is the pivotal intermediate step between data collection and writing drafts of papers. When you write memos, you stop and analyze your ideas about the codes in any—and every—way that occurs to you during the moment (see also Glaser, 1998). Memo-writing constitutes a crucial method in grounded theory because it prompts you to analyze your data and codes early in the research process. (p. 72)

These memos played a key role in the creation and refinement of the coding structure and analysis. The peer debriefer also wrote memos to capture her thoughts on the analysis process. These documents were added to my research records, in addition to notes from each of our data analysis discussion meetings.

Step Four: Longitudinal Pairs

Once all the interview transcripts were coded, I matched up the longitudinal pairs (the Year 1 and Year 2 interviews for a particular student) for each individual, to look for changes from Year 1 to Year 2 in how students were able to integrate learning (make connections and synthesize information meaningfully). It was these differences between a student's Year 1 and Year 2 ways of bringing information together that comprised the evidence of change over time in terms of capacity for integration of learning.

Step Five: Emergent Themes across the Sample

Once each individual's two interviews have been compared to one another and changes between Year 1 and Year 2 recorded, I compared the longitudinal pairs to one another in a constant comparative manner. This process is what Charmaz (2006) calls "focused coding," which is where the initial codes (discussed earlier) are reviewed to determine which are best suited for analyzing the data on a larger scale. It is in this stage the data is compared to other data in the sample in an effort to further refine the coding structure and describe the emergent themes. See the description of the constant comparison method later in this chapter for a more nuanced illustration of the process of

identifying themes across the sample and categorizing examples of integration of learning by theme.

Step Six: Consideration of Self-Authorship Orientation

Lastly, I used the self-authorship assessments provided in the interview summaries to look for emergent relationships between the students' overall meaning making orientations and the changes between Year 1 and Year 2 in terms of an individual's ability to integrate learning.

I expected self-authorship orientation and transfer categories to be related (e.g., external orientation = low road transfer); indicators of both type of transfer and meaning making were necessary in order to say anything about how learning is transferred (one aspect of integration of learning) relates to how a student sees the world, self, and others. Thus, considering self-authorship level in the analysis is essential.

Constant Comparison Method

The objective of this section is to document the process of organizing data into categories in a grounded theory study using the constant comparative method. Charmaz (2006) describes this as "a method of analysis that generates successively more abstract concepts and theories through inductive processes of comparing data with data, data with category, category with category, and category with concept. Comparisons then constitute each stage of analytic development" (p. 187). In grounded theory, Glaser and Strauss aimed to create a methodology which combined, "by an analytic procedure of constant comparison, the explicit coding procedure of the first approach and the style of theory development of the second…This method of comparative analysis is to be used

jointly with theoretical sampling, whether for collecting new data or on previously collected or compiled qualitative data" (p. 102)

For example, one of the emergent categories in this study was "Connection." This theme described a specific way that the participants in the study integrated knowledge they were learning. Based on a review of about 25% of the data (or 50 interviews), this category was defined loosely as a type of integration of learning occurring when "two ideas have a common element."

An interesting question arose when a few students in the sample talked about examples of times when they compared and contrasted ideas, usually for a class assignment. The "compare" section of this activity seemed to fit quite well with the existing category of "Connect," in that it involved holding up two ideas, investigating them, and finding similarities. However, the "contrast" part of the activity did not fit quite as well. In fact, contrasting two ideas seemed to be the opposite of "Connection," and encouraged students to search for differences rather than similarities. So, where could these examples of experiences with compare and contrast fit into a study of integration of learning? This led to discussions with colleagues about the dilemma, and consideration of whether comparing was not a "connection" at all, but rather a form of evaluation. Contemplating the role of contrasting in this context introduced me to Piaget's (1977/2001) idea of differentiation as a crucial part of the process of integration; the notion that one cannot integrate something until it is first differentiated.

I set aside the few examples I had of compare and contrast and returned to reviewing and coding other interviews, hoping to find more examples of this type of activity to inform my decision on how to categorize these experiences. More examples

did come up, and they added to my thinking on the topic. One such example from the data came from Will, a first year student at Wabash College, who talks about comparing and contrasting opinions in the context of class discussions in his Freshman Tutorial course.

> Will: Sometimes somebody will say something and they'll say. Somebody else will say no, no, no. Say this is an aspect of characterization. No, no, no, that's actually an aspect of race and then it will almost become not like a violent debate or anything, but a good class discussion. Usually at that time the professor chimes and in and says, "Okay class, which one is it? Is it characterization or is it race?" Then we'll discuss points. We'll say well it's race because it involves an Orc [from Tolkien's *Lord of the Rings*], involves a whatever, and then you know somebody else will say no it's characterization because he's unhappy. He's whatever and just kind of, you kind of meld and blend your own ideas because it's not really wrong, but maybe there's a better way to put it. I mean just because that person believed it was characterization doesn't mean he's wrong. It just means that he sees it in a different light so we kind of meld our ideas together and come up with a consensus. Either one guy or another will say, "yeah that makes more sense under race," or "I still disagree I think it makes more sense under characterization, but I see your point." You kind of have a melding point. Then, of course, when we do our own papers we obviously can make our own conclusions.
>
> Interviewer [I]: What's valuable about hearing all those different perspectives? Why is that a useful thing?
>
> Will: I think it's really neat just to see how other people take it…To me it's just interesting and beneficial to see how other people see it because some people will read deeper into text and some people will not, and it's neat to see what they see in comparison to what I see, in comparison to what the professor sees, and just kind of look at our ideas and think about it and just kind of like I said not necessarily come to a concrete this is the right answer, but come to a better understand of the material, come to a better understanding of each other and understand how people can have different opinions, different thoughts, different ideas.

This quote highlighted the role that comparing and contrasting plays in connection, and how it relates to other emerging categories in the study, including topic on how students synthesize, evaluate, or apply knowledge.

A conversation with the peer debriefer emphasized that even in the act of contrasting, an individual finds some sense of connection or commonality in bringing seemingly disparate items or concepts together to contrast them in the first place. Although the connection may be abstract, there is still a connection happening for that student. This resonated with my previous thinking about Piaget's conceptualization of differentiation, and changed my view. Then, with the additional examples provided by this and other quotes, I achieved a different view of compare and contrast that aligned much more closely with the concept of "connection."

This process was also aided by reflection, memo-writing and peer debriefing. As I analyzed the data and began to create categories, I wrote memos about questions, insights, and ideas that came to me. I then raised these questions with my peer debriefer for this study. Excerpts about the role of comparison from some of my memos are collected here:

> Evaluating something is comparing it, assessing it.
> Sometimes you take stock of these characteristics before you can integrate - apply, connect, or synthesize...you have to determine the value of something (see def. below) before deciding whether or how to integrate it.
>
> Where is evaluation? If you compare something, don't you also evaluate them? Does compare=evaluate?
>
> Compare & choose one (not integration, but a comparison) – maybe the key here is what you do with it after you compare it. Compare it and then integrate it with your own ideas (as in – [pseudonym])? Or do you compare it and then throw it out?
>
> From dictionary:
> Evaluate--
> 1**:** to determine or fix the value of
> 2**:** to determine the significance, worth, or condition of usually by careful appraisal and study. (evaluate, 2008)

These reflections, in both written memos and peer debriefing conversations, were crucial in the formation of categories based on the data. Through the constant comparison method, this fluid process became standard. An example would come up that did not quite fit into the present categorization scheme, I would go back to the data to look for more examples that could inform my question, and usually a subgroup would form that was similar enough to a larger category to remain connected conceptually, but distinct enough to hold together as a group. Sometimes these subgroups would then grow so large and dissimilar as to merit a separation into two themes. Like soap bubbles in a sink, the shapes were constantly changing, as new categories formed, themes merged, descriptions of categories evolved, and other categories disbanded. I remained open to the possibility that these categories would continue to evolve with the insights that came from the process of writing up the results and discussion for the study.

Limitations

One of the major challenges in studying integration of learning was that there was not an established or agreed upon assessment tool to measure this learning outcome (Barber, 2007; Huber, Hutchings, Gale, Miller, & Breen, 2007b; University of Michigan Liberal Arts Study Team, 2003). As delineated in Chapter One, there was also not consensus for a definition of integration of learning. As a result, I have had to construct an operational definition of integration of learning for this project, decide how to identify it within the interview data, and then code and analyze these data. Although the definition I chose is firmly grounded in the available literature, it is an untested definition, and therefore open to interpretation or criticism for being overly broad or incomplete.

Another limitation involves the collective meaning making orientation of the sample itself. Since this project was focused on the first year college experience, the sample primarily used external, early self-authorship orientations. This represented both a limitation in terms of less developmental variation among students, but also allowed for a more focused inquiry into a capacity for integration of learning on a narrower slice of the developmental continuum.

Finally, that the data were collected for the Wabash National Study of Liberal Arts Education is a broad limitation. This limits the campuses that I could draw from in the sample, as well as the class years included in the longitudinal analyses (only first year and sophomore interviews were available).

The WNSLAE Interview itself also has limitations in its use here as it was designed for a broader purpose than the assessment of integration of learning. Although integration of learning was a consideration in the protocol, it was neither the focus nor the priority. Additionally, interviewers and summarizers involved in this project may have had varied conceptions of what constitutes integration of learning, and may not have followed up in interviews to identify rich descriptions of integration, or captured instances of integration of learning within the summary documents.

Conclusion

As discussed in Chapter Two, concepts based on how individuals make meaning of information (such as integration of learning and self-authorship) are difficult to assess because of the underlying nature of the meaning-making processes themselves. Open-ended, constructivist interviews have been found to be effective in "getting at" these meaning making structures because it is possible for an interviewer to ask probing

questions that elicit information from the participant about thought processes, decision-making, and personal perspectives. As such, qualitative interviewing was an appropriate method for collecting data to study integration of learning among college students. The longitudinal nature of the data available from the Wabash National Study also allowed for the study of changes over time, essential for identifying what might be smaller phases or microsteps in development of integration of learning as a collegiate outcome.

Grounded theory allowed for me, via the data from the WNSLAE interview described above, to define the parameters and boundaries of how students experienced integration of learning. For example, the discussion in Chapter One illustrated my criticism that integration of learning defined as interdisciplinarity is too narrow for the aims of this study, as it is by definition limited to the traditional academic disciplines. In this study, I am also interested in the *extra*disciplinary or intercontextual practices and experiences that happen outside of the classroom or formal curriculum, but nonetheless influence integration of learning among college students. This conceptualization ties into my personal philosophy of educational practice, background in student affairs, and overall research interests, including college student development, integration of learning as a collegiate outcome, and discovering how students "put things together" (i.e., what promotes building increasingly complex ways of thinking across collegiate contexts). Grounded theory was an appropriate means for uncovering perhaps unexpected ways that integration of learning crossed traditional disciplinary and institutional boundaries.

The resources available within the fields of psychology, education, and student development offered a strong foundation from which to launch an inquiry into integration of learning. The existing theory and research related to transfer of learning served as a

pool of knowledge to draw upon when considering the "hows" of integration of learning for college students. The model of self-authorship contributed a developmental context or lens through which to study integration of learning in these three dimensions over time, and transfer of learning provided me a starting point for conceptualizing an appropriate coding scheme.

The analytical plan outlined in this chapter was firmly grounded in the student interview data, while drawing upon relevant literature to *inform* the analyses but not *define* them. This balance permitted student voices to speak to how integration of learning developed in the first year of college, unrestricted by preconceived boundaries such as disciplines or a curricular/cocurricular dichotomy. The methodology described in this chapter offered a powerful set of tools for investigating a complex collegiate outcome.

CHAPTER IV: MAPPING THE MICROSTEPS

My overarching research question asked how integration of learning develops among first-year college students. To answer this question, I employed grounded theory to analyze interviews with 94 college students. In Chapter Three, I presented the details of how the data were collected and analyzed. In this chapter, I begin to document what I have discovered in the course of my research. I have organized the findings into two main sections: (1) coding results, and (2) descriptions of the major categories of integration of learning. Detailed reports of the analyses of longitudinal interview pairs, as well as comparisons of integration of learning categorization with self-authorship assessments appear in Chapter Five.

Coding Results

This sample included 45 students from Hudson College (30 women and 15 men), and 52 students from Wabash College (all men). The interviews were longitudinal in nature, and were collected at the beginning of students' first and second years in college. The resulting data set included 194 interview transcripts, which I analyzed for instances of integration of learning.

Given that the sample consisted of traditional-aged first year students, I was initially concerned that there might not be a wealth of data contained in the interviews related to integration of learning as an educational outcome. However, I was met with quite a different situation. The initial line-by-line read of the 194 interviews yielded 662

examples of integration of learning. The pool was deep as well as wide; the information present in the interviews provided rich descriptions of the many ways that students experienced integration of learning in their first college year. After further scrutinizing these examples as described in Chapter Three, 577 were ultimately retained for the analyses in this study, an average of 3 examples per person. Figure 4.1 shows the frequency distribution of the number of examples of integration of learning per student, per year.

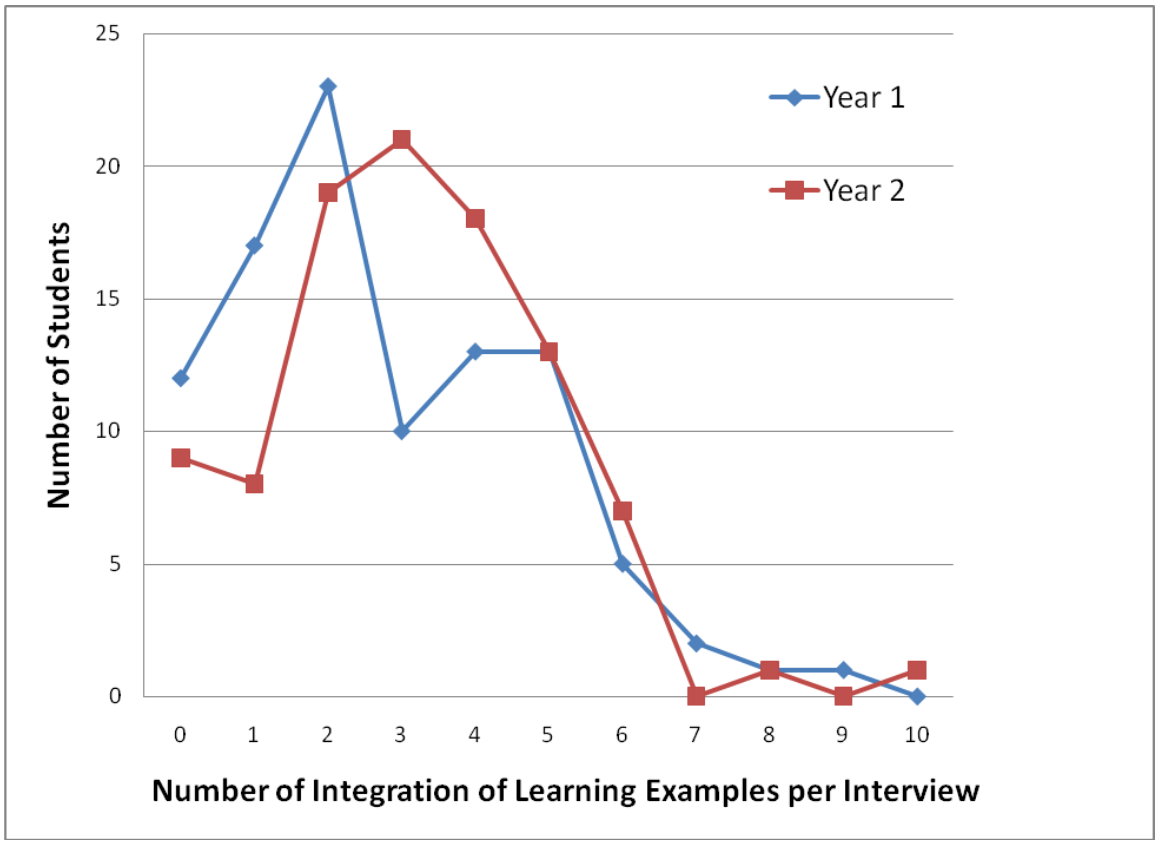


Figure 4.1. Frequency distribution of number of integration of learning examples per interview, by year

In the categorization phase of data analysis, all 662 examples were reviewed and one of three decisions was made. The example was categorized according to its characteristics into one or more categories, the example was determined to be comprised of two distinct examples of integration of learning and divided into two examples (then categorized), or the example was determined not to illustrate integration of learning and excluded from further analysis. Through this detailed categorization process, 547 items were directly categorized, 22 were divided (yielding 44 examples), and 107 were deemed not to meet the criteria for integration of learning used in this study. This resulted in a total of 577 examples; 484 of these were categorized into one category alone, with the other 93 examples categorized in multiple categories. Table 4.1 details how these 577 examples were divided by campus and year.

Table 4.1

Integration of Learning Examples by Campus and Year

	Hudson		*Wabash*		*Total*	
	n	%	n	%	n	%
Year 1	118	(20)	153	(27)	271	(47)
Year 2	113	(20)	193	(33)	306	(53)
Total	231	(40)	346	(60)	577	(100)

There were 577 examples of integration among the 194 interviews. As shown in Table 4.1, there were slightly more instances of integration in the second year (53%) than in the first (47%). A greater percentage of the total number of integration examples

occurred in the Wabash interviews (60%) than in the Hudson interviews (40%); this was expected since there were fewer Hudson students in the sample (45 to Wabash's 52), though not to this extent. It is also interesting to note that as Hudson College's number of integration examples remained virtually the same from Year 1 to Year 2, the number at Wabash increased by over 27%; indeed, the Wabash sample accounts for all of the increase in integration of learning examples from Year 1 to Year 2.

I want to note that although direct questions about integration of learning (e.g., what connections or themes do you see?) often resulted in an example of integration of learning, this was not always the case. I kept records through the coding process of which examples of integration of learning were instigated by direct questions to students. In terms of producing an example of integration of learning, the outcome seemed to depend on the student as much as it did (or perhaps more than) the question. When looking at the overall set of over 500 instances of integration of learning, those resulting from a direct question are not overwhelming, less than 25%.

Degree of Engagement in Integration

In utilizing the constant comparison process described in Chapter Three, three main categories emerged from the data. There are a number of ways to organize these categories, alphabetically, by number of examples, by number of students using each, etc. However, I see the three main categories as distinct in the degree to which students are engaged in the integration, and consider degree of engagement a logical and interesting way to organize the groups as I explain them in this chapter.

These main categories I observed in these data, in order of degree of engagement, are: (1) *Establishing a Connection*, the discovery of a similarity or common bond

between ideas or skills which themselves remain distinctive; (2) *Application across Contexts*, the use of knowledge or skills from one context in another; and (3) *Synthesis of a New Whole*, the creation of new knowledge or understanding by combining two or more insights. The increasing level of engagement is a characteristic of the extent to which the student pursues the integration. *Connection* is a simple relationship between two things, often at a single point in time in a single context; this can be as straightforward as recognizing a similarity between two points. By contrast, *Application* is an action on the student's part to make use of knowledge in a new context; this requires a greater degree of engagement on the student's behalf than recognizing or establishing a connection. Lastly, *Synthesis* is an evolution into something new, the student's creation of a new insight; this construction of a novel concept entails an even deeper engagement with the information, experiences, or skills. Table 4.2 provides more detailed definitions of each category; common student language associated with each category is also listed.

Table 4.2

Definitions of Integration of Learning Categories

Category	Definition	Common Student Language
Establishing a Connection	Find a common thread between concepts or experiences that remain distinct; identifying similar elements, foundation or characteristics.	*compare, compare and contrast, connect, relate, use of analogy, something is like something else*
Application Across Contexts	An idea or skill learned in one context is used in a different context; similar conceptually to transfer of learning. Often appears as use of a high school skill or knowledge in college.	*apply, use, transfer*
Synthesis of New Whole	Two or more ideas or skills are brought together to create a new whole; combining knowledge to enhance understanding and gain new insights.	*incorporate, adapt, collaborate, put together, interpret, bounce ideas off one another*

Major Categories of Integration of Learning

Three main categories of integration of learning were discovered through the constant comparative method recommended in grounded theory. (A detailed description of the process of category formation appeared in Chapter Three.) Brief definitions of each category appear in Table 4.2 above, and the allocation of examples into categories is presented in Table 4.3. If an example of integration of learning fit the description of more than one category, I did not force it into one category or another; instead, I coded the example as all of the categories into which it fit. As 93 examples of integration of learning (16%) were placed in more than one category, the total number of examples in all categories is greater than the overall number of examples in Table 4.1.

Table 4.3

Integration of Learning Examples by Category and Year

	Year 1		**Year 2**		**Total**	
	n	%	*n*	%	*n*	%
Connection	83	(13)	89	(13)	172	(26)
Application	147	(22)	149	(22)	296	(44)
Synthesis	88	(13)	113	(17)	201	(30)
Total	318	(48)	351	(52)	669	(100)

Category One: Establishing a Connection

"I thought they were so unrelated, but they're not." – Fran

The first category of integration of learning examples involves identifying a similarity or common thread between ideas, skills, or pieces of information. In this type of integration, a student finds that two or more ideas have a common element. Students recognize that a novel concept is similar to something familiar, one skill relates to another, or a new text illustrates an old point.

Experiences within the *Establishing a Connection* category were most often in the realm of ideas, such as making a connection mentally between ideas or pieces of information. Connections can be literal in nature, or more abstract. Craig, Aisling, Fran, and Kevin offer examples that illustrate the types of experiences that comprise the Connection category of integration of learning. As noted in Chapter Three, the students involved in this study had the opportunity to choose a pseudonym for themselves; the

names used throughout this chapter are all such pseudonyms. The portions of the quotes that had particular salience to me regarding integration of learning appear in bold.

Craig is a student at Wabash College. The following comment is from his freshman year interview, and exemplifies connection. In his first year at Wabash, he talked about his experience connecting elements of class work within a single philosophy course.

> Craig: Philosophy is kind of fun. Just talking about like all these different people. We've read *Gorgias* by Plato and Aristotle's *Nicomachean Ethics* and we read excerpts from like Hume's *Leviathan*. I think it was Hume's, right? [Author's note: it is actually Hobbes's *Leviathan*.] And then some of this guy called Hobbes and St. Augustine. Now we're on Kant, like I said before and then we're going to go to Mills and she's got some other stuff set aside. She wants to do some feminist ethics because the teacher is a feminist.
>
> Interviewer (I): So taking this class, it seems like you have been exposed to various philosophers and of course, their philosophies. How has that influenced you? Has it influenced you in any way?
>
> Craig: It seems like, it makes you think. It makes you think how everyone could look at the same world and be like, "This is how the world is," and then somebody like reads their work and they're like, "No, that's not how the world is!" and then they write something. Then other people look at theirs and they're like, "No, you're wrong" and then they like read the people who said they were wrong and then said, "No, that's not what I really meant. I meant this." **And it seems like they [philosophers] all have almost exactly the same idea of what is moral. It's like that seems, because the class is specifically on ethics. Like we're just reading like this is like the excerpt from the *Leviathan* that talks about ethics and we're skipping the parts that don't really talk about ethics or kind of just repetitive or seem to be too hard for people who haven't had much exposure to philosophy and it seems that they all pretty much have an idea or the same idea of what's moral, but why you act that way or why you should act that way is debatable between them**.

Within the context of one class, Craig made connections among the various philosophers he was reading. Although there was much disagreement among the philosophers, Craig highlighted the commonalities in their ideas of morality.

Aisling, in her sophomore interview at Hudson College, talked about a similar experience of connecting information in the moment, within a relatively brief timeframe. While Craig's example was limited to a single course, her example described a connection that happens among several classes she was taking concurrently.

> I: I'm wondering if, if you take a look at some of the experiences you've talked about today if you see any other connections or themes.
>
> Aisling: Not, not particularly. **I mean sometimes there are classes that weave together but it's always very short periods of time. It doesn't sort of like work out in the whole like, you know, two-month, three-month-type nice, continuous, sameness way. It's more the points of contact and radiating out in different directions rather than constantly being, constantly contacting and constantly linking. It's more like one point and then they each go different ways.**

For Aisling, although she saw her classes weaving together, she viewed the connections she made in her academic experiences as temporary, fleeting, and local. She made connections among courses she took in the same semester, but not among classes over one or two semesters. Her description of the connections suggests a coincidental nature to the similarities that were not planned or sought after.

Fran, in her first year at Hudson College, described connections that spanned long periods of time, and bridged in-class and out-of class experiences. In this excerpt, Fran talked about integrating learning by making connections among her courses as well as with her past experience living abroad as an exchange student in high school:

> Fran: **Just connecting two things in my classes that supposedly would have nothing to do with each other.** Like my literature class, that freshman year symposium, what this essay's for, and we're reading Plato right now, and I'm taking another class called *Race and Ethnicity in Brazil*, and with this one thing we're talking about Plato and…how we use all these things with eugenics. Well, it just so happens that we just finished a book that had a section on that and now I'm able to connect that like, "Oh, I can see how we got the idea from this and now I can write about them both in my paper." It's just like I never thought about that. Who would've thought Plato and I could connect those—I don't know.

> That's what I'm saying, just connect with like the classes, can go together which I thought they were so unrelated, but they're not.
>
> I: And does the class you're taking about Brazil, how does it relate to your experience having lived there?
>
> Fran: Historically it's cool because right now we're reading about a lot [of] historical stuff. But sometimes in class when we're talking about modern stuff, I kind of…I disagree with a lot of it. And I don't know if I just had a different experience, because a lot of the time I was involved with exchange student life, which was obviously people looking to meet other people so no one thought about race because it was like, "Oh, someone different, that's cool. Let me talk to you." Instead of, "That's weird." And he's [the professor] talking about how some things are happening—when I was there I felt like race was nonexistent, even when I was separate from exchange students, I thought it was so wonderful. Like honestly I feel like every country should strive to be like Brazil, socially. I just felt nothing, no prejudice, nothing, between people. And everyone was mixed and happy and they were all Brazilian people loving each other. And it kind of makes me…not mad, because obviously my teacher has a lot more experience than I do and he's an anthropologist who has his focus in Brazil, he knows a lot more about it than I do, and I was only there nine months. And maybe it has to do with the area where I was in, I was in the biggest city there so obviously it's like a lot more mix of people than a more remote area. So it kind of…kind of makes me upset. It makes me sad that some people sitting there [in class] who never like went to Brazil or will have a chance to live there, maybe they'll visit, but that's the only side of it they're going to see.

In this example, Fran connected several experiences, studying Plato in two different classes (in two semesters), as well as connecting her class on Brazil to her experience living there as an exchange student. She readily spoke about these connections when prompted, but did not indicate that she actively made contributions to the class discussion or questioned what she saw as an inaccurate view of her professor.

Fran's example also illustrates a fine distinction of this category, compare and contrast. This is a specific type of connection in which an individual establishes a common thread between two or more items by examining how they relate to one another, highlighting both similarities and differences. In this example, Fran compared other countries to Brazil in terms of race relations.

Lastly in this category, Kevin, a Wabash freshman, demonstrated a more abstract way of connecting. He made a connection between the tangible experience of attending Homecoming as a freshman and the abstract concept of the community identity at the institution.

> I: Are there any themes that you see among your experiences?
>
> Kevin: It's been centered around student involvement, building community here at the school.
>
> I: How does building community affect you?
>
> Kevin: I really appreciate it. I'm a person that likes to sit in a room at times and just enjoy the quiet, but I really do enjoy people just being – the camaraderie is like having a group of friends and not just one group of friends, but where one group of friends can intermingle with another group of friends. They're not going to always be together, but sometimes they are and you all just have even more fun. So that's kind of what happens here at the school, you know for Homecoming everyone gets together. **It's that big sense of, we have one identity. We go to Wabash for student or "Wallies" or whatever you're going to say. There is that identity where you can identify with other students here.** I guess community is, I just like being around people. It's like where everyone kind of knows each other enough that you don't have to feel stressed out. You don't have to put on a show for people or you don't have to be someone else instead of who you really are and for the most part I believe everyone here has realized that you don't have to be this idea figure in your own mind. You can just be who you really are and people are able to accept who they are and that makes them more easy to be around and when people want to get together and make the most out of that time together they're really good at it so it's just a lot of fun. You can get a lot of that out of the community. You can get a lot out of the relationships when people are willing to be who they really are.

Kevin described his own feelings of belonging and camaraderie during homecoming at Wabash and extrapolated them to the larger and more abstract idea of a community identity at the institution. He formed a connection between these two seemingly disparate notions, going to a football game and being a "Wally," in doing so described how the Homecoming activities exemplified the feeling of community from his point of view.

All four of the students who illustrate connections in this section have established a mental link between ideas or skills. Some links are small steps akin to "near transfer" discussed in Chapter Two (Perkins & Salomon, 1992), such as Craig's observations about the similarities of philosophers' ideas of what is moral. Other connections are large leaps, for example Kevin's ideas about the nature of the Wabash community and how it related to the homecoming events. The defining characteristic of this category of integration of learning is the establishment of a connection that associates two or more ideas in a student's mind.

Category Two: Application across Contexts

"I can bring in other stuff that I've learned from other places." – Craig

The largest category by far of integration of learning experiences focuses on application. Whereas the experiences described in the Connection category above are most often mental links among concepts, the examples in the Application category carry the connotation of action (i.e., the student is applying an idea or skill). In this category, students described experiences where they used one idea or skill elsewhere. This group of examples is also aligned (even more) closely with the transfer of learning literature reviewed in Chapter Two, since the Application examples generally involved an individual applying knowledge gained in one context to another context. Sometimes this application was in the realm of ideas, using concepts learned in one class to inform study in another. Other times, the application was literally more hands-on, for example applying woodworking skills learned at home to construction of the fraternity homecoming float.

Wallace, Dave, Braxton, Craig, and Elliott each provide a rich example to bring this category to life. In his first year at Wabash College, Dave gave credence to the idea of application as a form of transfer, and even used this term in his description of his learning process:

> Dave: One thing that's not uncommon, especially for the history/religion guys or the psychology [guys] to spend two or three hours reading every night and that's having class two days a week. You have to do it every night or else you're not going to get it done, but just the amount of information that you're responsible for here and the amount of writing. They believe very whole heartedly in writing. I've always considered myself a fairly decent writing given that I took two college level English courses or writing courses at Ball State and did fairly well in high school. **I tested out of composition here, but I think maybe I should have taken that, that would have probably helped, but it forces you to convey your ideas much better, too. I believe that also helps education transfer better into the real world.**
>
> I: Education transfer. Is that what you said? [S: Yeah.] What does that mean?
>
> Dave: Well facts don't do us much good. It's not the Jeopardy champions that are CEOs. It's not the people who are kings of Family Feud who are ruling our business world. It's the people who are able to take the information they have and translate it well into what they need to figure out. A lot of it's also verbal and written skills. If you're not really berated on those types of things, it's hard to convey your ideas correctly.

Dave applied writing skills that he learned in high school to the college context, and demonstrated enough mastery that he placed out of his composition requirement. However, he regretted not taking the composition course in college because he felt that the skills involved in composition and writing were helpful more broadly in making connections between one's education and the "real world." So, not only did Dave apply his learning from one context to another, he was aware of the process that he called "education transfer," and considered it important to his future success. He saw this application in a very practical sense: to him, the ability to communicate effectively and

convey his ideas was a necessary skill that he aimed to apply from college to the business world, just as he applied composition skills from high school to college.

Wallace is a student at Hudson College, and in this sophomore year interview talked about a time when he applied feedback from a professor on a paper to the next paper in the same class. This kind of application is similar to the notion of "low-road transfer" described in Chapter Two (Perkins & Salomon, 1992).

> I: Have you had a teacher tell you, you weren't on the right track?
>
> Wallace: It's more like, they'll tell you something in your idea that is better to focus on than, I mean I've never been completely off, but (chuckle), so. Or, I guess like in, I remember a paper I wrote where I forgot to like define, come to define broadly, something really important and so that kind of, that would be something that I probably could like go back and edit. But again, it was after the fact. I'd already written it. It was like out of mind for a long time.
>
> I: So if you get comment spots on a paper of improvements you could have made, you don't usually go back after the fact and change them?
>
> Wallace: No. But, **I mean it's helpful for the next paper, you can see. It's helpful to kind of follow the guidelines set up for you in the next paper.**

Wallace received feedback from the professor and soon used the suggestions as guidelines for the next assignment in that class. The content, context, and process were all the same or very similar, and Wallace simply applied the advice at the next opportunity in the same course. Although Wallace applied his learning, it was not in a vastly different situation.

By contrast, in his first year at Hudson College, Braxton talked about a more abstract type of application, applying an idea rather than a skill. In the following passage, he described a time when he applied a concept learned in one class ["Liberal Arts Workshop"] to a different context.

> Braxton: What the teacher said and what I keep repeating whenever I usually write, is that what you write and what you produce isn't you, it's just what you produce. So, he'd say, it may reflect certain aspects of you, but it's not you and you can't be judged upon it because of it. That might be one of the most significant things that have happened. It's one of the things that came to my mind, I guess.
>
> I: Sure. Tell me a little bit about why that stands out to you, that idea that he said.
>
> Braxton: I guess it allowed me, at least, more free[dom] in my writing because I didn't put as much pressure on it to be a representative of me, of my mind or what I… it didn't put pressure on me to try to put myself, actively put myself into my work or anything like that…It just freed me up when I was trying to write somehow…**When I'm writing or when I'm making a sculpture or when I'm on Facebook or something, when you're making a Facebook profile. Yeah, that's just one of the things he said before, "Just always keep in mind that what you make in your Facebook is not you.** It's just a picture of you and some pictures and a little…and some text that says something about what music you listen to or something like that." He said, "It's not you, it's just a tool." He said to always keep that in mind with everyone else's profile you look at too. And so I'm not nervous what pictures I put up on Facebook… [because] it's not going to include a full personality in a couple pictures and what music someone listens to.

Braxton discussed applying a concept he learned from a professor (the idea that what he writes does not define him) to his writing in non-classroom environments such as Facebook, and also to other forms of expression such as sculpting.

We originally heard from Craig in the previous section with an excerpt from his first year interview that illustrated connection. During his second interview, he discussed how he applied information from outside class to in-class discussions.

> Craig: I can just dominate the talking time sometimes when I let myself especially if it's something that I know about like history because I can bring in other stuff that I've learned from other places and plug it in even if it wasn't in the text. Like just the other day, we were talking about this document about these laws that the King of Spain wrote on warfare and how all the Lords should do it in a certain way and one of the last things we talked about from the excerpt was when the guy talked about building camps and how you should do it a certain way. Someone made the comment, he says that you should like name streets and that doesn't really make any sense to me. I said well and I made the comment cause in the summer I had just read Machiavelli's *Art of War*, because I felt like it. He talked a lot about camping and how you should set up a camp and **I drew from that** and

> said that the purpose of the streets is so that everyone knows where they're supposed to be because you built the same camp every time cause Machiavelli was all about drilling and order and having everyone know their place, but other than that he really didn't know much of what he was talking about.
>
> I: Okay, so were you in a class when you were having this discussion about building the camps and you brought in the Machiavelli? [S: Um-hm.] What class was that?
>
> Craig: History 220, *European Military History from 1000 to 1800*.
>
> I: Okay, so you were having this discussion and you brought in this Machiavelli.
>
> Craig: Well, well, well I didn't say anything about Machiavelli, but **I remembered what I'd read about what he said about camps and then I made that comment.**

Craig felt that he was dominating the conversation in class sometimes, because his peers did not seem to have read the material for class, and he was prepared, and able to discuss the class texts as well as additional information. He applied his knowledge from independent reading, brining this information into his discussion-based class in college.

Elliot was a first year student at Wabash College when he talked about integration of learning outside of classroom contexts. In this excerpt from his interview, he shared how his previous interests and skills acquired at home had been put to use in building a homecoming float in college.

> I: So when you're drawing this [fraternity homecoming float] out and you got your dimensions, what skill set do you think that you have to offer the group?
>
> Elliott: I'm good with my hands. I'm not an excellent artist by any means, but I feel like I can draw decently. My dad's an operations manager at a construction company, but he worked his way up from working in the lumber yards so he's developed skills where, like he's built countertops for our home. I've always helped him out in that. He does side little projects with just wood in general. He actually shipped from his lumber company; he shipped the wood to us because actually his boss is a Wabash grad, so I already saw the connections working there. So we got free wood and then I just felt like I had the most experience around that kind of thing, like cutting wood and getting things together and I just felt like I'm, feel like I'm an intelligent young fellow, so.

I: So can you think back to the past, when did you realize that you had these skills or you had the first memory of realizing "hey, I'm pretty good at this"?

Elliott: I can't put my finger on a first memory, but I've always liked to do puzzles. I've always liked, not just you know pieces of puzzles in general, but mind puzzles. I don't know if you are familiar with the Sudokus, in the newspaper. [I: Absolutely.] I thoroughly enjoy doing those. I really like those a lot so it kind of transfers over into thinking of the many different things that can go on a piece of paper. Different ways the float could have been constructed.

…

I: Can you think of any relationships or links that you see among your experiences here at Wabash?

Elliott: I don't think I really encountered too many new things really. Like Homecoming, building the float and all that stuff. **I've done things like that in the past, so it can also go back to my past experiences knowing what I've done in similar situations and applying them to the now.**

All five of these students integrated learning in a manner that indicated an application of knowledge from one domain to another. Wallace exemplified a very close application, akin to near transfer of learning, where he applied a professor's feedback immediately to the next assignment in the same class. Dave also applied learning within traditional academic institutions, but took it a bit further, making use of high school writing skills to fulfill his college composition requirement. Elliott demonstrated that application is not limited to the academic arena, as he used his love of Sudoku and previous experience learning carpentry from his dad to assist with the construction of his fraternity's float for homecoming.

Craig brought previous knowledge gained outside the classroom into a class discussion on Machiavellian strategy, and Braxton's example of applying a concept learned in class to other academic and non-academic contexts illustrates a more abstract variety of application in that it he took a way of thinking about writing, and applied it to sculpting and social networking on Facebook. Craig and Braxton's experiences taken

together demonstrate that application can involve both in-class and out-of-class contexts, and that the application can take place in either direction; Braxton applied an insight garnered in the classroom to life in general, and Craig introduced information from outside the syllabus into a classroom dialogue. Taken together, these examples demonstrate two main characteristics of the Application category of integration, (1) the mobility of knowledge across contexts, and (2) the active role of the student in this mobility.

The mobility of knowledge across contexts is also a key link to the transfer of learning literature reviewed in Chapter Two. The concepts of transfer of learning are concentrated in the Application category, and hold much more relevance with this group of examples than with those of Connection or Synthesis, in large part because of the practical (i.e., applied) nature of transfer of learning.

Category Three: Synthesis of a New Whole

> "I think part of the learning experience is taking all the pieces from all those and coming up with a totally different thing that supports everything as a whole." – Sebastian

The third major category of integration of learning experiences is *Synthesis of a New Whole*. This group of experiences includes instances when two or more ideas come together to form a new idea or concept. It is different from Connection, which describes finding a similarity between two or more items that remain distinct, and is also set apart from Application, which centers on the utilization of knowledge or skill from one context to another. Synthesis is defined in the dictionary as "to put together; the composition or combination of parts or elements so as to form a whole" (Merriam-Webster, 2008b). This is at its foundation a process of constructing new understanding or skills. Words that

were often used by students to explain how they experienced this kind of integration of learning included: incorporate, adapt, blend, compromise, and negotiate.

An important aspect of this category is collaboration with others. The word "collaborate" literally means to work together, or co-labor (Merriam-Webster, 2008a). Students often described these situations, usually in the context of class discussions, with language such as: picking up an idea up and taking it somewhere, bouncing ideas off one another, and building upon each others' ideas. In these examples and others in this category, a creative process is at work, more so than in the Connection or Application categories. In this category, students talked about the process of coming together to enhance understanding for the individual as well as the group. In the following excerpts, Sebastian, Tom, and Max provide examples of synthesis as a means of integrating learning.

In Sebastian's first year interview at Wabash College, he described his experience synthesizing opinions in the context of a lively class discussion.

> Sebastian: So that's why if [you] disagree with someone, **you got to think of it like well what are they thinking right now and that's how you try to intertwine what you're thinking by compromise basically**… [it is even better when] it's the whole uproar class discussion. Then you get totally different opinions from every single person. You got all this information thrown out there and you get to pick what you want. You get to really hear all the different opinions so if you get like four guys on your side. There's four guys on the professor's side. You're just like going at it and you just hear all these different [opinions]. That's how you get into an intellectual argument. I mean because you're just really talking from your heart and your beliefs and all that and then you got people agreeing and disagreeing and then you come up with a compromise or just one side wins.
>
> I: Okay, how do you sort out what you're going to buy into and what you're going to reject when you have all these ideas flying around the room?
>
> Sebastian: You just don't really make a decision, choose, you just learn to accept everything basically. You don't really make a stand. You're just like okay this is

possible, this is possible, this is possible and then **I think part of the learning experience is taking all the pieces from all those and coming up with a totally different thing that supports everything as a whole.**

In this example, Sebastian took aspects of arguments from different people in the class, and brought them together into an idea that was new and distinct from any one person's perspective. However, there was no evaluation in Sebastian's synthesizing process, as he did not weigh the arguments presented or demonstrate criteria for building his new vision. Rather, he aimed to fit all of the opinions together under one new, larger umbrella idea (i.e., "a totally different thing") that accepted all the perspectives, and rejected none.

By contrast, Colin, in his sophomore interview at Wabash, brought more consideration to the synthesizing process. In the following excerpt, he talked about bringing together his religious background and education in a Christian school that taught intelligent design, and the perspectives he was gaining in college biology courses that taught evolution.

I: So it sounds like you have a lot of opportunities to listen to different opinions in your classes. How do you kind of take those in?

Colin: **I take them all in and chew on them and then go to through the digestive process, mentally check it against what I think or thought and how I kind of add this to my ideas and subtract some of the stuff and then combine it all. Kind of getting what I feel is the best of everything.**

I: Can you think of an example that you've gone through that process with?

Colin: Growing up I went to a private school so it was all about the Bible and stuff… I've taken biology and then I've opened myself up to a couple religion classes [in college] like Eastern kind of stuff and [they] help me see and compare and contrast there. Specifically in biology, looking against evolution and intelligent design, it makes all religions seem a little bit less fact and almost more fictional like classics. Although I still believe certain things, I can kind of see how if God were to put things in motion or the Big Bang Theory were to happen that naturally through the planet we live on and natural interactions with our environment. Another factor is the species must evolve to a certain extent…I think by in large right now in this part of my life I'm more open to a lot of things.

> I don't go to church as much even though I still believe in a lot of things I do. I mean I just want to get the most out of every experience that I have right now. I think especially a liberal arts education, it will, you get a lot more education, so if you're sitting there trying to think as a staunch conservative, it will be way too hard for you to accept some of those things and just kind of relate those to your life and how you're going to handle things later on.

Colin provided a vivid description of his synthesis process in this example. He talked about the "digestive process" of comparing new information to his previously held views, and deciding what to add in, what to subtract, and how to reconcile divergent beliefs. This sort of evaluation is not present in Sebastian's excerpt above. There are also other elements of integration of learning noticeable in Colin's response. He noted that the new classes that he was taking in college allowed him to compare and contrast different religious and scientific ideas and ultimately synthesize them into his own belief system. This example also fits into the Connection category because he makes a connection between the concepts of intelligent design and evolution, compares and contrasts them, and then takes his thinking further in order to synthesize them. Although Sebastian and Colin are both synthesizing information to create a new understanding, Colin's process is more complex.

In Tom's sophomore interview at Hudson, he discussed what I call the collaborative nature of synthesis, where ideas are combined through group process rather than by an individual. He enjoyed the discussion-based classes at the college, and described how the act of engaging in a discussion could lead to new understanding.

> I: When you say that it's [seminars and discussion] a way of learning that works for you, what specifically about that way of learning really works?
>
> Tom: Well I think a lot of it has to do I guess with being student-driven. We're basically forced to talk sometimes, and being forced to talk when – without having anything prepared forced to talk. And being forced to talk about something without having anything – it's a really good mental exercise at least for me…For

> the most part it's just an expectation and I mean the courses are run, in large part, not all of them, as sort of like a guided discussion, so to really take part in the course you have to contribute. **But in that act of contributing, it becomes a much more active engagement, at least for me, when I'm having to just talk about what I think about something, and then as I'm talking the thought sort of folds out on itself and it leads somewhere and it doesn't lead somewhere unless you sort of have – or somebody else picks it up and somebody else takes it somewhere. And so it works really well to get into understanding and to go about it that way.**

Tom's description indicated the importance of dialogue in synthesizing knowledge and in the integration of learning process broadly. His description of the thought folding out on itself is an illustration of meaning making in action in the course of the discussion. He also noted that this process happens in interaction with other students; it is a collaborative process. In his explanation, in order for the thought to lead somewhere, somebody else must pick it up, and the result was a greater understanding. By contrast, Max described a very individual and personal variety of synthesis.

In his freshman interview at Wabash, he talked about the Gentleman's Rule, as many of the Wabash freshmen did, and in that discussion provided a strong example of the interpretive nature of synthesis. The rule is simple but indistinct ("The student is expected to conduct himself at all times, both on and off the campus, as a gentleman and a responsible citizen") and requires students to bring their own definitions of "gentleman" and "responsible citizen" to the table in order to make sense of the rule.

> I: Have you ever had that here, where you struggled to do the right thing?
>
> Max: The Gentleman's Rule at Wabash, I think is a very important tool in pushing people to do the right thing because you simply have to think is it right or is it wrong by yourself not because of the consequences of what will happen so I think that way it's freedom with a tremendous amount of responsibility so you're always, you have to just think is this right or is it wrong? A lot of times we know, but maybe if there wasn't a consequence we might not be steered away from doing that thing…I think a lot of it is a, sort of the deontological view of ethics to where it's right or wrong based on the fact it's right or wrong rather than it's right

> because you won't be in trouble. I see myself looking at a situation and asking, "If I did this and everybody else did it, what would the outcome be?" If it would be a negative outcome then [I] shouldn't do it myself.
>
> I: Where do you think your values came from?
>
> Max: Well, I was raised a Roman Catholic so that kind of put some values upon me, but now I've kind of backed away from religion and trying to get a better sense of what I believe before I ascribe to a belief system so that plays into it I think just living around people who do good things, living on a campus where a lot of people think about what they do because. Sorry. **Living in a place where everybody has to decide what is right and wrong for themselves helps you learn to decide what is right and wrong for yourself**.

In order to understand the Gentleman's Rule, Max had to interpret it, which I see in this case as a form of synthesizing. In Max's case, he brings a logical view of ethics, his values from Catholicism, and an awareness of community together to make sense of what this rule means for him. He is in effect synthesizing these disparate influences to understand the Gentleman's Rule.

One might ask how Interpretation is different from meaning making. This is a key question, and the two are not wholly different. In my opinion, integration of learning itself is a form of meaning making because it involves making sense of the world in new ways. I think integration is a form of synthesis because it involved bringing one's previous experiences and understanding to a new situation and by combining the previous experience with a new context, thereby creating a new understanding (or, a new whole). Phrased another way, one could argue this definition also describes the Application category, in that one applies past experiences and understanding to a new situation. However, I think what makes interpretation a type of Synthesis is the *emergence of a new understanding*. Application ends with utility before coming to a new understanding.

The central characteristic of the examples in the Synthesis category is the fusion of two or more ideas, perspectives, or items to form a new view. This creative form of integration goes beyond the link established in the Connection category, and is also distinct from the examples reported in the Application category. In the act of synthesis, there is a creation of something greater than the sum of its parts. Sebastian and Tom talked about how this process unfolded in classroom discussions, where individual perspectives come together to form shared understandings. Colin highlighted the role of evaluation in synthesis and talked about how he decided which ideas to integrate and in what way they were synthesized. Lastly, Max brought together his values and the Gentleman's Rule statement to create his own personal understanding of what the rule means.

Learning What Is Not Integration of Learning

As open-minded as I tried to be in the data analysis process, I was often confronted with my own subjectivities. An unexpected development in the analysis phase of this study was the rejection of over 10% of the examples originally identified as integration of learning. These were examples that appeared to meet my definition of integration of learning (detailed in Chapter One) as I initially read through the full transcript of an interview. However, as I reread these examples and tried to identify the content, context, and process components of the integration, per my analysis scheme (see Chapter Three), I found that one or more of these components were absent in this situation.

Once I had analyzed over half of the examples in the data set, a pattern began to emerge. I would generally garner as much information as I could from the example,

choose a label for a potential category the example might fit in, and make a note to return to the example later. Work with a peer debriefer was helpful in clarifying these issues. In this section of this chapter, I illustrate five elements that I found to be related to but not sufficient for integration of learning. The first two groups, *Recognition of Others' Integration*, and *Reconsideration of Previous Beliefs*, I subsequently recognized as categories preceding integration of learning. The next three groups, Evaluation, Reflection, and Seeing Multiple Perspectives, are not pre-integration, but rather tools and/or skills which are helpful in promoting integration of learning.

Recognition of Others' Integration

> "That [understanding connections] sort of became in some ways something I aspire to do." – Tom

Some students in the sample talked about others' integration or their own desire to be able to integrate their learning, but did not demonstrate integration of learning themselves. This category was challenging to understand initially, because the individuals were not doing the integrating personally, but rather noting its characteristics, observing others in the act of integration, or expressing their hope to someday be able to integrate their own knowledge or experiences. In other words, they could understand integration of learning, but did not demonstrate it. Tom, Elis, and Elijah provide illustrations of this recognition of integration.

Tom is a student at Hudson College, who also served to illustrate synthesis in the previous section with an example from his Year 2 interview. In the following example from his freshman interview, Tom noted that a teacher in his high school was very skilled at the kinds of connection emblematic of integration. He recognized this ability and

expressed a desire to be able to do the same thing one day. Thus, the desire to integrate (without the demonstrated ability to do so), emerged as a thread within this group.

> Tom: But what I really took more than anything else was he [the high school teacher] had a way of going on long tangents. He had a way of going on long tangents and, related to whatever we were talking about, but I mean they were about everything. When we were talking about History of Science we spent a whole class talking – no, this is in Physics, still, he did it History of Science, too. We spent a whole class once talking about the science of music and we spent a series of two or three classes talking about the science of different forms of energy production. And he just had this way of going off on tangents that were somehow related to whatever he was talking about but were in some ways very distant. And I thought that was…in terms of knowing how to think…in terms of understanding connections and things like that I thought that just this mode of teaching itself was very helpful to me. Just this way of sometimes dropping, going into this what I've heard called the Bumblebee Approach. **Where you touch down then fly up and touch down and then fly up. To be able to do that…that sort of became in some ways something I aspire to do.** To just have that kind of…I don't know. To have – just to be able to do that. **To have the faculties to do that and it's just knowing him and talking to him, we had conversations about all kinds of things and it just seemed like such a valuable thing.** That kind of –
>
> I: What do you think that requires to be able to have that approach? The Bumblebee Approach? You said that you aspire to have the faculties to do that. What do you think it takes?
>
> Tom: I think, well, obviously it takes knowledge. It takes enough knowledge to make the connections that it takes…I think the main thing is to think about it. Just to try to make some kinds of connections to talk to people and try to work out how things make sense with one another. And I think that just sort of…I think those are the main ways to get…the main avenues, I guess.

Tom's example illustrates both the recognition of integration, and the desire to do it himself. Although he admired this propensity for making connections, Tom implied that he did not think he has the knowledge that is required to make the connections in the ways his high school teacher did.

Elis is also a student at Hudson, and in her second-year interview, she talked about the value of learning from professors who are well-rounded and the specific advice she had received from them.

> Elis: Most of the kids that come to Hudson realize that they have like all these distribution requirements and are usually wanting to get a liberal arts education. **And I feel like if you have a professor who only knows about one subject, you're not going to be getting as good a liberal arts education because you're just getting like single smatterings as opposed to like each, each professor is well-rounded. Then your education in general will be more rounded** I feel, so.
> …
> I was looking at possibly going to into, I think I talked this with you last semester, going into conservatory and I just really didn't want to do [it]. But, I think it's important to, no matter what field you're in, but specifically I found I was an artist, is that you can't be an artist just as an artist. Like it's so much of your art has to come from other experiences that you have, and you learn from science to literature to walking down the street and seeing a tree. **And I know that my professors, who talk to me like my directing professors and my film professors are always saying "Don't just like sit in your room, writing your script or planning out your shot-by-shot analysis. Go outside because you'll probably find exactly the inspiration that you need sitting in a restaurant or going to science class and it takes fields that are outside of what you're doing to make what you're doing click."** But I think that's true not only for the artist but like for everything in general.

Elis' experience was different from Tom's in that although she recognizes the integration of learning that her professors are doing, she did not express a desire to integrate herself. She talked about how "most of the kids" want a well rounded liberal arts education, but never said that this was what she sought. Similarly, later in the excerpt, Elis cited specific advice from her professors about how to integrate learning (in the context of film and direction), but did not indicate that she had acted on this recommendation.

Lastly in this category, Elijah recognizes that integration of learning will be important to him in the future, but has not yet undertaken it. He attends Wabash College and discussed his future career plans in his second-year interview. Although he had just

chosen to be a religion major, he hoped to use his skills in a business setting after graduation.

> I: Have you thought about a major at all here?
>
> Elijah: Religion.
>
> I: Religion, how did you come to that decision?
>
> Elijah: …There's so many different jobs that have so many different descriptions of what you have to do that you can't just go to school and learn how to do the job. I feel you go to school to learn how to learn and so that when you get out, I'll be an Econ minor so kind of the business thing. It's just religion interests me more than philosophy or art or Spanish or the other majors so I figured I might as well do what I like.
>
> I: So you said that you go to school to learn so what are the things that you think that you have to get out of school in order to go onto have a successful career?
>
> Elijah: Manage your workload. Write in a manner that people can read and understand you clearly. Learn how to learn vocally. If you work for a company and you have to go to a presentation or you have to go to a workshop or something, you need to know how to learn what they're teaching you…a presentation that you would have to give or something. Yeah, I mean I feel like I'm learning them [applicable skills]. I mean I feel like I can write pretty well. Somewhere in my business sequence I have to take a, like English 411, Business Writing or whatever. Yeah, I'm pretty confident [of] that even though I'm a religion major.

Elijah recognized the applicability of the basic skills he anticipated learning in college (specifically in the business sequence), and hoped to use them in a future career. He followed his interest in religion for his choice of major, and trusted that his education would be general enough to be useful in whatever job he has upon graduation.

Tom, Elis and Elijah had a common theme in their narratives. They all enjoyed the liberal arts environment because of the broad curriculum and the opportunities to learn about a variety of subjects. Tom called it the "Bumblebee Approach," Elis noted the "well-rounded" professors, and Elijah wanted to "learn how to learn," rather than gaining

skills for any one specific job. Each student recognized the integration of learning going on around them, but they did not perform it themselves in these examples. Elijah came the closest to integration in his statements about applying skills he is learning in college to the business world, but his comments were too vague to categorize this example with the Application group. He hoped to integrate his learning in the future, via an application of skills from college to a career, but for him this event is in the distant future and not an action he has an immediate plan for.

Reconsideration of Previous Beliefs

"I'll have a different eye now. I'd actually like
to go back and kind of reevaluate a little bit." – Ethan

I believe that this category is an important step leading to the development of integration of learning. The Reconsideration category is more heavily skewed toward the external end of the self-authorship continuum, suggesting that this category is an early step preceding the development of integration of learning. The examples of Reconsideration capture a moment in students' consciousness where they question their previously held beliefs and the source(s) of knowledge. They reevaluate their view of the world, and try to understand different perspectives. The following examples from Rick, Ryan, and Ethan demonstrate this notion of reconsideration. Rick is a student at Wabash College, and what follows is an excerpt from his second year interview.

> I: So you talk about the different coursework that is so rigorous and three labs in one semester for example. As you think about your overall experiences this past year, what's the most important idea that you've gained?
>
> Rick: Acceptance probably.
>
> I: What's that mean?
>
> Rick: **I guess with the different cultures and everything and also ideas, being**

able to accept people's ideas even if they're different from your own. I mean you're not always right so.

I: And what do you do with those ideas that you hear or that are different? Once you've got them.

Rick: I mean listen to them, think about "hey maybe he's right." **Maybe a little bit of his is right and a little bit of mine is right and just learn how to deduce what's the best option.**

Rick was open to the idea that he is not always right, and that ideas originating in different cultures could have value, and described how he planned to synthesize information to come to the best conclusion. I find it interesting that Rick talks about finding the "best" option, not the "right" option. In student development terms, this indicates a shift away from a dualistic worldview toward a more relativistic understanding of the world.

In his freshman year at Wabash College, Ryan discussed his encounters with new ideas, and a reconsideration process similar to Rick's.

I: So if you're making the most of your time I'm imagining that you're encountering new ideas. I'd like to know how you evaluate new ideas that are presented in college.

Ryan: **I guess just comparing them to the way I've already thought about things, seeing why it's different.** I guess I always like to look at the background of where it's coming from which is something that, why I really want to study different things. Where it's like is it because this person is from a different part of the country, a different part of the world, different religion. Why is it that they differ? Then using that to look at the way I think and seeing well is he right about this? Is it because I have something that's instilled in me and that's not necessarily right? **I just kind of look at that and see well if it's going to completely change my opinion or alter it a little bit so it's still the same but just a little bit different that's probably the way I'm looking at new things.** The reason I can't really come up with an example is because I do think it happens on a low scale probably every day where people think or say something different from what I'm used to. Each time I think about it or adapt to it. I figure out why there's a difference and not necessarily right, but which one is the way that I'm going to continue looking at it I guess.

The language that Ryan used in this example indicated that he is refining his views through the reconsideration process. He has already thought about his views and made some decisions about what he believes. He then reflects on how the new information might change his opinion or way of seeing the world.

As a sophomore at Hudson College, Ethan commented on the role of reflection in reconsidering beliefs. He was an art student who had an insight during his interview that he wanted to reevaluate some of his previous works.

> Ethan: I'm going to take more seriously the reflection aspect of progression actually. Because I articulated it in my own head just now. And I just realized as I was talking to you how important it was. And how actually, I'm probably going to go back to some of my old projects, into my little archives in my closet see if I can't take a look at those and see, if I can't point out or recognize if there's anything I left out, because I just realized you know, the things that I realize about my own self from my writing last year, **I'll have a different eye now. I'd actually like to go back and kind of reevaluate a little bit.**…I'm just saying that things are always in a constant state of more changing. So, like maybe while um, you know I don't even know how to finish the sentence. The thing about this is that nothing is concrete ever here. I mean everything is just shifting. You're always moving. Friends are coming in and out, academic disciplines, ideas are always coming in and out; your writing is always shifting. Everything is in a constant state of flux. And so, when something is influenced by something, it's more like not something actually that's influencing it, but ways of thinking that's influenced you. So, the way that I think about what I'm going to major in has been influenced by the way that I attacked anthropology last year. The way that or what I mean attacked, I just knew I was going to do it, so I just kind of go right in. I dove right into the point where my professor invited me to the dinner at her house where the senior anthropologists [go] because I was so involved with the program already. I was only a first year student.

These students are all open to new perspectives. Each of the students in these examples considers that he or she might not be right, and that there are other ways of seeing the world that are different from their own. In this sense, the students are confronted with challenges to their previously held beliefs. This seems distinct from Synthesis because of the implicit requirement involved in this kind of thinking that you

might be wrong. This could be related to Piaget's (1977/2001) idea of differentiation as a step in the integration process. Perhaps the students are realizing their own capacity for development, or as Ethan put it, that "nothing is every concrete here," and "things are always in a constant state of flux."

The Cases of Evaluation, Reflection, and Seeing Multiple Perspectives

Many of the examples originally categorized as integration of learning that were eliminated upon closer analysis appeared in categories I had created and named "Evaluate," "Reflect," and "See Multiple Perspectives." This was puzzling because these processes figure prominently in literature about learning and development, and I considered them to be likely candidates for microsteps of integration of learning. However, upon closer review, the examples coded using these categories did not actually depict integration of learning, although the language the students used sounded like integration (and probably struck my bias toward these concepts as useful characteristics and practices). Interestingly, these same codes appeared many times in conjunction with other categories described here. For example, an example categorized as both Synthesis and Reflection *was* an example of integration of learning, but an example categorized only as Reflection *was not* (see example below). This discovery leads me to believe that these three categories (reflection, evaluation, and seeing multiple perspectives) describe tools or a foundation for integration of learning, but are not integration of learning per se.

These examples in the "Not IOL" category were excluded from the analyses for this study, but I include one brief example here to illustrate the types of experiences that did not meet the definition of integration of learning. Examples like the following excerpt from Reese's sophomore interview at Hudson were helpful in the categorization process.

Sometimes an example of what *is not* integration of learning was just as helpful for me as an example of what is. In the following example, Reese responded to a question about her support systems.

> Reese: Well, one of them [supports] is just writing it out. I've been keeping this Word document journal since the beginning of last year. It's 38 pages. But it's just like everything. It's like – I call it babble. So it's my babble. Everything from – everything important to anything not important. [I: And that's been helpful?] S: Yeah, just to think it through and process it. It was funny. Because one of my friends from campus, I let him read one of the things that I had written. And he said, "I wish I could formulate what I was thinking onto paper." And I think that by doing that, it allows me to figure out where my head is, and what I'm actually feeling.

This example originally appeared to be a candidate for integration of learning; however, upon a closer read of the text, this example is not about integration at all. Reese discussed how she used journaling to organize information, to "think it through and process it," but stopped short of integrating the information. Although the preceding examples did not meet the standard for integration of learning, they were very helpful in refining the focus of this study. Sometimes, illustrating what integration *was not* served to clarify what it in fact *was*.

Conclusion

Over the course of the coding process, I uncovered three main categories of integration of learning from the data: *Establishing a Connection*, *Application across Contexts*, and *Synthesis of a New Whole*. Based on my observation of the level of complexity of these three types of integration, I organized them in the following order for purposes of this study: Connection, Application, and Synthesis.

There were also five categories that were related, but not integration of learning per se. Two of these categories, *Recognition of Others' Integration*, and *Reconsideration*

of Previous Beliefs, I posit to be precursors to integration of learning. The remaining three themes, *Reflection*, *Evaluation*, and *Seeing Multiple Perspectives*, are important tools to achieving integration of learning, but do not meet the definition of integration independently.

In the next chapter, I investigate the relationships among these categories and who they may change over time. I revisit the concept of longitudinal pairs that I introduced in Chapter Three, and also explore trends in integration related to developmental orientation as measured via self-authorship.

CHAPTER V: INTEGRATION OF LEARNING AND DEVELOPMENT

Analysis of Longitudinal Pairs

One of the distinguishing and insightful characteristics of this particular data set is the longitudinal nature of the interviews. It is rare in qualitative educational research to have the opportunity to follow the same individual over time, even though this is essential for documenting developmental changes. In this study, all 97 students in the sample participated in interviews at the beginning of their first and second years in college. In Chapter Three, I introduced the idea of investigating the data first at the individual level, by comparing each student's Year 1 and Year 2 interviews to one another.

Once the interview transcripts were coded, I matched up the longitudinal pairs (the Year 1 and Year 2 interviews for a particular student) for each individual, to look for changes from Year 1 to Year 2 in how students were able to integrate learning (make connections and synthesize information meaningfully). It was these differences between a student's Year 1 and Year 2 ways of bringing information together that comprised the evidence of change over time in terms of capacity for integration of learning.

A review of the longitudinal data indicates an increasing complexity in students' ways of talking about integration of learning over time. Table 5.1 details the distribution of integration of learning examples by year for the entire sample.

Table 5.1

Integration of Learning Examples by Category and Year

	Year 1		Year 2		Total		Change	
	n	%	*n*	%	*n*	%	*n*	%
Connection	83	(48)	89	(52)	172	(100)	+6	+7.2
Application	147	(50)	149	(50)	296	(100)	+2	+1.4
Synthesis	88	(44)	113	(56)	201	(100)	+25	+28.4
Total	318	(48)	351	(52)	669	(100)	+33	+10.4

From Year 1 to Year 2, there was an overall increase of 10.4% among all types of integration of learning. Application, the largest category of integration in both years of the study, had the smallest increase between years (1.4%). Connection had a modest increase of 7.2%, and Synthesis has the largest gain, 28.4%. However, these gains were not distributed across the entire sample of 97 students. Breaking these numbers down by individual student shows that many students actually had fewer instances of integration in their second year interview than in their first. Figure 5.1 is a histogram that details the longitudinal changes in frequency of integration of learning for the 97 students in the sample.

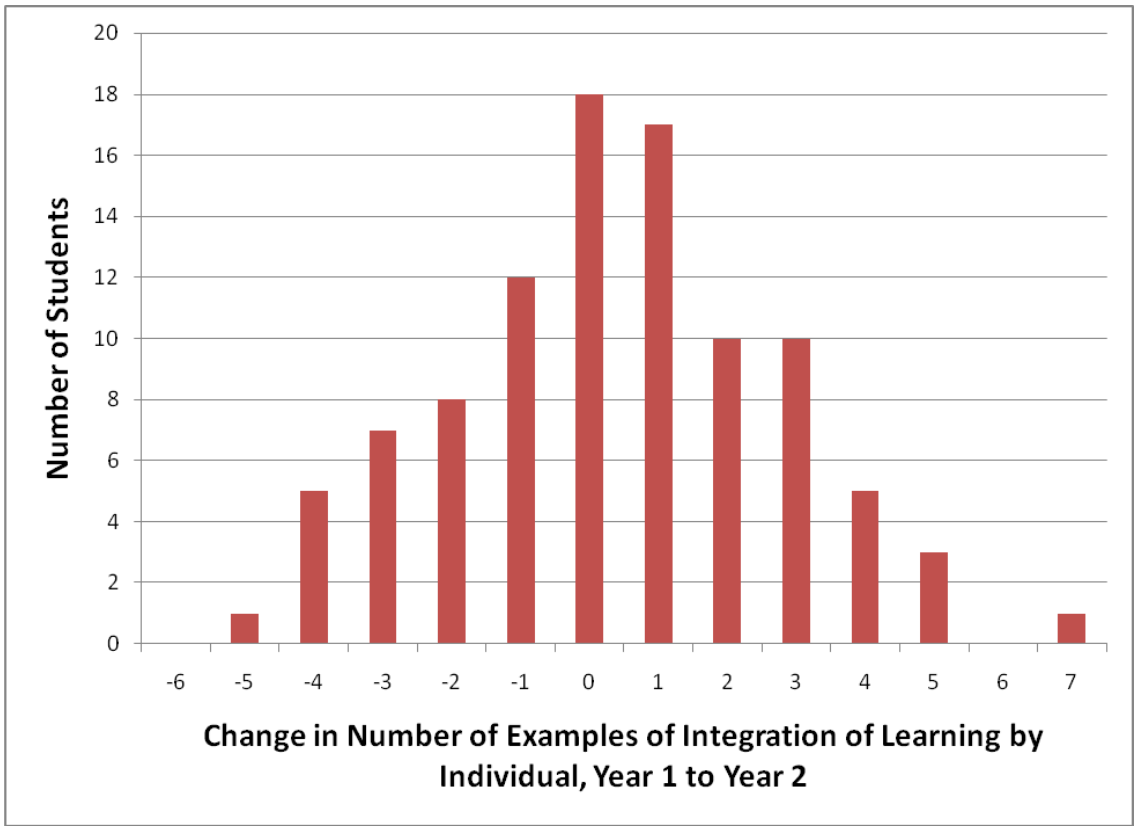


Figure 5.1. Longitudinal changes in frequency of integration of learning

Thirty-three of the students in the sample (33 of 97, or 34%) had fewer instances of integration in their second year interview than in their first; 18 students (19%) had the same number of instances both years, and 46 students (47%) had increases, ranging from one additional instance of integration of learning to seven more examples in their second interview.

In addition to the differences in overall *frequency* of integration of learning from Year 1 to Year 2 for individual students, I wanted to investigate changes in *type* of integration of learning for each student. To do this, I calculated a measure of change in frequency for each type of integration of learning for each individual in the study by subtracting the number of instances of each type of integration in Year 1 interviews from

its corresponding value in Year 2. This resulted in three additional change figures for each individual. In addition to the overall change in integration of learning reported in Table 5.1, I also had a number for the difference in frequency of Connection, Application, and Synthesis for each student. Frequencies of these differences by type of integration of learning are reported in Table 5.2 below.

Table 5.2

Frequency Distribution of Change in Number of Integration of Learning Examples by Category, Year 1 to Year 2

Change in number of IOL examples by student, Y1 to Y2	Students (*n*) with changes in frequency of Connection	Students (*n*) with changes in frequency of Application	Students (*n*) with changes in frequency of Synthesis
-4 and below	1	2	0
-3	2	5	2
-2	8	13	9
-1	24	13	12
0	32	27	37
1	15	21	18
2	10	11	14
3	1	1	5
4 and above	4	4	0
Total	97	97	97

As shown in Table 5.2, 30 students made gains (defined as one or more additional instances of that type of integration of learning from Year 1 to Year 2) in Connection, and 37 in each the Application and Synthesis categories. Likewise, 35 students had fewer instances of connection in their second year interview, 33 had fewer instances of application, and 23 had fewer instances of synthesis. These data show trends on the

individual level, by way of comparing the longitudinal pairs, of students moving away from connection and application in favor of synthesis as a form of integration of learning.

Students used synthesis more as sophomores than they did as freshmen; this category had a substantial increase from Year 1 interviews to Year 2 interviews, indicating that something happened during the first year of college that taught, encouraged, or enabled students to integrate learning in this particular manner. This is particularly evident when a student chose to speak about the same topic or event in both years' interviews. I have selected useful illustrations of changes in the categories of integration of learning from Wallace and Dave, two students who were earlier cited as examples in the *Establishing a Connection* category earlier in this chapter.

Wallace's Strategy for Writing Papers

Wallace, a student at Hudson College, talked about the challenge of writing academic papers both years. The following excerpts illustrate his progression of thought about the writing process.

> Year 1, Application:
> Wallace: For me, writing long papers is really challenging. Once we get over three pages, four pages, I find that's just in itself is a challenge to me. I've had to do it twice here so that's… [I: How did you make it through it?] From a very practical point of view. I defined all of the terms that were in the paper to try to set it up and made an outline to what I wanted to talk about in chronological order. You know what I was, I guess the difficult things, you have this problem and there are X many parts to it and eventually all those parts have to add up to prove it, prove a point or something at the end. So, I guess that's what I do, I set up a chronological of how I'm going to slowly persuade people that something's true or something is not true, or whatever. Plus it's just nice to look at a little organized representation makes it seem more um, much more doable…the form of the outline has been pretty hammered into my head from high school. I'm not sure if I used it in high school effectively or at all. I was never really, I never had to write anything over like five pages in high school so…it wasn't as difficult and it wasn't as introspective into anything really. I didn't have to think about what I wrote as much in high school so. The outline is much more important to me here, to be able to do long cohesive papers, I guess.

Wallace's manner of integration in his first year was to apply skills learned in high school (e.g., creating an outline) to his work in college. Although this meets the definition of integration of learning, it does not allow for any adjustment to his new environment or expectations. He simply took the formula learned in high school and applied it to college work. Recall that Wallace is the student discussed in the Application category who was eager for feedback from his professor that he could immediately apply to the next paper in that class, which is also consistent with this formulaic approach. However, a year later Wallace spoke differently about his strategy for writing.

> Year 2, Connection:
> Wallace: You just have, I guess I write a bunch of stuff down and then I think, I try to make connections and make some sort of interesting thesis type statement. And yeah, I try to realize something about what I read that isn't in any one reading, but when you start to combine them or something. And (sigh) also kind of bounce off the question, I think it's a lot easier to really be able to think and problem solve when you have a question in front of you, for me. For me it is. And so I find that by narrowing it like that, I can actually think about it more…And kind of gauge the differences I guess in the accounts or something. [I: How do you gauge those differences?] Just reading the, like reading two selections, or something and if, yeah, I guess trying to pick up the subtle somethings that like seem, seem to, I don't know create space, where there's something interesting. I'm not really sure. I guess, yeah read I don't know, just different accounts of the same thing.

In this example, Wallace brought more of himself to the writing process, and no longer relied on the formulaic process applied from high school. As a sophomore, he talked about reflecting on the question, considering multiple readings, and connecting information to find the "subtle somethings" that would make his paper interesting. Although both descriptions from Wallace demonstrate integration of learning, his example from Year 2 is more nuanced and complex. It is also interesting to note that there were more examples of integration of learning in Wallace's interview conversation

in Year 2 (4 examples) than in Year 1 interview (2 examples). The sample as a whole had an increase from Year 1 to Year 2 as well; as shown in Table 4.3, 318 examples in first year interviews were coded as integration of learning (across all categories, inclusive of multiple coding), and 351 examples in the second year interviews were coded similarly.

Dave's Transition from Observer to Actor

Dave is a student at Wabash College, and has also demonstrated increasing complexity in terms of integration of learning over his first year in college. In this example from his Year 1 interview, he discusses his observations of how others make connections indicative of integration of learning.

> Year 1, Application:
> Dave: One thing that's not uncommon, especially for the history/religion guys or the psychology [guys] to spend two or three hours reading every night and that's having class two days a week. You have to do it every night or else you're not going to get it done, but just the amount of information that you're responsible for here and the amount of writing. They believe very whole heartedly in writing. I've always considered myself a fairly decent writing given that I took two college level English courses or writing courses at Ball State and did fairly well in high school. **I tested out of composition here, but I think maybe I should have taken that that would have probably helped, but it forces you to convey your ideas much better too. I believe that also helps education transfer better into the real world.**

In this example from the beginning of his freshman year (which also served to illustrate the Application category earlier in this chapter), Dave talks about how "you" should study and take responsibility for information, based on his observation of some of the older students in his fraternity. The only instance in which he refers to his own experience is in reflecting that perhaps he should have taken composition as a freshman, speculating that enhanced writing skills might facilitate "education transfer" for him. However, in the second year interview, Dave has lived experiences on which he draws for examples. He readily made connections among his courses, and to his life.

> Year 2, Synthesis:
> Dave: Second semester, I took Bio 112, which is the second semester of weed-out biology and I took Freshman Tutorial which was on *Darwin, Deities and Designers*. That was probably my favorite class I've ever had…I've always been very interested in evolution and Bio 111 and 112 focused a lot of evolution so I knew a lot about it…We went from these extreme creationist propaganda readings to *The Origin of Species* by Darwin and all over the place. It was just so cool. Also being able to find where you are in your faith with evolution. You know that's a small part of faith, but it helped to find where I was in a broader sense by being able to say okay well this obviously isn't working both ways…I've always been kind of going around in circles with the whole free will versus fate debate…It was cool to see people start with their view at the beginning of the year and shifting over time and like a lot of big questions came up in the class and I got to argue a lot which I really like to do and it was on a subject in which I'm pretty knowledgeable which is even better. We would get readings and…I would already have it. I would have either gotten it in much greater detail in biology or in my own studies at some point. Everybody else wrote their papers, their final papers on the big broad topic and mine was chemosynthetic life was my paper topic.

In this excerpt from his Year 2 interview, Dave readily synthesized information from his biology course sequence and applied this in the context of his Freshman Tutorial course, a discussion-based class designed to exemplify liberal arts education. He also drew on his own questions about religion and independent reading to bring this course material to life. Like Wallace, Dave also discussed more experiences related to integration of learning in his second interview (8 examples) compared to his first interview (2 examples). He also used the Application form of integration in his first year, and then moved to a different means of integration (synthesis) in Year 2. These examples suggest that observation of others (as in Dave's case) and applying previously tested techniques (like Wallace's formula for paper-writing) may be precursors to the more deeply engaged methods of integration of learning illustrated in both students' Year 2 interviews.

The reason I chose these two students to illustrate the longitudinal nature of the sample is that they discussed similar topics in both their Year 1 and Year 2 interviews;

due to the semi-structured format of the interview, there is not a guarantee that a student will discuss the same topics in both years. Identical or similar topics are not necessary to make an assessment about development of integration of learning; however changes in a student's perspective can be seen more clearly when comparing ways of thinking about the same topic at two different points in time.

The examples from Dave and Wallace illustrate that there are changes in the ways that students approach integration of learning over time. Table 5.1 indicates that the more students are integrating by way of synthesis in Year 2, an increase of over 28% from the previous years' synthesis occurrence. In these two examples, Dave's self-authorship level advanced a great deal from Year 1 to Year 2 (from 1 to 5 on a 10-point scale, which is described in the following section of this chapter, Table 5.4), and Wallace's self-authorship level remained consistent. This is interesting since both students showed change in the way they integrated their learning from Year 1 to Year 2. This dilemma illustrates the need for a closer study of the relationship between self-authorship level and integration of learning. These examples could be outliers, or could indicate that the link between time in college and changes in integration of learning are not as clear cut as appears in Table 5.1.

Therefore, a closer look at the relationship between self-authorship and integration of learning (and how it develops over time) is necessary. To continue this exploration of the complexity and development related to integration of learning, I next discuss self-authorship orientation in relation to the integration of learning categories. Adding this layer of a student's meaning making will allow for a more nuanced investigation of the changes in integration of learning, to see how development toward

self-authorship may affect students' ability to integrate, and the ways in which they approach integration of learning.

Analysis by Self-Authorship Level and Developmental Orientation

Each of the interviews in the sample was also assessed in terms of self-authorship level. This analysis was completed for the Wabash National Study of Liberal Arts Education (independently of my study) using a scoring protocol established for the purpose (Baxter Magolda & King, 2008). The interviews were summarized to extract passages from the text that indicated the student's developmental orientation in four areas: cognitive domain, intrapersonal domain, interpersonal domain, and overall development. The self-authorship level of students in each of these areas was classified using a 10-point scale ranging from "Strongly External" to "Strongly Internal" to describe the student's developmental level. Brief definitions are found in Table 5.3.

This self-authorship scale began as a simpler 3-point scale that included categories for External, Mixed or Crossroads, and Internal. Upon review of the assessments for the Year 1 sample, it was determined that a more fine-grained scale was needed, particularly in describing externally-oriented frameworks. Not surprisingly, the majority of students in the sample, which consisted entirely of traditional-aged college freshmen, were evaluated to have external developmental orientations in terms of the self-authorship model. An expanded self-authorship scale was developed in order to capture the nuances within these three original developmental categories of external, mixed and internal. This extended scale is summarized in Table 5.3 below; for a more detailed account of the delineation of external levels, see the research paper "Developmental Steps within External Meaning Making" (Baxter Magolda et al., 2008).

A detailed account of the self-authorship assessment process, as well as definitions for each of the ten self-authorship levels, is included in Appendix C. For purposes of this study, I used only the overall self-authorship assessment for each student. I was a member of the team that conducted the self-authorship assessment on some but not all of the interviews in this study; the others were evaluated by colleagues on the Wabash National Study of Liberal Arts Education research team. Of the interviews from Hudson and Wabash Colleges, I personally conducted 14% (*n*=28 of 194) of the interviews (6 for Hudson Year 1, 10 for Wabash Year 1, and 12 for Wabash Year 2). I also completed the self-authorship assessment for 25% (*n*=48 of 194) of the interviews in the sample (12 for Hudson Year 1, 20 for Wabash Year 1, and 16 for Wabash Year 2).

Table 5.3

Definitions of self-authorship levels

Self-Authorship Level	Scale	Definition
Ea: Early External	1	Consistently and unquestioningly rely on external sources with *no recognition* of possible shortcomings of this approach
Eb: Middle External	2	Rely pretty consistently on external sources but may be *experiencing tensions* in some areas in doing so, particularly if external sources conflict with each other
Ec: Late External	3	Rely on external for the most part but recognize that this stance has *shortcomings*; however, s/he has yet to develop a sense of internal voice toward which to shift
E(I): Primarily External	4	Mainly rely on external sources for knowledge, self-definition, and social relations, however there is recognition of the *need* for an internal voice
E-I: Mixed External	5	Both voices are actively present and competing for dominance but external still edges out internal overall. The internal voice is growing because the person is exploring how s/he wants to construct beliefs, identity, relationships
I-E: Mixed Internal	6	Both voices are actively present and competing for dominance but the internal edges out external overall; Continued work on the internal voice takes the form of *listening* carefully to oneself over external environment
I(E): Primarily Internal	7	Actively working to *cultivate* the internal voice, engaging in introspection to analyze interests, goals, and desires. The internal voice is becoming more firmly established
Ia: Early Internal	8	Focuses on learning to *trust* the internal voice
Ib: Middle Internal	9	Increasing use of the internal voice engenders confidence in it. Once a person trusts the internal voice s/he is able to build an *internal foundation*
Ic: Late Internal	10	As the foundation becomes more comprehensive, the person secures these *internal commitments* by living out these conceptualizations; the internal foundation becomes second nature

Adapted from *Guide to Creating a Wabash National Study of Liberal Arts Education Transcript Summary* (Baxter Magolda & King, 2008). See Appendix C.

Figure 5.2 illustrates the self-authorship level of the students in the sample for this study. The dark bar (to the left in each group) indicates the Year 1 interviews, and the light area (right-hand bar) indicates Year 2.

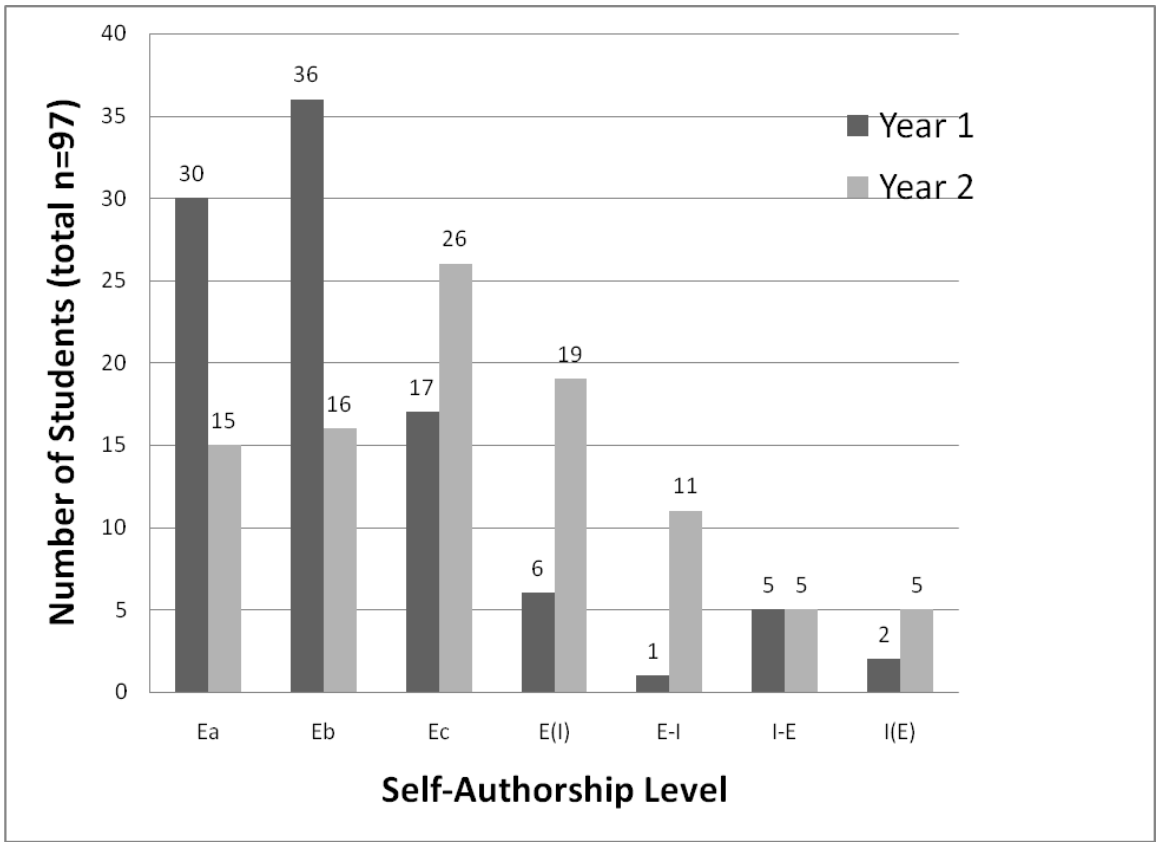


Figure 5.2. Distribution of student self-authorship levels by campus and year

The distribution of students by self-authorship level in Figure 5.2 shows that over the course of one year in college there has been a shift from the early phases of self-authorship predominating (especially Early External and Middle External) in Year 1 to more advanced self-authorship levels (Late External and Primarily External) in Year 2.

Table 5.4 presents the integration of learning examples divided by category and self-authorship level; Figure 5.3 depicts this graphically. Students who utilized more external levels of self-authorship relied heavily on Application as a form of integration. However, at more advanced levels of self-authorship, there is a trend toward Synthesis, and a flattening out of the distribution of the three types of integration of learning.

Table 5.4

Integration of Learning Examples by Self-Authorship Level and Category – Years 1 and 2

Self-Authorship Level	Connection		Application		Synthesis		Total	
	n	%	*n*	%	*n*	%	*n*	*%*
Ea: Early External	24	20	63	53	36	27	123	100
Eb: Middle External	59	31	84	44	49	25	192	100
Ec: Late External	39	25	69	44	49	31	157	100
E(I): Primarily External	13	16	41	52	24	32	73	100
E-I: Mixed External	13	30	14	32	17	38	44	100
I-E: Mixed Internal	18	37	15	31	16	32	49	100
I(E): Primarily Internal	6	24	10	38	10	38	26	100
Total	172	26	296	44	201	30	669	100

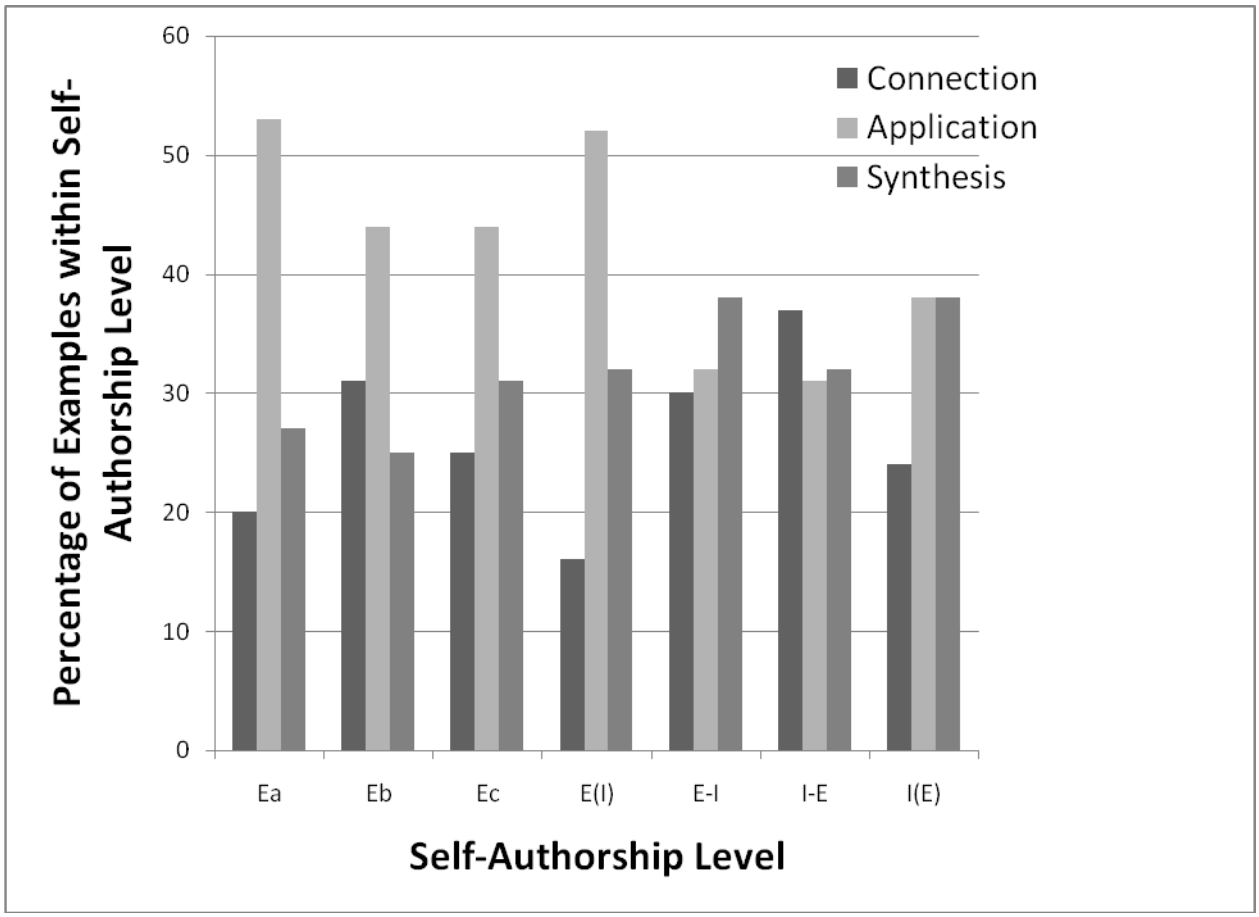


Figure 5.3. Integration of learning examples by self-authorship level and category, years 1 and 2

Application was more prevalent at the external side of the self-authorship continuum; 53% of the examples of integration among those students with an early external self-authorship level were coded application. However, synthesis is seen more often among those who used internally defined criteria. Among students with a primarily internal self-authorship level (the most advanced encountered in this study), the examples are coded equally for application and synthesis (38% each); the remaining 24% were examples of connection. And in the case of the I(E): Primarily Internal group, the

percentages are a bit skewed due to the small number of students identified who use this level (*n*=2 in Year 1, and *n*=5 in Year 2) In the I(E) group there was only one example of integration of learning identified in Year 1, and this was coded as Synthesis. Connection makes modest gains from Year 1 to Year 2, and remains relatively stable in comparison to the larger increase in Synthesis, and the decreasing percentage of Application.

Taken as a whole, these data suggest that there is an increasing complexity in students' integration of learning over time, similar to the developmental pattern demonstrated in self-authorship. The next section explores the differences in integration of learning among students at various places along the self-authorship journey. The following four examples from Charles, Rose, Sophia and Reid illustrate integration of learning on the external and internal sides of the developmental continuum, based on assessments of students' self-authorship levels.

External Self-Authorship Orientation

Charles is a student at Wabash College, and his self-authorship level was early external (Ea), 1 on the 10 point scale from external to internal foundation). In this excerpt from his first year interview, he described his transition from a private high school to college. This example is from the Application category.

> Charles: Yeah actually, I've noticed when I write papers or responses. It's always in two pages, that's standard format for [my high school] and anything more takes some actual thought and anything less just doesn't go. I did a paper last night for my class today in Freshman Tutorial, and it was two pages long only it was [an] in depth analysis. It was only supposed to be a page and I was like ah…it's hard to adjust from the two page analysis to anything else. It's just automatic.

Charles attempted to apply a high school formula for writing papers to college, but this did not work well. Although he applied a strategy from one context to another, he had

difficulty adjusting, and found that the formula he was familiar with did not fit the expectations of his new situation.

Rose had a self-authorship level of middle external (Eb), 2 on the 10 point scale from external to internal, at the time of her first year interview at Hudson. This example is categorized as Connection. Here, she described the content of one of her courses.

> Rose: Yeah, that's the First Year Seminar. It's basically they all got together and figured out what we should all know as freshmen, and so there's a big list of books, which is mostly philosophy, that we read. Everyone reads the same books and so we go through—we start with Plato, because everything starts with Plato—and do *The Republic*, and then we just basically are getting a foundation for a liberal arts education. That's what they think we should know and so it's tons of stuff….I don't think it's really chronological, but it's just all these different concepts that they think that we should cover….We're going through all of it. It seems like a huge philosophical review of all the major ideas about [the] morality of life, what does it mean. And so it's an all ongoing thing. I think it's "What is the Enlightenment," or something? I saw something about the enlightenment. Because then we have the symposiums….Somewhere I saw enlightenment on a sign so I have a feeling it has to do with the enlightenment. Which relates with philosophy.

Rose made several connections, largely influenced by external sources. She made the connections because an authority had structured the courses or the syllabus in a certain way. Rose recognized that someone ("they") may have a better understanding of just how these elements relate, but she did not demonstrate this integration independently.

Internal Self-Authorship Orientation

Sophia saw the world from a more internally-based perspective. Her self-authorship level at the time of her second year interview was mixed internal (I-E), or 6 on the 10-point scale. In this example, she talked about how she assessed new ideas. This excerpt is categorized as Synthesis and Connection.

> Sophia: I think a lot. I puzzle over things and get stuck on ideas and wake up thinking about them and think about them all day and sometimes it's not good because I get stuck on something and over-think it and, huh, yeah, but I think I

> also tend to relate new things to old things that I know already and try to put new ideas in perspective to what I already know or what I'm used to or what I'm, what I've already been exposed to, I guess, so, yeah. I, mostly, though, I just think and think and think (laughs) for a while until I feel I have a grasp over something.
>
> I: What do you do if the new idea and the old existing information or experiences conflict?
>
> Sophia: I guess it depends what it is. If it was an idea or I was deciding whether or not it was something I wanted to accept in terms of my old— I guess sometimes it would probably change my thoughts on my old experience had been or if it was just an idea I couldn't accept or couldn't fit into my own experience, I don't feel I would just reject it, but would take only from it what I really could accept.

Sophia began by describing how she made connections between new ideas and knowledge previously held. She had a process in place for evaluating information, as well as synthesizing the old and new information in a way that takes parts of each to form a new whole. This is in contrast to the example from Charles above, who could not adapt his high school formula to college expectations.

Reid is a student at Wabash, and had a self-authorship level of primarily internal, I(E), equivalent to a 7 on the 10-point scale. In this excerpt from his second year interview, he talked about the importance of evaluation. This example was coded as Synthesis.

> Reid: I don't sit in my room and think about this [evaluating information] for hours on end, but definitely I think about it. It's just when you get that little ember in your brain that everybody, not everybody, but I mean the truth is something that people try to hide or manipulate stuff like that. When you keep that in mind you're kind of defensive, but you ask a lot of questions. I'll put it that way.
>
> I: Are you asking a lot of questions? (Reid: I ask a lot of questions.) Is that new?
>
> Reid: I mean last year I asked a lot of questions because I didn't know, but now I just really want to know if the professors are just not telling me or just trying to prove their own point and really they're not trying to look at it from a different perspective either. I mean I'm not trying to open their minds, but I'm definitely trying to see if that's their intention as to just push their belief or their point on me without me. They want you to question. That's what we're here for is to question

> things and learn things from different perspectives, so… [Professors are] not usually upset with anything I argue with, but I mean sometimes they say "I can see your point and that's true." I like that more than hearing "That's right." I really do. I like hearing that they took what I said and maybe it helped them think differently.

Reid evaluated and synthesized information he learned in his classes. He asked questions and was eager to hear different perspectives. He ultimately decided what he believes and is comfortable engaging in debates. He recognized that his professor was often "thinking differently" after discussions, and valued this ability to synthesize information to form new opinions.

The examples provided here from Rose, Charles, Sophia and Reid demonstrate that there is a greater complexity in the ability to integrate learning among these four students who have a more internal self-authorship orientation. Results from this study suggest that students with more advanced self-authorship levels use more intricate varieties of integration of learning, such as synthesis, and integrate learning more often than their peers with more externally-derived ways of seeing the world, who trend toward simpler types of integration such as connecting similar elements. This trend toward increasing use of synthesis is relevant to the discussion of integration of learning as a developmental outcome, and it supports the organization of these types of integration of learning on degree of engagement in integration presented at the beginning of this chapter.

However, a deeper analysis of the data by self-authorship level *within integration of learning category* reveals that there is also an external to internal pattern of development within each category (Connection, Application, and Synthesis). This suggests that individuals further along the journey to self-authorship are often more

deeply engaged with integration of learning. In the next section, I investigate this pattern more closely within the categories of integration.

Analysis by Self-Authorship within Categories

Self-Authorship and Establishing a Connection

Examining integration of learning across levels of self-authorship within each of the three major categories reveals increasingly complex and abstract forms of integration along with more internal levels of self-authorship. The examples of integration of learning from the Connection category demonstrate this trend. Excerpts from interviews with Arianna, Matt, and Sophia illustrate development toward self-authorship as seen within Connection. In Arianna's second interview at Hudson College, she discussed how a book she read during a summer course at Princeton affected how she saw the world. Arianna has a self-authorship level of Early External (Ea), which is the first point on the 10-point scale of self-authorship.

> Arianna: The only things I can think of are the more refined scholarly theories of just how one thing can affect another, I guess. Perhaps when I was at Princeton I read *The World is Flat* by Tom Friedman, which is about globalization and now I'm in that globalization course [at Hudson] and I see how something like if you say you want to be green and if you want to be very eco-friendly how that negatively affects so many other people. Just for example, using bio-diesel takes away from the food supply of Third World countries for example. And how you're killing people but saving the planet. And I guess I didn't really, I mean I was, I think in high school and last year maybe for the most part, I was more of whatever gets the job done. But now I see how more interconnected everything is and although I realized that everything was interconnected, I didn't really expect it to be so immediate I guess, I don't know.
>
> I: And what do you think about that?
>
> Arianna: I think it's incredibly complex and I don't know how to solve these problems (chuckle) and it kind of makes me feel just little and, and I mean I have, I often realize how lucky I am to be going to college, to be in to Hudson College, to be able to have these opportunities, experiences.

Arianna makes a connection between what she read in Friedman's book, her globalization course at Hudson, and the interconnectedness of the world's food supply. This is an externally-derived connection; she puts this together after reading the book and starting the course at Hudson. These experiences essentially make the connection for her, and she highlighted this when she talked about not realizing these connections were there when she was in high school and even during her first year at Hudson. She unquestioningly accepts Friedman's thesis as true, and does not question the link, but readily accepts his connection.

Matt, in his second year at Wabash, was also on the external end of the self-authorship continuum, just slightly more advanced than Arianna. He had a Middle External (Eb) orientation at the time of this interview, which is 2 of 10 on the scale. In this excerpt, Matt talked about connections with people, as well as those among his college courses.

> I: Earlier when we just started talking you mentioned that this has been an opportunity to be acquainted with different cultures and different people with different views. Could you talk some about that experience for me?
>
> Matt: Wabash has some diversity as far as like student population, but um, I had some diverse friends, a couple friends from Afghanistan like one year out and one that moved here when he was younger, but I had a **world music class**. I actually did a project on the music of Afghanistan and I really had no idea what I was doing and so I leaned on both of them pretty heavily to kind of get me up to date on what the music was and they were just very excited to be able to share their culture with somebody and I was really interested. **I mean they showed me the ropes and I kind of really got into some of the music that they were talking about so that was a really fun project and just to get those connections between different people that I had no idea. I mean, I mean, before music I always knew that some of it. I mean I like music. I like all kind of music and so I knew that it wouldn't be a far stretch for me to like some Afghani (sp?) music, but just to be able to make a connection one on one with people of other cultures and reach a common ground. It was just kind of cool as far as my music class and then my multicultural literature covered like all kinds of ethnicities and not necessarily ethnicities that we have represented on**

> **campus. Like my professor was Jewish raised and had a really traditional upbringing and so it was kind of interesting to see his view on everything. It was interesting to read through our books and he's probably one of the best professors that I've had as far as making me think because we would have a bunch of really in depth discussions.** Discussions, I mean you, I don't know how to describe it. About different things that you would be afraid to speak up with. I mean we're talking about Jewish upbringing and why there's so much anti-Semitism and all these different things. It's hard to just talk about freely to your Jewish professor about Anti-Semitism and it's just trying to understand things that normally you would just clam up and just not talk would be the safe move. You're in there with ten other guys, small group with a professor who's really into this discussion and you just kind of have to go out there, discover yourself and discover what you're going to say. (I: Wow.) It was just cool. We did that for.
>
> I: Do you remember who that professor was?
>
> Matt: Professor [NAME] was the professor and he did that for just about every race, Native American, Jewish, Asian, we went all across the spectrum.

In this example, Matt made connections between his own American culture and Afghan culture through a relationship and coursework, and also noted the connection between his music class and his multicultural literature class. These connections are more related to his own experiences than Arianna's in the previous example (e.g., his friendship with an Afghani student helps him to make the connection), but the connection-making is still directed via an external structure, in these cases the frameworks of the courses he is taking. Matt seemed to enjoy the learning process in his class discussions, and it is indeed these classroom activities that mediate his making connections. By contrast, Sophia, in her second year interview at Hudson, makes a more internally-driven connection. Sophia had a Mixed Internal (I-E) self-authorship orientation, (6 on the scale of 10). This example is also coded as Synthesis.

> I: How have you or how do you evaluate new ideas that you encounter?
>
> Sophia: I don't know. I think a lot. I like think about, I puzzle over things and get stuck on ideas and like wake up thinking about them and think about them all day and sometimes it's not good because I get stuck on something and over-think it

> and, huh, yeah, but **I think I also tend to relate new things to old things that I know already and try to put new ideas in perspective to what I already know or what I'm used to or what I'm, what I've already been exposed to. I, mostly, though, I just think and think and think (laughs) for a while until I like feel like I have a grasp over something.**
>
> I: What do you do if the new idea and the old existing information or experiences conflict?
>
> Sophia: Hm. I don't know. Well, I guess it depends what it is. I, well, there are some things like, I don't know. I guess if it was an idea or I was deciding whether or not it was something I wanted to accept in terms of my old, I guess sometimes it would probably change what my thoughts on my old experience had been or if it didn't, if it was just an idea like I couldn't accept or couldn't fit into my own experience, I would maybe, I don't know. I don't feel like I would just like reject it, but would take only from it like what I really could accept.

Sophia brings more of herself to the process of connection. She related new information to "old things," or prior experiences. In this except, she described her process of evaluating in order to make a connection, and said she will just "think and think and think" until she comes to an understanding. In contrast to Arianna's example above, Sophia had a very internal process for making connections, one that was based not on external sources, but rather her own observations and experiences. In addition, she followed up her connection between previous experience and new information with a synthesis of the two, in which she took only pieces which she "really can accept" and forged these elements to create a new view for herself.

Taken together, these examples of Connection from Arianna, Matt, and Sophia illustrate a progression from externally-driven connection to internally-based connection as the students move forward on the self-authorship continuum; this reveals how integration of learning may develop. Arianna relies solely on information from "authorities" to support her connection between globalization and the food supply. Matt brings some of his own experience to the connection-making, particularly his friendship

with an Afghani classmate, but he still looks to the structure of his coursework to facilitate the connection. However, Sophia makes the connections internally through an evaluative process based strongly on her own experiences; in addition, she follows up her connection with a second type of integration of learning, synthesis.

Self-Authorship and Application across Contexts

I have selected three examples from various self-authorship levels within the Application category to illustrate how the complexity of integration within each category increases with advancement in self-authorship level. These excerpts unfold in a similar fashion along the self-authorship continuum as the quotes presented above in the Connection category. Quotes from interviews with Elijah, Rae, and Leo shed light on how integration of learning in the application category is exhibited across varied self-authorship levels.

Elijah, in his first year interview at Wabash College, discussed an application of critical thinking skills originally learned in high school to college. Elijah was assessed at a middle external level of self-authorship (Eb), which is a 2 on the 10-point scale. Individuals who employ a middle external level of self-authorship consistently look to external sources for direction, but may experience tensions in some areas in doing so.

> I: And what was your like, what would you say was your favorite subject within the humanities?
>
> Elijah: Well each year there's one humanities class so freshman year it was oh geez, there's two classes. *Creative Man* or man, I forget what the other one was. Then sophomore year was *Critical Thinking and Analytical Thinking*. Junior year, it was *19th and 20th Century America* and then senior year was *Man, Art, and Drama*. Probably one of my favorite one of those was *Critical Thinking*. I don't know. Our teacher was probably one of my favorite teachers. He was really cool. We did a lot of current events in that class which was interesting to like talk about stuff that's actually going on instead of like school subjects.

> I: So in retrospect in looking back, how do you think that that class prepared you to come to college?
>
> Elijah: Well especially Wabash where everything is [about] how many angles can you look at this, how many different ways can you see it. So critical thinking is like I mean you talk about there's like 25 fallacies. We had a whole book about critical thinking strategies and Mr. [high school teacher] would always ask questions and try to get you to look at stuff a different way. That's basically what part of this college is. One of the four pillar things [in the college mission] is think critically.

This exemplifies a fairly straight-forward and practical form of integration. Elijah applied his experience from high school to college, and explained clearly how he applied the critical thinking skills he learned in high school to his college work. He also pointed out there is a visible match between the title of his high school course, *Critical Thinking and Analytical Thinking*, and one of the four pillars of the Wabash mission, which is "Wabash College educates men to think critically, act responsibly, lead effectively, and live humanely" (Wabash College, 2008e), which seems to strengthen for him the appropriateness of this application for him.

By contrast, Rae has a more nuanced approach to application. The following excerpt is taken from her first year interview at Hudson College. At that time, Rae was assessed to have a self-authorship level of primarily external or E(I); this equates to a 4 on a 10 point scale. Individuals with a primarily external view rely on "external sources for knowledge, self-definition, and social relations; however there is recognition of the *need* for an internal voice. For example, the person begins to question authorities' plans, realizes the dilemma of external definition, and sees the need for crafting one's own vision, developing one's internal identity, and bringing one's identity to relationships" (Baxter Magolda & King, 2008, p. 12).

> I: Oh wow, well what happened the next day? Well I guess you went to the workshop.
>
> Rae: I went to the workshop. I stayed up almost all night, really anxiety ridden and writing and writing and writing and then I just kind of conked out for a couple hours and then I got up and the whole weekend, the next week was really hurried and kind of breathless and kind of trying to keep up with things but having your mind be completely somewhere else and so it was good. I went to the workshop, it slammed me of course, but it was also was nice to have more of a forum for thinking about the things that just all crashed into my head the night before. So it worked out and then I called my mom a lot and left messages and I was thinking of dropping out right then. Which was really a rash thing to do, but it's still ongoing whenever I can tap into it. Now I have a bit more experience because I've been talking to people and getting their ideas and this teacher, my *Invention of Politics* teacher is quite with the issue so we've had little tiny pseudo-discussions about it. So since then **it hasn't really gone away but it's just been addressed in various – I've been able to apply it to all my classes. It's weird. Like Plato, I just came out of that class, that's why it's on my mind.**

In this example, Rae applied her experience in the Resisting Racism Workshop broadly, and was finding herself using the information gained from the workshop to all of her classes, as well as in conversations with peers and family members. This example reflects Rae's self-authorship level, particularly in the conflict she describes between the world that she thought she knew and the new perspectives on racism in our society that she gained from the workshop. The points of view introduced to her at the Resisting Racism Workshop offered her a critical lens which she applied to other contexts.

Leo, in his sophomore interview at Wabash, also integrated learning by application but in a slightly different way from Rae. His self-authorship level at the time of this interview was 7/10, or primarily internal, I(E). This excerpt was coded as Synthesis as well as Application.

> I: Did you feel you learned from those discussions [in Freshman Tutorial]?
>
> Leo: Yeah, you see "Oh how do I compare to these people?" In the same sense, you can teach people and you can learn from people and what works for you doesn't always work for somebody else, but at the same time you're just kind of

balancing ideas. **You can pick up what you like and let go what you don't.** I mean it was a very good class I think. It was a good group of guys especially as we became more comfortable and we had good laughs too. Kind of laugh and make fun of ourselves and that kind of stuff. I don't know how much you learn as much as it's just valuable kind of life lessons. I mean what you learn is how to write a good paper. It doesn't matter so much the subject if that makes sense.

I: So for you it was much more about the process of—

Leo: Yeah, how do you do this? How do you structure this to work for what they're going to expect length wise and grammar wise and fine tuning?

I: So there was, it sounds like there was definitely a mechanical piece that you gained from.

Leo: I would say that's the point. The point is to break you into reading a lot which we did, but it doesn't matter what you're reading. You're going to read a lot and it's a lot better when you're interested in what you're reading, but regardless you're going to read a lot. Knowing how to take that and discuss it, so that is a mechanical. **It's the same so you can apply that across the board.**

I: I was going to ask you that process of, you said that you learned from your peers, they learned from you. You took what you wanted and left what you didn't. Did you see yourself using that in any of your other classes or outside of class, kind of that process?

Leo: Yeah, I think that I like, I enjoyed taking a religion class because it's kind of a break. Religion classes here are very interesting. They're not anything you're going to get in Sunday school because you're learning about everything. **I mean you're learning about, you're not just learning about Christianity or Catholicism or Judaism. You're learning about a lot of different things. You're talking about roots and all the professors here are pretty, I'm sorry all the religion professors here rather conservative and sometimes cynical. I enjoyed that because it's fun to listen to them. It's very much an experience to talk about it and have just deep discussions about that kind of stuff.** But at the same time academically it's not real difficult. I mean it's pretty much lecture based. They expect you to do a lot of reading. I think you would have to in those classes. I mean you do or you don't. You pick your spots I guess. It's kind of a break at least for me and the papers aren't too bad either so.

I: What do you gain from taking those types of classes?

Leo: If we take a class like that, I think you're just learning. I mean you're just learning more about, I mean nothing really that you're probably going to take to work, but you learn how to learn, but at the same time **I think it's never a bad idea to look at a major factor on society and the way we've operated and to**

> **look at how it's progressed. Because then you, I guess what you gain is, when I go to church now it makes it a lot more interesting because you're looking at what they're saying. I can draw on, this is what they did and this how they reacted and what's the effect of them saying this and how are we? How is society going to react? I think that's important** and I think it's important to look at those things and to know why society kind of is the way they are at least in that sense and why society maybe isn't where they should be or could have been or whatever.

In this example, Leo applies his past experiences to his current situation. It is clear that there is more internal evaluation on Leo's part, and more of himself brought to his perspective on social issues, than Elijah did in the first example in this category where he applied critical thinking skills learned in high school to college. Leo's introspection indicates that his internal voice is becoming stronger, and that he is beginning to trust this inner foundation. He first synthesizes the knowledge gained from his own reading, religion course, and class discussions into a new perspective on the world. Then, he applies this new point of view to his experiences in church. Leo draws on the information he has learned in multiple contexts, and applies it in a way that allows him to consider the impact of organized religion on society.

As a group, these three examples show a trajectory from less to more complex integration within the Application across Contexts category as self-authorship level increases. Elijah applied critical thinking skills from high school to college in a quite literal manner. He indicated the appropriateness of this application by pointing out that "critical thinking" was in the title of his high school class as well as in the mission statement of Wabash College. Rae applied her learning in a broader fashion, and said that she used her insights from the Resisting Racism Workshop in all of her classes, and talked about them in a number of relationships as well. The insights from this workshop challenged Rae's notion of how the world worked, and she was eager to apply this new

perspective to other contexts. Rae responded to this challenge using both external and internal foundations, emblematic of her mixed self-authorship level. She applied her new lens broadly, to think about the world in a new way as well as to share this perspective with others and get their opinions and feedback on it.

Lastly, Leo combined information from various sources and then applied his newly synthesized perspective to look at the world in a different way. His new vantage point allowed him to take a more objective view of what he observed in a church service, and consider the implications of religion on society broadly. Leo has a more internal process than Rae. He synthesized the new information with his previous experiences, and then applied the resulting perspective (or "new whole") as a lens. Rae did not appear to synthesize the new information she received about racism with her own past experiences, or consider which pieces of the information she would or would not accept (as Leo did). Instead, she tried to apply the new worldview en masse to her existing perspective, and the two conflicted. This caused Rae anxiety and really challenged her because she had not yet reconciled how these perspectives might come together.

Self-Authorship and Synthesis of a New Whole

The increasing complexity of integration of learning emerged within the Synthesis category as well. In the following excerpts from Kevin, Mick, and Leo, the ways in which students synthesize knowledge and experiences gradually moves from externally arranged to more internally-generated. The first quote comes from Kevin's second year interview at Wabash College. At that time, he was assessed to have an early external (Ea) self-authorship orientation. In this excerpt, he described his experience in his Freshman Tutorial course, titled *Of Deities, Designers, and Darwin: The Origin of Human Beings*.

Kevin: So that whole class entirely was definitely – I'd never ever been challenged like that before and overall I do think I'm much better for it, much better for it.

I: How so?

Kevin: Well just that to come out of there alive for the first point and to still have my faith and stuff like that. You know, to hear what's out there ranging from all different types of origins, legends, stories to the sciences and religion and theology. Before I went in, I didn't really know a lot. I mean I did know a lot about it, but there was definitely no way that I'd ever gone such in depth to that topic and so coming out of it, I just know a lot more about it. I can make a much better decision on what I believe a much more informed decision and so, and for me that decision is major. You know, what I believe is major so coming out of that…there's still bumps and bruises and still a lot of things that I mull over in my head and I learned in that class. **I mean it was like just taking a hammer, beating me, crushing me a little bit and then I just had to kind of like put everything back together in the right order and I mean not that it was in the right order before I got smashed by the hammer, but I got a chance to put things back together and take out parts that I thought weren't good and resort to something I guess more purified I suppose, so that's probably the biggest thing.**

I: And was that, would you say that was kind of, looking back to something you said earlier about defining who you are, do you think that was a part of that thinking through some of those ideas?

Kevin: I think so yeah. I think definitely. When it comes, cause there was a part in that where it affected me negatively where it really just kind of shut me down like you know something like that where I now rely on my faith all the time and then to kind of have that just buckle ever so slowly. It's just like over time it's just like, dang this sucks. It just kind of colors everything and so as far as my identity or something like that…I mean that was hard to deal with and then coming, but then after I came out of that whole class, I was I [had] put things back together for the most part. That's probably the answer to your question right there.

Kevin talked about synthesizing his existing Christian view of the world with new information including views on evolution and various myths and legends about human origins to create a new perspective for himself that he called "more purified." He described this synthesizing process in painful and violent terms, and in the passive voice that suggested this was a process that happened to him. He said this exposure to new

knowledge "was like just taking a hammer, beating me, crushing me," and that he initially reacted negatively in the face of this new information, shutting down, before eventually constructing a new view based on parts of both his previous experience and new information, but apparently still reasoning at an early external level despite this new construction.

Mack had a different experience with synthesis at Wabash. In his second year interview, he talked about interpreting the Gentleman's Rule. At this time, Mack was assessed have a primarily external [E(I)] level of self-authorship, which equates to a 4 on the 10-point scale. This example is also coded as a Connection in addition to Synthesis.

> Mack: I think one thing that sets Wabash apart is our rule is the Gentleman's Rule. It's the only rule we have, but it applies to every aspect of your life and it's "A Wabash man will conduct himself as a gentleman and a scholar both inside and outside the classroom on and off campus." (I: Okay.) It's not word for word. I can't remember it exactly right now, but that's essentially what it means and what it is so I mean that's part. **That's more or less expounding on the ideals and morals that I've learned not only going to church when I was younger, in scouts with the Scout Law, twelve points that a Scout is all these things and this is how you lead your life. So I mean it's part of my code and moral compass that I've adapted into all of the things that I've learned so far. This is the right thing to do. This is how you need to act as a person.** I think that's definitely something that sets Wabash apart from most if not all other colleges that I've at least talked to my friends about that they have attended. I think the Gentleman's Rule is a big part and one of the things that we do differently.

Mack brings together his previous experience and the text of the Gentleman's Rule to create his understanding of the rule. He synthesizes the ideals and morals from his church and the Boy Scout Law, along with the words of the Wabash Gentleman's Rule, to form his understanding of what the rule means and how to enact it in his life. This example demonstrates an approach to synthesis that is more internal than that employed by Kevin in the previous example, but still reliant on external structures. That is, Mack makes uncoerced connections between the moral aspects of Christianity, Scouting, and the

Gentleman's Rule. He synthesizes his concept of the Gentleman's Rule from pieces of each. However, all of these pieces are derived from external organizations or structures: Church, Boy Scouts, and Wabash College; there is not an indication that any of the elements he is synthesizing come from within. Further, he looks to external others for validation that the Gentleman's Rule is different. His behavior in following the rule is distinctive because according to his friends, other institutions do not do this.

By contrast, Leo approached synthesis with a primarily internal [I(E)] self-authorship level, or a 7 of 10. The following excerpt is taken from his second year interview at Wabash (which is also referenced in the preceding section) and highlights his more internal orientation. This example is also categorized as Application.

> Leo: I do look at things differently. I think a lot of it, like I said is subconscious. Well I can give you an example. I was, when were at church one day and we had some new minister come in to give a special talk on the female role in the household [as subservient]…and I just was appalled. Especially having that *Men and Masculinity* [freshman tutorial] class, in that sense I was like wow this is terrible and looked at and then drew on some of the things that I knew from religion class. Just the different kinds of beliefs and how they've kind of progressed and how people have read into them…The more you know the more you kind of experienced the more you've learned, the more you get to decide what you believe and what you don't believe if that makes sense. You have more choices if that makes sense.
>
> I: So you have this church that you're committed to and then you hear someone saying something that makes you appalled. How do you balance those two things? How do you reconcile that?
>
> Leo: Well for me I mean, I don't know. I'm spiritual in the sense that I believe that you can't go on exactly what your preacher says because they're just as human as you are. They're going to interpret things wrong and so for me it's just making the best decisions based on what you know. Trying to make moral, righteous decisions or whatever and live the best I can. I mean not necessarily by deeds, I mean, but just treating people the way they should be treated I guess and doing things the way they should be done. So that's I guess, for me I can reconcile them being wrong because what if they're that wrong then they'll pay the price. **For me, like I said, I'm not going to let their interpretation define mine.**

I: And how do you know what to believe?

Leo: I don't know. **You take a little bit from everybody. You take a little bit from all your experiences or whatever, but at the same time it's just what feels right. I mean what, and I believe in a God that knows all and so if he knows where your heart is I believe that's what's important.**

Leo synthesized concepts from his freshman tutorial on *Men and Masculinity*, his religion class, his spiritual beliefs and his own life experiences into an argument against the minister's message about women's roles in marriage. Leo questions and disagrees with the statements he heard from an authority, and draws upon multiple sources from his experience to create his own belief to counter that of the minister. This is evidence of his internal voice becoming more firmly established. In this example, Leo synthesized these elements internally and then applied this newly synthesized perspective to real world decisions about his own values and beliefs.

Overall in terms of self-authorship, progress from external to internal foundations is accompanied by a movement from externally-organized to internally-generated integration of learning. In the Connection category, we saw Arianna, who drew connections between globalization and the food crisis based on unquestioned sources. However, in the same category of integration of learning, a student with a more advanced level of self-authorship, Sophia, made connections between old and new information much more carefully using internally-defined criteria. Both Arianna and Sophia made connections that met the definition of integration of learning, just in very different ways based on how their developmental levels.

Conclusion

When organized by self-authorship within the emergent categories of integration in this study, the data support the construct of a developmental sequence from external

framework to internal foundation within each category. These data support the existence of microsteps within IOL categories, as well as the application the self-authorship developmental sequence to analyze development within types of integration of learning. This pattern was consistent in all three major categories of integration of learning. In the Connection category, the examples reflected a transition from external to internal voice illustrated by the difference between Arianna's unquestioning acceptance of a link introduced in a book she read, and Sophia's more reflective relation of previous knowledge and new knowledge through a more internal process where she would "think and think and think" until she determined the nature of connection.

This growing complexity by self-authorship level emerged in the Application category as well. In terms of application, Elijah's concrete application of critical thinking skills from a high school class to a college context contrasts with Leo's more facile application of synthesized information from out-of-class reading, coursework, and classroom discussions to allow him to consider the more abstract questions about the influence of religion upon society as he attended a church service.

Lastly, in the Synthesis category there is a shift from external to internal ways of thinking illuminated by Kevin's seemingly painful synthesis of his religious beliefs about creation and the evolutionary theories he learned in his Freshman Tutorial at Wabash. His feeling of being beaten and crushed, as if struck with a hammer, was a very different description of synthesis than Leo's discussion, in which he felt empowered to disagree with the opinion of his minister, in part because of perspectives Leo had synthesized from various sources, including his Freshman Tutorial class. This is a prime example of a situation where two students experiencing similar situations (reconciling ideas from

courses, Freshman Tutorial, and religion) have very distinct ways of integrating, based on their self-authorship levels (Kevin = Ea; Leo = I(E)). Examples from the data suggest that there is a greater complexity in the ability to integrate learning among students who have a more internal self-authorship orientation, and that the use of multiple kinds of integration increases as self-authorship levels became more advanced. In the next chapter, I will interpret these findings and discuss the implications for higher education and future research about integration of learning.

CHAPTER VI: IMPLICATIONS OF INTEGRATION

The purpose of this study was to learn how college students integrate learning, and to identify developmental steps that comprise progress toward skills associated with integration of learning. For this study, I chose to do so by attempting to identify the microsteps of development that occur within the first year of college. Ironically, now the time has come for me to use my own skills of integration of learning as I interpret my findings, and offer insights and conclusions about integration of learning. This study provided an in depth look at how students brought together information, ideas and skills, as well as an opportunity to investigate how students' ability to integrate changed over the course of a one-year period.

Integration of Learning Arc

The central research question in this study has been to explore how integration of learning develops in college, focusing on the changes that occur during the first undergraduate year. In particular, I was interested in studying the "microsteps" of development within the initial stages of integration during college. There was an assumption inherent in this question that integration of learning is a developmental process, meaning that it evolves or develops in complexity over time. In order to intentionally work to promote integration of learning, it is important to understand how it begins and evolves for college students.

A major task in answering this research question is something that I have nearly taken for granted at this point in the study, the discovery of the three microsteps of integration of learning. These three types of integration had not been confirmed empirically prior to the study, nor had they been defined or exemplified with interview data. Literature (my own previous writing included) often used the terms *connection*, *application*, *synthesis*, and others interchangeably when discussing integrative practices.

In addition to surfacing and defining these three major categories of integration of learning, I offer a conceptualization of how they may be organized in relation to one another. A graphic representation of the relationship among these three groups, as increasingly complex types of integration under a common arc of "integration of learning" as an educational outcome is depicted in Figure 6.1. I chose to illustrate integration of learning as an arc for several reasons. First, I wanted to convey the concept that these types of integration of learning are not stages that a student progresses through sequentially, but rather all three types fall under the common umbrella of integration of learning. Paul (1992) discussed this same dilemma of sequencing as a critique of Bloom's *Taxonomy Handbook* (1956), writing:

> the authors of the Taxonomy organized cognitive processes into a one-way hierarchy, leading readers to conclude that knowledge is always a simpler behavior than comprehension, comprehension a simpler behavior than application, application a simpler behavior than analysis, and so forth through synthesis and evaluation. However, this view is misleading in at least one important sense: achieving knowledge *always* presupposes at least minimal comprehension, application, analysis, synthesis, and evaluation. This counter-insight is essential for well-planned and realistic curriculum designed to foster critical thinking skills, abilities, and dispositions, and it cannot be achieved without the development of the teacher's critical thinking. (p. 525)

Likewise, although I support the general idea of degrees of engagement as an organizing principle for the integration of learning categories, I am reluctant to present them as sequential or hierarchical stages.

I have organized them in order of their degree of engagement in integration, as explained in Chapter Four; the gradual shading of the arc represents the deepening engagement of the types of integration. The shape of the arc also approximates the general distribution of the types of integration found in this study: Connection (26%), Application (44%), and Synthesis (30%). (Table 4.3 in Chapter Four details the number of examples coded for each type of integration in the entire study.) The box to the left of the arc designates the characteristics of those examples that did not meet the definition of integration of learning but are potential precursors to integration; this illustration preserves these categories as a part of the bigger picture these data have told, beyond the microsteps in integration of learning per se. Lastly, the box beneath the arc depicts self-authorship as a foundation for integration of learning, and lists several tools for achieving integration, which I will discuss at length later in this chapter.

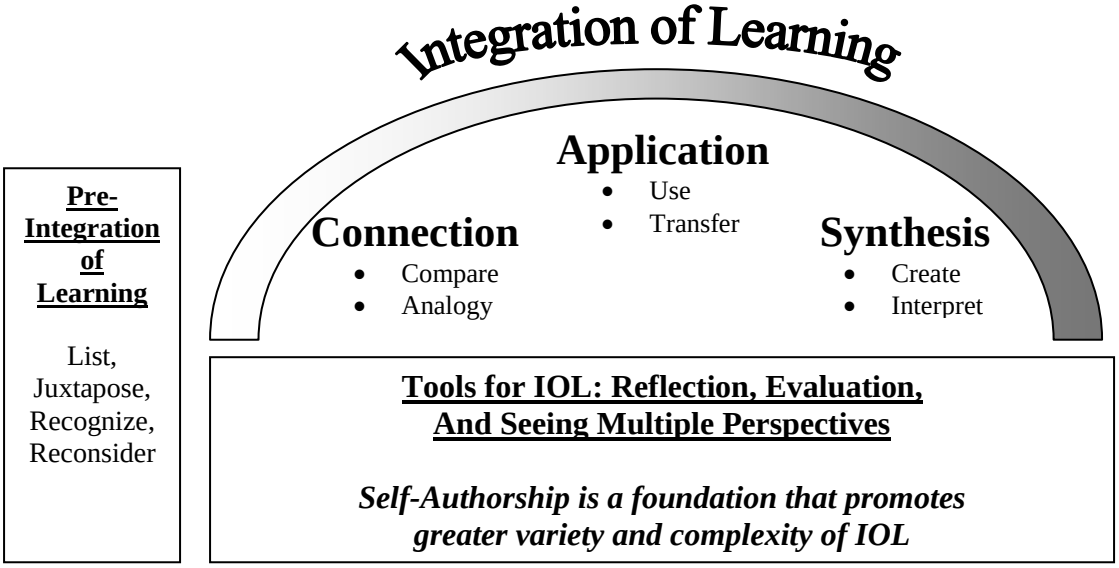


Figure 6.1. Integration of learning arc

Understanding these three ways of integrating learning is important for those interested in improving teaching and learning in higher education. In order to promote integration of learning as a collegiate outcome, it is essential to understand the basic building blocks of the process. Knowing the fundamental characteristics of each of these microsteps (as well as the foundations that enable them) allow both educators and students to be more intentional about integration of learning.

I made a decision early in this research to avoid reading Bloom's *Taxonomy Handbook* (1956) in order to manage my subjectivities about what the emerging categories of integration of learning might be. I did not want the educational objectives outlined in the taxonomy to influence my thoughts about the data I was analyzing. In retrospect, I am pleased with this decision. The categories of integration of learning and the educational objectives in Bloom's taxonomy complement one another, and even use some of the same terminology (surprisingly consistently at times).

Although it is tempting to try and align the two models in a one-to-one pairing, it is important to consider the very different purposes underlying the development of each framework. Bloom's (1956) taxonomy of educational objectives is

> intended to provide for classification of the goals of our educational system. It is expected to be of general help to all teachers, administrators, professional specialists, and research workers who deal with curricular and evaluation problems. It is especially intended to help them discuss these problems with greater precision. (p.1)

As such, Bloom's taxonomy set out to define and classify the goals for the U.S. educational system at all levels. By contrast, the research I have conducted for this study set out to

> explore how integration of learning develops in college, focusing on the changes that occur during the first undergraduate year. In particular, I am interested in studying the "microsteps" of development within the initial stages of integration during college. (see p. 84)

The purpose of the integration of learning framework is much more specifically oriented to one population – first year college students – and focuses on exploring how students bring learning together. Bloom's taxonomy aims to classify the overall goals of education and organize them in a hierarchy from simple to complex. In this light, the integration of learning framework identifies categories (similar but not identical to Bloom's classes) that are most closely associated with integration and organizes them by level of engagement.

Integration of Learning Trajectory

The design of this study allowed me to capitalize on the longitudinal aspect of the dataset to see not only how integration of learning appeared at one point in time for a student, but also if and how integration of learning evolved from year to year. The results of this study indicate that there are indeed developmental changes in the way that

students integrate learning over the course of their first year in college, and that these changes happen in an overall pattern of simple to complex. This pattern is evidenced by (a) more examples of integration of learning in the Year 2 than in the Year 1 sample; (b) advancement in SA; (c) as well as increased complexity of type of IOL (shifting from Connection and Application to Synthesis); and (d) increase in the number of double and triple coded examples in Year 2. I discuss each of these separately below.

As detailed in Chapters Four and Five, there was a growing complexity in students' integration of learning during the first year in college. This was established by the data in a number of ways. First, there were more examples of integration of learning found in the second year sample (*n*=306) than in the first year sample (*n*=271). This increase amounted to an average of 2.8 instances of integration per student in Year 1, and 3.2 instances of integration per person in Year 2 of the study.

Secondly, there was an overall trend toward advancement in self-authorship from Year 1 to Year 2, as well as a shift in the types of integration that students used. The average self-authorship level of the students in the first year sample was 2.3, equivalent to a rating of Eb: Middle External. By the second year interview, the average self-authorship score had risen to 3.4, or Ec: Late External. As described in depth in Chapter Five, Middle External (Eb) is the developmental phase in which individuals rely consistently on external sources but may be *experiencing tensions* in some areas in doing so, particularly if external sources conflict with each other; this equates to a 2 on a 10-point scale from external focus to internal foundation. Late External (Ec), which is a 3 on a scale of 10, describes people who rely on external sources for the most part, but recognize that this stance has *shortcomings* (Baxter Magolda & King, 2008).

In the Year 1 sample, application was the form of integration most used by students (147 of 318 instances, or 46%, of integration of learning examples were application). In Year 2, application was still the largest category of integration (149 of 351 examples, 42%), but synthesis was increasingly used (up from 88 of 318, 28%, to 113 of 351, 32%). Within the first six weeks of students' college experiences, application was the most prevalent form of integration of learning; this indicates that upon coming to college, students predominantly integrated learning *by doing*. By Year 2, there was a slight decrease in connection (26% to 25%) and larger increase in synthesis (28% to 32%) as means of integrating learning.

The data also show that there students who have a more internal self-authorship orientation use a wider variety of types of integration. Adding a developmental lens to the data trends explained above, students with an early self-authorship level (e.g., Ea, Eb) rely heavily on one form of integration (application) most of the time. As students made progress along the journey to self-authorship, their use of these three forms of integration evened out, so that they used a variety of forms of integration of learning. For example, the students (*n*=9) with a Primarily Internal developmental orientation [score of 7/10; I(E)] used application and synthesis equally, and connection only slightly less. This is the most advanced developmental level encountered in this sample. The distribution of examples by types of integration becomes flatter as developmental level rises. Figure 5.3 (page 160) illustrates this inclination.

An even more dynamic way of looking at development longitudinally is to study the changes in complexity *within each category* of integration, as self-authorship level

advances. Table 6.1 summarizes the overall trend of increasing complexity of integration of learning via a matrix of the microsteps and developmental levels.

Table 6.1

Characteristics of types of integration of learning by self-authorship level

Less to More Engaged in Integration

Less to More Advanced Developmentally

	Connection	Application	Synthesis
External	Student accepts items are connected because an authority said so; e.g., syllabus makes connection clear	Student transfers concept or skill from one context to a similar one; straight-forward and practical form of integration	Contemplating conflicting ideas is very difficult and sometimes confrontational; student may initially avoid synthesizing at all
Mixed	Student recognizes independently that similar items are connected; limited ability to compare and contrast begins	Student applies ideas or skills more broadly, to less-similar contexts; student may be challenged to apply a new framework to a familiar situation	Student makes uncoerced links between ideas to form a new whole, most often based upon pre-existing external frameworks
Early Internal	Abstract ideas or disparate concepts are connected; more often in conjunction with application and synthesis	Skills or knowledge applied in very different contexts; more often in conjunction with connection and synthesis	Synthesis as a creative and internally-driven process; more often in conjunction with connection and application

As first described in Chapter One, I anticipated the microsteps in integration of learning would be subtle increments that comprised the development of this skill. I called

these increments "microsteps" to indicate the small strides I envisioned carried young adults forward as they develop the capacity for integration of learning. The data from this sample of students did not indicate a sequential stage model for the microsteps of integration of learning; there was no evidence that college students first learned to connect, then to apply, then to synthesize, in that order. Based on my insights from the data, I argue that there is an increasing level of complexity from connection, to application, to synthesis, but do not find that there is necessity for mastering one type of integration before learning to use a more complex form.

However, there is a developmental pattern that emerges from the data, albeit not the one I expected. The examples presented in Chapter Four and Five illustrate growing complexity on two axes: type of integration (from less complex connection to more complex synthesis), and self-authorship level (from externally-driven to internally-based forms of meaning making). The arrows in Table 6.1 depict the movement from less to more complex on each axis, as well as overall. Thus, conceptualized in this manner, there is development of complexity *among* the microsteps, as well as *within* the microsteps.

I noticed that as the complexity of integration and development increased, there was more and more space for individual creativity in the process. Synthesis, which I argue is the most complex form of integration of learning I found in this study, is an inherently creative process; a new whole is literally created from separate parts. Creativity needs to be encouraged to achieve synthesis—this is a key implication for those interested in promoting integration of learning. There must be freedom of thought and expression in order for students to be empowered to integrate learning in new ways;

this requires an openness in the environment (and discourse communities) in order to flourish.

Lastly, a razor-thin majority of those examples of integration of learning that were coded as more than one type of integration were in the Year 2 sample. I want to restate the categories of integration of learning described here are not mutually exclusive. As discussed in Chapter Four, 93 examples of IOL were placed in more than one category. Although the visual of a grid works very well for illustrating the development of integration of learning by self-authorship level, I do not suggest that every example fits into a discrete box. Of the 93 examples that represented more than one type of integration, 51% (*n*=47) of them were double- or triple-coded in the Year 2 sample. This indicates no increase in terms of multiple coding (and a decrease in terms of percentage of the sample). However, as described above, the use of multiple kinds of integration (single-coded, but within the same interview) generally increased as self-authorship levels became more advanced.

Intercontextual Nature of Integration

For college students, the majority of life's day to day activities, problems, and choices are neither disciplinary nor interdisciplinary. The world is more complex than that, and rarely organized into orderly disciplines. Ours is an arguably intercontextual world in which daily life spills over many disciplines and contexts simultaneously. The data in this study illustrate the wide variety of contexts in which integration of learning happens – in classroom discussions, out of class, at work, in the residence hall or fraternity house, and even in online virtual spaces, just to name a few. As educators interested in promoting integration of learning for college students, we are missing

myriad opportunities for learning if we are only focused on the classroom and other curricular contexts. Although the contexts of integration were not a focus of my study, I would be remiss not to point out what I see as a compelling finding, that integration of learning was by no means limited to academic content or settings.

There has been discussion in academe about the gap between academic affairs and student affairs (ACPA, 1994; Keeling, 2004). Given the chasm between these university divisions as the literature suggests, students are bridging it on their own quite often, and much of the time with limited assistance in doing so. Through integration of learning, students put together various parts of their college experience with little regard to where administrative or institutional lines are drawn. Experiences in student organizations, internships, employment, and housing, among others, provide relevant "food for discussion" in classroom settings, as well as venues for practicing concepts and skills learned in their coursework.

Steve, a student at Wabash College, offered this example of intercontextual integration in an excerpt from his first year interview.

> Steve: As far as like my religious activities, that just kind of gives me a guideline for what I want to do. I don't want to be involved in any human cloning or anything so that's one area of biology that's out, but and as far as with the fraternity that gives me a guide of how I want to act or what I want to do in certain situations. And as far as looking for what I want to do in biology, the fraternity helps me because there is a lot of guys who have looked into a lot more stuff than I have and they're upperclassmen and they can help me and tell me what they're doing to get me prepared not necessarily for what career I want, but how I can find what career I want or something like that I guess.

In this example, Steve used his religious involvement to inform his decisions about what areas of biology he wants to explore as career options. He also seeks advice from upperclassmen in his fraternity about how to start mapping out his career plans.

Based on my experience conducting and reading transcripts from a number of interviews, this phenomenon is quite common. Just in this short excerpt, Steve's life represents an intersection of religious activities, biology, fraternity life, career choices, peer advice, and moral decisions! Steve's life is anything but disciplinary. There are multiple influences from multiple contexts converging simultaneously for him to make meaning of, and ideally integrate.

John had a similar experience in his freshman year at Wabash.

I: So kind of looking at all that, how do you make sense of all these experiences?

John: In a whole? [I: Um-hm.] Well all of them sums up to one thing, this is the place where I think and I'm sure I guess where I can learn something in life, not just in studies. I don't think I can learn more about Wal-Mart or how the economics works. I know, but more about other stuff too like how supporting is a big event in our life, supporting and stuff, unity that's why I say all of them comes together. Life is not, a college life, I thought more education wise the studies, homework, assignments, readings, but now here it's different. You have to be in a club. You have to be in a club, group activity and social. Oh yeah, the social work that I'm doing. That day we went to a chapel and we had to pick up some boxes, food boxes, from a warehouse to the chapel for some food for the like old people and we had to do that which was really good. I felt very good after doing that. Carrying boxes and then keep it there and come back home. So being in contact with the social outside life also, doing some social work and we are doing something for Halloween. I signed up for one of the projects on Halloween. We help out small children so I find that very good. Getting a taste of the real life experience. My experience was in high school I did social activities, but here I'm getting an opportunity to go to more than that. More opportunities, you have to grab them. That's how I see it. A place, opportunities come, and you have to grab them otherwise you'll be useless. That's good.

John views his college experience as a place where learning happens not only through reading and assignments, as he expected, but also through service to others, social activities, and organization membership. He feels that if he does not take advantage of the opportunities that area afforded him outside the classroom, he will be "useless."

In the mid-1990s, the American College Personnel Association, one of the leading professional organizations in student affairs, issued a statement titled *The Student Learning Imperative* (ACPA, 1994). This document quickly became a foundational work in the field of student affairs, and challenged practitioners to create a seamless experience for college student learning. *The Student Learning Imperative* stated,

> The more students are involved in a variety of activities inside and outside the classroom the more they gain. Student affairs professionals attempt to make "seamless" what are often perceived by students to be disjointed, unconnected experiences by bridging organizational boundaries and forging collaborative partnerships with faculty and others to enhance student learning. (p. 2)

Based on the data in this study, I conclude that students' experiences on college and university campuses are much more related and fluid than our organizational charts or *The Student Learning Imperative* might suggest. The stories that I heard from students personally in interviews and vicariously through reading transcripts indicate that it is in fact *the students* who are bridging boundaries to integrate learning, often unaided by a mentor or guide. More often, students talked about turning to peers, as Steve did, when seeking advice. Integration of learning is happening much more often than many educators may realize, and frequently without the support or involvement of faculty or staff.

The seed of this idea of intercontextuality was planted in Chapter One, Figure 1.1, as I tried to untangle and organize the definitions related to integration. In the course of this study, I tried not to focus my attention on where the integration was happening. Although the contexts are certainly important, I chose to concentrate on what kind of integration was occuring, rather than where. Then as I stepped back to look at the bigger picture while writing Chapter Six, a point that really stood out to me was that integration

of learning was happening in a wide variety of settings. This stood in stark contrast to the professional literature referenced in Chapter One, which generally indicated a lack of integration. This intercontextual nature of integration of learning, meaning that the integration happens in and across multiple contexts simultaneously, emerged as one of my major findings in this study.

My data suggest that college students are in fact living integrated experiences, and that educators are often unaware of the connections, application, and synthesizing that are commonly undertaken by their students. Given what I have learned here, it seems clear that increased interaction between students and faculty/staff in a variety of settings, both inside and outside of the classroom environment, could be mutually beneficial. Students would stand to gain a mentor or guide on campus, and educators would have an opportunity to learn about the integration of learning in which students are already engaging. I propose that one way educators can create this situation is through simple invitations for authentic conversation. I have been amazed by how eager students are to share their experiences in the interviews, and how powerful the experience is for many students. By inviting students into a personal conversation for even 15 minutes, faculty and staff might begin to harness some of the integration of learning already at work on their campus.

Importance of the Interview as Intervention

In the course of coding the examples of integration of learning, I recorded the context for each example. This essentially was the environment that fostered or promoted integration of learning for the student. As I mentioned in the preceding section, many of these situations were intercontextual. These integration of learning examples bridged

multiple contexts simultaneously, and therefore were difficult to organize into discrete categories. In several cases, one of the contexts for integration was the interview itself. I think this relates to the previous point, and demonstrates that this type of simple conversation can be an important form of mentoring that can promote integration of learning for students both in and out of the classroom. A few times it became clear that a student was integrating "in the moment" during the interview, and that the integration was apparently sparked by the interview questions. I interpret this as evidence regarding the role of reflection as an important tool for integration (as described in Chapter Four). The interview itself is a form of reflection; the interview is indeed a context that intentionally tries to promote reflection among the participants.

In her sophomore interview at Hudson College, Kayla expressed one of these moments of discovery promoted by the interview.

> Kayla: I sort of dabbled with a lot of community service, but this Children's Express of ours project is something I have been sticking through and something I've invested my time in and I'm really, really interested in it. So that's something I cannot learn through play dough. Just working with children and just seeing themselves feel better just by drawing, how they feel or expressing their frustration in a movement or dance move or sound, the whole energy around them changes because they sort of feel relieved and they actually, this is their time to unwind. So, I think I go in feeling a different energy and coming out with a different energy. I feel being a good student, [but] you also have to be very involved with your community because essentially the purpose of your education is to become I think a productive individual. And just with books you cannot, I mean even if you're a stellar academic student, if you don't have the people skills, if you don't, haven't learned how to work with people in need. If you don't, if you're not a good leader, you are not a whole productive individual, so.
>
> I: How did you develop these ideas? Where did they come from?
> ….
> Kayla: I think it's been, **I think this is the first I've like articulated whatever I felt**. But it's been a thought that has been going ever since my Chinese trip. **This is the first time I actually put into words, like because just an environment for it right, put myself, you know.** It feels good now. I can tell this to other people (chuckle). It's out now.

Kayla has a difficult time responding to the questions "How did you develop these ideas? Where did they come from?" referring to her ideas about community involvement and outreach. Although she says she has been thinking about these ideas for some time, it was not until the context of the interview that she put her ideas into words. It seems that this example of integration of learning, a synthesis of her academic work and community outreach, is in part a result of the interview itself and Kayla's conversation with the interviewer. In his sophomore interview at Hudson College, Ethan had a similar experience.

> Ethan: You mean something that we talked about that I was like, "Oh I need to explore that more?" Yeah, I think I'm going to take more seriously the reflection aspect of progression actually. **Because I articulated it in my own head just now. And I just realized as I was talking to you how important it was.** And how actually, I'm probably going to go back to some of my old projects, into my little archives in my closet see if I can't you know take a look at those and see, if I can't make a, if I can't point out or recognize you know what, what exactly we were just talking about, if there's anything I left out, because I just realized you know, the things that I realize about my own self from my writing last year, I'll have a different eye now. So, and I'd actually like to go back and kind of reevaluate a little bit.

Ethan realized during the course of his interview the importance of reflection, and decides to return to some of his previous artwork to reconsider its value. As in Kayla's example, the interaction with the interviewer, through simple conversation about what is important to the student and how he is thinking about his college life, created a context for reflection and ultimately integration (Baxter Magolda & King, 2007).

Imagine the possibilities for harnessing students' integration of learning if faculty, staff, or other mentors invited students into conversation and guided the discussion away from objective questions such as "do you have questions about the material in this class?," to more reflective prompts such as "how are you thinking about the concepts?,"

or simply, “tell me about what’s important to you.” Students might have a difficult time responding to these questions initially, as Kayla did in the excerpt above, but the questions may prompt the reflection crucial for integration of learning.

Model of How Students Integrate Learning

Similarities surfaced related to how students integrate their learning despite the differences in contexts or students’ developmental levels. As my system for analyzing and coding the examples of integration of learning evolved, I found three main components of integration of learning useful for categorizing. I described this process in depth in Chapter Three; I will summarize it briefly here.

I originally thought of the main elements as the “What, Where, and How” of the integrative process, but these terms quickly became problematic because of their ambiguity. I found that I needed to be more precise and descriptive about the components of integration. With some consideration and refinement, these three new concepts became the main elements of my coding process: Content (what is being integrated), Contexts (where they are being integrated and the demands of the context), and Process (how the student is integrating content, which depends on the student’s developmental level or ways of making meaning). Taken together, I used these three ideas to organize the major characteristics of each example of integration of learning. These are represented graphically in Figure 6.2.

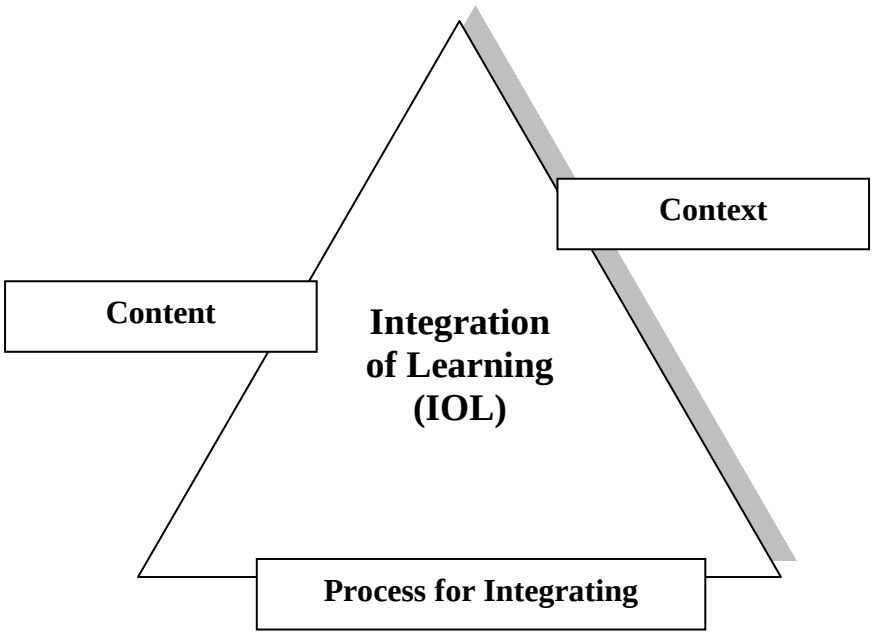


Figure 6.2. Components of the integration of learning coding scheme

Subsequently, I focused on considering how these three components worked together. Since every situation that has these three components did not result in integration, I asked, what actually sparks integration of learning for a student? I envisioned this process to follow a path that involves reflecting upon and evaluating new information through a contextual lens, as well as a meaning making lens. This framework is illustrated in Figure 6.3, and reflects my conclusions based on the data examined in this study.

When presented with new data, I observed that the individual brings two lenses or filters forward to make sense of the new information (that is, the **Content**): the **Contexts Filter** and the **Meaning Making Filter**. Once the student positions the new data within the larger context of his or her life and makes meaning of the data based on his or her developmental level, then he or she can make a **Decision** regarding integration. This

point in the process is crucial to my work in this study, as it is where the student makes new information a part of existing knowledge *via integration of learning*. Dependent on the student's capacity for reflection, evaluation, and seeing different perspectives, he or she either decides to integrate the new information with previous knowledge (via connection, application, or synthesis), or he or she does not do so at that time and the new information remains unintegrated.

The dotted arrows from both integrated knowledge and unintegrated information represent the possibility of **Reconsideration**. At any time, an individual may revisit ideas or experiences and think about them in a new way, in potentially different contexts, using different meaning making filters, and making a different decision on whether or not the concept of skill can be integrated with his or her existing worldview. *Reconsideration of Previous Beliefs* is discussed in Chapter Four as a precursor to integration of learning. This path for reconsideration depicts the process of integration as more cyclical than linear, which is consistent with my conceptualization of integration of learning as a continual process without a defined start or end point.

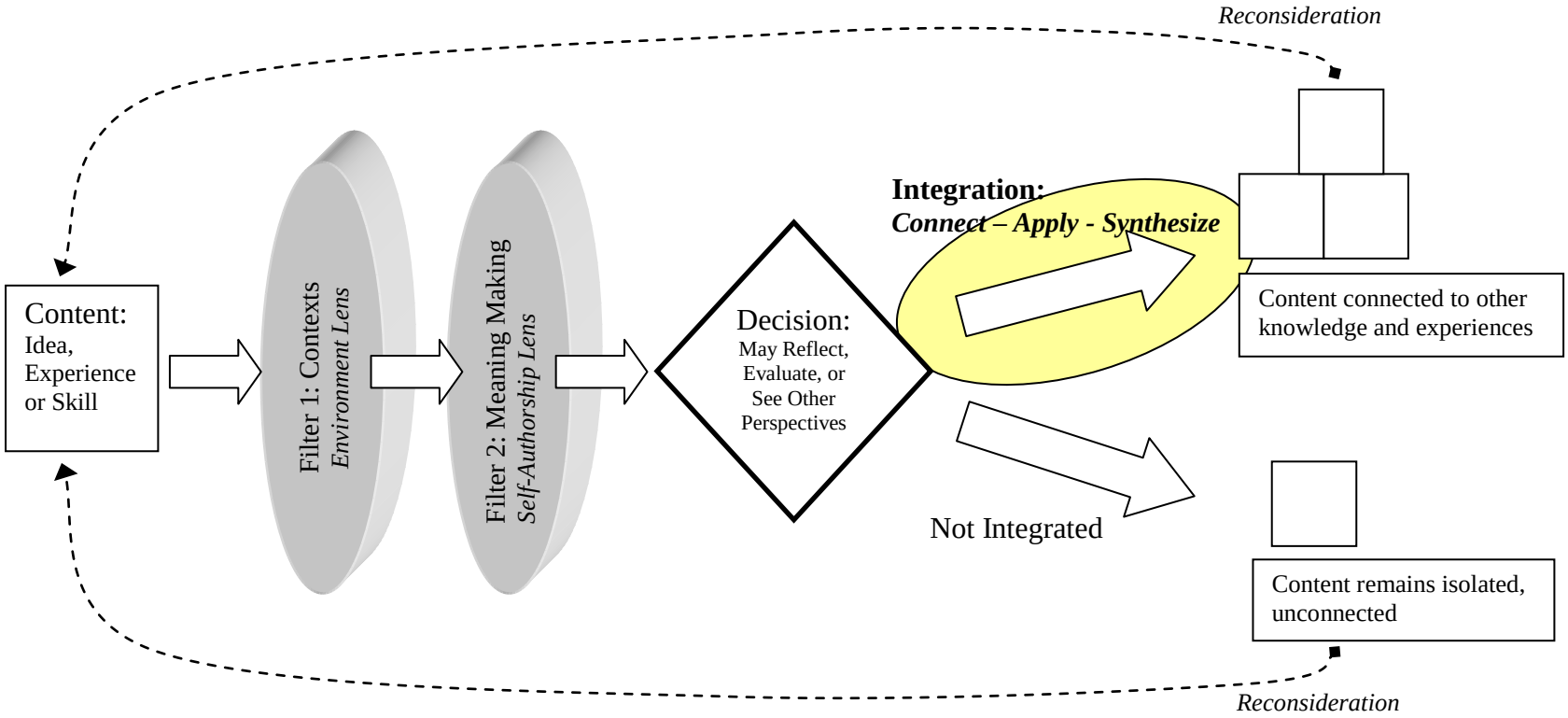


Figure 6.3. Model for how students integrate learning.

The context filter is intended to reflect the broader context of the student's first year in college, including the environments he or she inhabited, and the communities with which her or she interacted. In other words, this filter is intended to inform the question of what environmental characteristics facilitate the connection and foster the integration. Class discussions, residence hall conversations, or the research interview itself were a few examples of the context lenses that students used to position new information, evaluate and reflect on it. This idea of a contextual lens draws upon Vygotsky's (1978) notion of a discourse community and the salience of culture and history in learning. Lemke (1997) eloquently described this interplay of context, culture, and connection, stating,

> We interpret a text, or a situation, in part by connecting it to other texts and situations which our community, or our individual history, has made us see as relevant to the meaning of the present one. Our community, and each of us, creates networks of connections (and disconnections) among texts, situations, activities. This linking of text to text and situation to situation is not an entirely ad hoc process. There are a small number of systematic principles in our own culture which underlie the kinds of connections we are more or less likely to make. We make these in common with others who share typical trajectories with us, and we may differ in this way from those with other life-experiences. In this way culture, which extends across situations and activities, and which characterizes communities without necessarily being the same for all castes or individuals within a community, finds its way through us into the activity of the moment. (p. 50)

Context matters; the context in which a student discovers new information matters in the process of how he or she thinks about it, and whether he or she integrates that information with other learning. As Bransford, Brown and Cook stated, "knowledge that is overly contextualized can reduce transfer; abstract representations of knowledge can help promote transfer" (2000, p. 53).

This leads to the next lens, which I call the meaning making filter. The way in which a student makes meaning of information in a situation is determined by his or her developmental level. For this study, I used self-authorship as the developmental framework. The data in this study have shown that students make meaning of information (and thus integrate learning) in different ways depending on their developmental level. In self-authorship terms, those students with more internally-based self-authorship orientations integrated learning in increasingly complex ways. This concept of the role of growing complexity in meaning making harkens back to Piaget's foundational work on development. Flavell (1963) summarized the fundamental thesis of Piaget's theory, stating:

> Piaget asserts that experience is a subtle and complicated affair, the role of which varies with development, and that contact with things always involves the apprehension of a complex of events within a meaning system which organizes them…. The cognizing organism is at all levels a very, very active agent who always meets the environment well over halfway, who actually constructs his world by assimilating it to schema while accommodating these schemas to its constraints. (p. 71)

Just as context matters in integration, so does development. A student's developmental level or way of seeing the world has a significant impact on how the student handles new information, reflecting his or her capabilities for evaluation, reflection, and perspective-taking. These factors directly affect the student's thought process and capacity for integration of learning.

A student's context (inclusive of culture, communities, and environment) and developmental level (way of seeing the world) factor into the student's *decision-making process* related to integrating. My simple inquiry in this area was: what was the student's process for integrating? Or, considering my position as an interpretive researcher, what is

my best read of how the student put these things together? This is where the tools and foundations for integration come into play. In order for students to integrate learning, there must be opportunities for them to reflect, evaluate, and see multiple perspectives. It is this process of evaluation and reflection on new information, along with whether a student can consider multiple perspectives, which determine whether or not a student integrates the new information. It seems reasonable to me that if a student can reconcile the new information, idea, or skill with his or her existing knowledge based on experience, he or she should be able to then connect, apply, or synthesize the new data, and thus integrate learning. Information that cannot be reconciled in this way remains unconnected (or to use Piaget's (1932) term, not accommodated), perhaps to be reconsidered and integrated at a later time when the developmental level and process are more complex.

I would like to illustrate this model of the integration of learning process with an example from the data. This quote is from an interview with Donny during his first year at Wabash College. Here, he was discussing with the interviewer his opinion that the high degree of faculty interaction at Wabash makes it easier for students to be successful at the institution, because "our professors don't let us slack off."

> I: Okay, can you tell me what success in the classroom means to you?
>
> Donny: I think it's more what you get out of the class, not your grade here. Yes, grades are very important here, but just the interactions with all the different kinds of people that are here because a lot of the classes are discussion based so you get to see a lot of different viewpoints on things and to me that's learning at its best. If you're only learning theorems or let's say biology, you're just learning things out of the book. You're not really getting any discussion. **You're just learning what's there, but you don't get to see other people's viewpoints so you can't really apply it as well and that's what I've noticed.**

I: And have you been in classes where these discussions are going on and people are sharing different ideas?

Donny: Sort of, in my Greek class we only have ten people so that's really nice and we talk a lot about, it's my foreign language, so we talk a lot about the history of Greek.

I: Are you taking modern Greek or ancient?

Donny: Ancient, [I: Okay.] which is really nice because you get to learn a little background on it too. You're not just learning the language so it's a little bit more interesting. My psychology class, even though we have 30 people in it, it's still discussion based. Our professor asks us questions and we try to answer them. That's how our discussion get going and psychology is really a viewpoint type class just because there's so many things in psychology and you can put your viewpoints out there and then people can try to elaborate on it or sort of go against it. They can pretty much present whatever they want.

I: How does that enhance your learning?

Donny: It **gives you a variety of viewpoints to look at and you have to think about what other people are saying to you to try to make your viewpoint actually work because if people are making good points and it's sort of discounting your viewpoint so you have to think of other things to make yours right** and that's not always how it is so you get a lot of, that's basically how I learned what happens here is by discussion and just getting everybody's viewpoints out there. A lot of people here have different backgrounds so you're seeing a wide variety of different views and everything like that so it's very diverse.

I: If you hear different ideas, how do you evaluate them and compare them to your own or how do you determine what you're going to buy into?

Donny: Basically, I just go with my gut instinct. I can't really say too much more on that just because when I have different viewpoints I listen to them, I think about them and I try to incorporate them into what I believe is right and then **that's when I make my decision**. There's not real clear cut way to do that. **Everybody's different and they can do it different ways so I just think about it and try to incorporate it and go with whatever I think is right. Usually that is the right decision so it's not too hard to do.**

In this example from Donny's first year interview, the content consists of the new ideas he is learning, or in his words, "a lot of different viewpoints on things" that emerge during class discussions. The environmental lens, or contexts that are involved in this

illustration, are the classroom situations where the discussions occur and he encounters these ideas. Donny describes these situations in great detail. He speaks of his Greek class, which only has ten students in it. He also talks about his psychology class, which has 30 students, and is large by comparison. These classroom environments are essentially discourse communities with their own specific cultural and historical characteristics. Donny also provides a description of contexts that *do not* foster this exposure to discussion and new ideas, namely non-discussion based classes. He said, "If you're only learning theorems or let's say biology, you're just learning things out of the book. You're not really getting any discussion. You're just learning what's there, but you don't get to see other people's viewpoints so you can't really apply it as well and that's what I've noticed."

Donny's meaning making or self-authorship lens was assessed at an Early External (Ea) level on the 10-point self-authorship scale (discussed at length in Chapter Five, see Table 5.3). This meaning making level is described as unquestioning reliance on external sources with no recognition of possible shortcomings of this approach. Individuals who see the world in this way have a dualistic frame of reference, and seek clear distinctions between right and wrong, true and false, good and bad. This early external way of thinking is evidenced in Donny's comments about his motivation to participate in the discussions, that "you have to think about what other people are saying to you to try to make your viewpoint actually work because if people are making good points and it's sort of discounting your viewpoint, so you have to think of other things to make yours right…." This demonstrates that Donny is not engaging in the discussion, but simply seeking new points of view and hoping to expand his horizons. Instead, he is

paying keen attention in the discussion to see how other students' opinions compare with his own, in a defensive effort to keep his already-held opinions "right." Initially, he is trying *not* to integrate learning, working to fend off new perspectives that may complicate his established worldview.

The decision for Donny is the point at which he chooses what he believes moving forward. He describes this decision process as follows:

> Basically, I just go with my gut instinct. I can't really say too much more on that just because when I have different viewpoints I listen to them, I think about them and I try to incorporate them into what I believe is right and then **that's when I make my decision**. There's not real clear cut way to do that. **Everybody's different and they can do it different ways so I just think about it and try to incorporate it and go with whatever I think is right. Usually that is the right decision so it's not too hard to do.**

In this brief quotation, Donny expresses a few of his beliefs about integration of learning: (a) there is a decision point on whether viewpoints can be integrated; (b) there is more than one way that integration can happen; (c) other people may integrate information differently than him; and (d) his decision is based on his idea of what is right and wrong. In making this decision, Donny uses all three of the important tools for integration discussed in Chapter Four: Evaluation ("I just go with my gut instinct…go with whatever I think is right."), Reflection ("I listen to them, I think about them"), and Seeing Multiple Perspectives ("you get to see a lot of different viewpoints on things and to me that's learning at its best").

It is unfortunate that Donny does not give us a specific example of a viewpoint the he "incorporates" as a result of one of his class discussions. The closest he comes is when he says "**I just think about it and try to incorporate it** and go with whatever I think is right. Usually that is the right decision so it's not too hard to do." This statement

leads me to believe that Donny does in fact integrate a new viewpoint into his existing worldview and that the resulting worldview is something slightly different, created by the combination of his existing framework with the incorporated novel information. I coded this example in the Synthesis category for this reason. In the model, this action would follow the upper arrow from the decision diamond, leading to integration of learning. Donny's new perspective can then be reevaluated in the future, following the dotted arrow back to the beginning of the model, where his perspective can be reconsidered, possibly through evolved and different contexts and meaning making filters.

Implications for Practice

Based on what I have learned about the microsteps of integration of learning in the course of this study, I offer five recommendations for how educators can use these insights to foster a culture of integration for undergraduates:

1. **Invite Conversations with Students.**

   The data in this study revealed that: (a) students often did not have a faculty or staff mentor to turn to for guidance; (b) students were eager to share their experiences with an interested adult (in this case, the interviewer); (c) the interview conversations promoted reflection for students that in some cases prompted integration of learning; and (d) there is a great deal of integration of learning happening in students' lives of which many educators are unaware. Intentionally creating opportunities for individual conversations with students can positively address each of these items. Faculty, staff, and students alike have full schedules and hectic lives. However, making time in the day for authentic conversations with students, even if only for 10-20 minutes, can encourage reflection, build relationships, and promote integration of learning.

2. Be Aware of Students' Meaning Making.

The students in this study were quite similar in terms of age and educational level. All of the students were traditional-aged college students, most of whom were 18-19 years of age. Most of the students came directly to college from high school, with a few taking a gap year before matriculating. Despite this similarity, there was a wide variety of meaning making levels within the sample. Table 6.1 illustrates three types of integration of learning at various meaning making levels. It is important for educators to understand that meaning making is a critical filter through which students view the world. Therefore, two students who are the same age, with the same educational background, in the same college course, may have very different learning outcomes when completing the same task or assignment as a function of the ways they make meaning about the assignment and the course.

3. Actively Bridge Contexts for and with Students.

The intercontextual nature of integration of learning, that integration can happen in and across multiple contexts simultaneously, is a characteristic that emerged from the data. Students (in fact, most members of an academic community) live in a complex and interconnected world. The issues that we face each day are not limited to one context or discipline. Our lives are a nexus of various, and at times competing, environments, discourse communities, and belief systems. Educators can work to actively bridge contexts for students who have difficulty doing so, and can encourage students who can easily think intercontextually.

4. **Incorporate Opportunities for Connection, Application, and Synthesis into Teaching.**

The data from this study show that as students advance developmentally and progress toward a more self-authored orientation, they become more adept at using all three of these approaches to integration of learning more equally. Students with more internally-grounded developmental levels had a greater repertoire of integration of learning techniques and were more facile at using multiple approaches to integrate. Incorporating experiences that call for each of these methods of integration of learning will ensure that students of all developmental levels have an opportunity to integrate learning. Encouraging students to hone their skills at all three forms of integration of learning may promote developmental progress as well.

5. **Encourage Reconsideration.**

I Integration of learning is too often approached as an end-point. As depicted in Figure 6.3, I see the integration of learning process to be cyclical in nature. Even after learning is integrated, a number of factors can cause an individual to take another look: new information, changing contexts, and evolution of meaning making can all lead to a new perspective. As a collegiate educational outcome, I believe integration of learning should be conceptualized as a continuous, iterative process – a habit of mind rather than an accomplishment. Challenging students to regularly reconsider what they know can assist them in developing this frame of reference for integration of learning.

A central implication of my research for practice is an awareness of the components of integration of learning. An understanding of the elements that comprise integration of

learning, such as the filters, tools, etc. depicted in the model above allows educators to be intentional about promoting IOL. I encourage colleagues in all areas of higher education to consider ways in which they might intentionally create new opportunities both in and out of the classroom that will promote integration of learning for students, and become involved in some of the integration of learning that students are already doing.

The next logical step following these implications for practice is to operationalize these recommendations and determine how to create scaffolding that promotes integration of learning for college students. As demonstrated in this study, many students are quite adept at multi-tasking and making connections among various tasks and concepts, but this skill is often unrecognized in the classroom. I offer a few preliminary thoughts on how to begin creating this scaffolding in collegiate contexts.

Writing assignments can be useful for giving individuals the space to reflect and organize thoughts; these assignments are also helpful for understanding someone's way of seeing the world. Writing can also allow students who may not be inclined to participate in a classroom discussion or debate an opportunity to explore ideas and communicate their ideas, questions, and insights to the teacher.

Perspective-taking (standing in another's shoes) can be a powerful exercise for encouraging students to see multiple perspectives. However, stepping outside of one's own position and trying to see the world from someone else's vantage point can be a difficult (and sometimes frightening) task. I understand this and suggest providing a number of spaces, both public (e.g., class activities, discussions) and private (e.g., reflective journals, writing assignments) for students to experiment with perspective-taking. Stretching to see an issue from an alternative point of view can help students

clarify their own values and beliefs while gaining a greater understanding of others' experiences.

Finally, asking students to present an artifact from their home life, work experience, childhood, etc. can provide a venue for individuals to illustrate their understanding of material by connecting the curriculum to a context outside of the classroom. This can help to promote integration of learning by deliberately inviting students' previous experience into the classroom, and signaling that it is encouraged for students to bring their unique identities, characteristics and stories into class discussions.

Contemplations on Transfer of Learning

The positioning of transfer as a complex, higher mental process is similar to the characterization of integration of learning as a higher-level function in Chapter One. Can educators teach for transfer? I think so, but unless a student is motivated to transfer, and has the tools and opportunities to connect, apply or synthesize information, integration of learning will not occur; this requires an engaged teacher. This is an area where the principles captured in the Learning Partnerships Model (validating students' capacity to know, situating learning in the context of the student's experience, and defining learning as mutually constructing knowledge) could be of great use in encouraging motivation and potentially integration (Baxter Magolda, 2004b). Educators can establish practices that promote or foster integration of learning, but there is a responsibility on the student to adopt habits of mind that allow for the creativity and abstract process of putting things together.

Bransford, Brown and Cocking (2000) agreed with this view on teaching for transfer, and stated:

> All new learning involves transfer. Previous knowledge can help or hinder the understanding of new information…Teachers can help students change their original conceptions by helping students make their thinking visible so that misconceptions can be corrected and so that students can be encouraged to think beyond the specific problem or to think about variations on the problem. One aspect of previous knowledge that is extremely important for understanding learning is cultural practices that support learners' prior knowledge. Effective teaching supports positive transfer by actively identifying the relevant knowledge and strengths that students bring to a learning situation and building on them. (p. 78)

Despite all of these strong conceptual relationships among transfer of learning, self-authorship, and integration of learning, I did not incorporate the transfer literature into my analyses as much as I anticipated I would. I believe there are a few reasons for this that I understand now with a little distance from the research. In retrospect, the transfer of learning literature is firmly grounded in the Application realm of integration of learning, in large part due to its central tenet of transferring knowledge or skills from one context to another. This lent itself very well to the *Application across Contexts* category of examples, but not as well to *Establishing a Connection* or *Synthesis of a New Whole*.

I believe that transfer of learning was a challenging concept to fit with a constructivist frame. In Chapter Two, I mentioned the argument that knowledge cannot be "transferred" if it is constructed because if all knowledge is co-constructed, then knowledge cannot simply be "transferred" as an object would be (Maclellan, 2005). Rather, it would have to be re-constructed with each individual. Perhaps this notion contributed to why this frame did not fit as well as I had hoped. Despite this challenge, I see that transfer of learning certainly has relevance and application to integration of learning and the work that I have done in this study, and I encourage others in higher education research to discover this century-long body of knowledge and incorporate it into the study of college student development.

Limitations

Like all research, this study has limitations as well as strengths. I will highlight a few of the major limitations in this section. This study of integration of learning is based on students on only two campuses, and specific types of campuses at that. Both Hudson College and Wabash College are small, private, liberal arts colleges in rural settings. Both had intentionally integrative programs for first year students established at their institutions (Liberal Arts Seminar and Freshman Year Symposium at Hudson; Freshman Tutorial and Culture & Traditions courses at Wabash), and both were selected for the larger study based on interest in and programs on liberal arts education.

The gender balance in the study was skewed towards men, due in part because Wabash is an all-male institution. This 2:1 ratio of men to women in the sample (30 women, 67 men) may have played a role in the results. Although gender was not an area of interest in my research question, the predominately male sample may have affected the outcome. The similar ages of students in the sample (all were traditionally-aged first year college students, 18-20 years old) may also have limited the types of integration I observed in the interviews, and thus limited the number of categories.

The categories of integration of learning that emerged sometimes overlapped, and it was a challenge at times to maintain differentiation between the definitions of the main categories. This proved to be both stimulating and challenging in the coding process, and certainly contributed to some lively discussions with my peer debriefer. I took great lengths to manage my subjectivities, but the fact remains that coding is a subjective activity. In coding, I chose the category or categories that most stood out to me about

each example. To me, the determinant was which category(ies) best represented the idea or kind of integration that the student was experiencing.

Further Study

One of the unexpected challenges of this study has been to remain focused on the main research questions and not be tempted to go on interesting tangents introduced by the data as I made my way through the various analyses. There are a number of areas of further study into integration of learning that I would recommend based on what I have learned in my research. This study of integration of learning has several implications for future research; I discuss several of these ideas and research tasks next.

Investigate Pre-Integrative (Pre-IOL) categories. In the analysis phase, several possible predecessors to integration of learning emerged from the data. Since my focus was specifically on integration of learning itself, I put aside these experiences and did not analyze them for this study. I believe these kinds of "pre-integrative" ways of thinking are ultimately important to the eventual development of the ability to integrate learning. Two categories that stood out in this genre were "Recognition" and a group I called "The List." Recognition consisted of experiences where students were aware of others' integration of learning but did not integrate on their own, and The List was a distinct phenomenon where students would literally list ideas or concepts in their responses without explicitly connecting or otherwise integrating them. Likewise, examples from the longitudinal comparisons presented in Chapter Five (Wallace's Strategy for Writing Papers, Dave's Transition from Observer to Actor) suggest that observation of others and applying previously tested techniques may also be precursors to the more complex methods of integration of learning illustrated in students' Year 2 interviews.

Further differentiate the microsteps of integration of learning. Further study of the microsteps that I have identified here (Connection, Application, and Synthesis) could reveal even more nuanced phases of integration within the categories as I have organized them. I discussed subsets of experiences within each of the categories (e.g., compare and contrast as a type of Connection, the collaborative nature of Synthesis), and a more deductive analytical process of studying the examples within each of the major categories may further delineate these differences.

Expand these analyses to data from other Wabash National Study campuses. As discussed in Chapter Three, the campuses from which the data were drawn for my study are two of six campuses across the country where we conducted interviews. As a reminder, these two campuses were chosen primarily because they offered environments rich in potential to learn about integration. The other four campuses would add greater racial, ethnic, and gender diversity to the sample, as well as expand the study to different institutional types and instructional approaches. The study I have conducted here could be extended to the other campuses participating in the interview portion of the Wabash National Study of Liberal Arts Education.

Include Years 3 and 4 of the Wabash National Study data. The data analyzed in this study represent the first two years of a four-year longitudinal study. Extending this one-year longitudinal study to include data from the third and fourth years would enable the mapping of the IOL trajectories in students over the course of their college careers. This work also has many avenues for continuing lines of research beyond the scope of the Wabash National Study, and into young adults' post-college experiences.

Examine integration of learning within self-authorship dimensions. I focused on the overall development of self-authorship in this study. The examination of integration of learning could be expanded to observe how integration occurs across the cognitive, intrapersonal, and interpersonal dimensions of development. For example, transfer of learning research has been based largely in the cognitive domain of development (Perkins & Salomon, 1992; Thorndike & Woodworth, 1901), and I believe the language and concepts can be readily adapted to the intrapersonal and interpersonal domains of development as well. The scope of this study did not allow for analysis of integration of learning by dimension, but I believe it would be an informative extension of this work.

Study the salience of contexts and demands on integration of learning. In the course of this study, contexts were intentionally placed in the background in favor of process, or meaning making. Although I coded the data for context and considered the often intercontextual nature of integration, I did not analyze by context per se. In order to best address my primary research question (How does integration of learning develop among first-year college students?), I focused on the student's process for integration over where the integration took place and what prompted or facilitated the integration (i.e., the demands of the experience). In this light, the demands of this project required me to focus on meaning making over context. Previous studies (Barber & King, 2007) have explored how the demands of developmentally effective experiences promote development of self-authorship; a similar investigation of the demands of integrative learning experiences may reveal insights for pedagogy and practice to promote integration of learning.

Further explore connections between integration of learning and principles of the Learning Partnerships Model (LPM). I briefly introduced Baxter Magolda's (2004b) Learning Partnerships Model in Chapter Two, Figure 2.1. The three key principles of that model, (a) validating students' capacity to know; (b) situating learning in the context of the student's experience; and (c) defining learning as mutually constructing knowledge, complement some of the elements within the model proposed here (see Chapter Six, Figure 6.3.) to describe how students integrate learning. In my model, Filter 1: Contexts, Filter 2: Meaning Making, etc. A thorough examination of how these models may be related could bolster the applicability of both conceptualizations, and strengthen our understanding of effective practices in teaching and learning.

Explore ties to AAC&U's LEAP Principles of Excellence. Integration of learning is one of the essential learning outcomes outlined by the Association of American Colleges and Universities in the *Liberal Education and America's Promise* (LEAP)*: Excellence for Everyone as a Nation Goes to College* effort (AAC&U, 2005a). This association also drafted a list of seven "Principles of Excellence" for achieving the essential learning outcomes (AAC&U, 2005b). Examining how these principles do and do not match with the practices I uncovered in the data I analyzed for this study would be a productive exercise in mapping empirical data for integration of learning onto the principles of excellence put forward by the AAC&U.

Draft suggestions for incorporating IOL into best practices. My research on integration of learning also has implications for pedagogy and practice on college campuses. A future project would be to determine how best to operationalize what I have learned about integration of learning into best practices for college experiences, broadly,

in both academic affairs and student affairs (and, ideally bridging the two). The principles from both the Learning Partnerships Model and LEAP Principles of Excellence discussed above, along with the findings of my research, provide strong foundations upon which to develop recommendations about how to actively promote integration of learning for college students. For example, writing assignments can be useful for giving individuals the space to reflect and organize thoughts. Writing and classroom discussions can both be helpful for understanding someone else's way of seeing the world and encouraging perspective-taking (standing in another's shoes) as an exercise. Additionally, asking students to present artifacts from their home life, work environment, etc. provides an opportunity for individuals to illustrate their understanding of material and make connections between contexts.

Consider additional data sources for studying integration of learning. One of the strengths of these data is that the semi-structured interviews allowed the participants to describe their own experiences, and talk about integration of learning in their own words. However, this form of data also has limitations; the student may not have chosen to share an experience about integration of learning, or may not have had the verbal skills to effectively describe their integration to the interviewer. Expanding this research to include alternative sources of data about integration of learning could inform the question of this study. Observing class discussions or student organization meetings is one way of searching for integration of learning "in action." Reading papers for integrative assignments or designing an interview specifically about integration of learning are additional means. Artifacts that reveal integration of learning, such as student writing or

e-portfolio collections would be another rich source of data to inform the research on integration as a learning outcome.

Examine the variability in developmental changes. While the self-authorship scores of the majority of students in this sample remained stable or increased slightly from Year 1 to Year 2, there were some cases where a different pattern was observed. It would be enlightening to examine the cases where students' scores regressed or had larger than average gains over the course of the study. Perhaps exploring these sets of interviews would uncover patterns related to student experiences or forms of integration of learning associated with high growth and regression along the journey to self-authorship.

These topics suggest several future studies, if not an entire research agenda! I hope to pursue these ideas at a later time, and would encourage my colleagues who may be interested in studying integration of learning to consider these implications for future research that I have developed over the course of this study.

Conclusion

In conclusion, the data analyzed in this study support the notion of integration of learning as a constructive-developmental process. There is a clear developmental sequence in how integration of learning capacity advances among the college students in this sample, which is undergirded by the progression of self-authorship from external frameworks to internal foundations for understanding. The microsteps of integration of learning that I uncovered are not rigidly sequential per se, but I posit that there is a development of greater complexity that occurs *among* the microsteps, as well as *within*

each microstep or category, based on students' developmental levels and ways of meaning making.

There were many more examples of integration of learning found in the interview sample for this study than originally expected. Based on the increasing frequency and urgency of calls for more efforts to promote integration of learning as a collegiate outcome, I anticipated very little integration would be present in college students' experiences today. However, I found just the opposite. Students are integrating learning in a number of different ways (connection, application, synthesis, and combinations of these methods) in a wide variety of contexts. Integration of learning among college students is not limited to the classroom, and in fact the integration that is going on outside the classroom enhances the classroom learning, and vice-versa. As educators, practitioners, and researchers, we are only seeing part of the picture if we focus on "classroom integration" in isolation.

Despite the wealth of integration that is occurring among students, higher education literature focuses on the need for more integration, painting student experiences as largely disconnected and isolated. Few students talked about a mentor or guide in integration of learning, though many discussed turning to peers as a support system for putting things together. It seems that integration of learning is alive and well on college campuses, but faculty and staff are frequently not involved in or aware of the connections students are making. This is an area that I argue is in need of attention and intentional interventions. Students in the study responded quite favorably to their conversations with interviewers, and some students integrated learning "in the moment" as a byproduct of the interviews.

Breaking down the larger concept of integration of learning into smaller processes or microsteps (connecting, applying, and synthesizing) will allow for a greater intentionality among educators in incorporating these processes into curricula. Likewise, an understanding of what these microsteps are and how they appear in day-to-day student experience will serve to raise awareness of the integration of learning that is already happening among college and university undergraduates. Bringing faculty and staff into the learning process as increasingly active mentors who are aware of the steps in the development of this outcome is essential. In all, understanding the importance of meaning making (self-authorship level) and context (discourse communities) in students' processes of integrating learning is essential to further promoting integration of learning as a collegiate outcome.

APPENDICES

APPENDIX A: Year One Interview Protocol

In-Depth Interview: Wabash National Study of Liberal Arts Education
Fall 2006

Introduction to the Interview: Greet student as he/she arrives, ask his/her name, thank him/her for coming, put at ease and begin completion of consent form	
Provide student a written description of the study and provide a copy of a consent form that you sign; collect the one that student signed "I will reintroduce the study to you but before we begin there is a consent form that I would like to review with you and, if you are willing to participate, I need you to sign."	Review the consent form and ensure he/she consents to both the participation and audio recording. Highlight: ✓ your role as the interviewer ✓ voluntary participation, they can refuse to answer or end interview at any time ✓ confidentiality ✓ 90 minute time commitment (confirm interview end time) ✓ opportunity for questions at the end ✓ how interview will be used and by whom ✓ confirm the process of payment
Reintroduce the study verbally and why they have been chosen as a participant	e.g., "Our purpose in meeting today is to learn about you & your experiences in college so that we can better understand how students approach and gain from educational experiences. Because every student is different and brings a unique perspective and set of experiences we believe it is important to hear about your experiences from your point of view." e.g., "You have randomly selected from a list of students…
Provide an overview of the organization of the questions	e.g., "Specifically we will ask you to talk about your experiences, I will provide the structure but I will let you steer the conversation. I will begin by asking a little bit about you and your background, your expectations coming to college and of [INSTITUTION] in particular. I'd like to hear about your specific experiences since coming to college. Overall I will want to hear how

	you make sense of all you are experiencing and learning… NOTE: We want to acknowledge here that the student is in transition to college. Thus, an appropriate comment might be, "I know that you are in a transition to college. I want to hear about your experiences since coming to college, but I also want to hear about the most significant experiences you've had over the past year even if they are prior to coming here. I'll ask you to be the judge of what is most important as we move through the conversation."
Turn on recorder: State "This is [interviewer name], today's date, interviewing at [institution]." Do NOT state the students' name.	

Introduction Continued & Expectations Segment

Basic Foundation: To access meaning making at college entrance and build rapport	
Means to Access Foundation: Expectations and degree to which they matched reality	
Multiple Ways to Approach:	
It would help me to *know a little about you*. Tell me about your background and what brought you to [institution].	Possible Probes: • Tell me about your high school experience – what was it like? • Tell me about your family. • Tell me about your friends. • What did you tell people here to introduce yourself when you arrived? • How did you decide to come to [institution]? [what were the other options, advantages/disadvantages of options, how did this one win out] • Tell me about any goals you have for this year [try to draw out both academic and personal goals].
Let's talk about *your expectations* coming to college in general and to [institution] in particular. What did you expect it to be like to be a college student here?	Possible Probes: • What did you expect [or hope] the learning environment to be like? • What did you expect would go well for you and what would be challenging in your courses? • What kind of relationships did you expect [or hope] to build with other students? With faculty? • How did you expect [or hope] you would grow or change coming to college? • In what ways did you expect [or hope] to get involved in campus activities?
I'm interested in your perspective on how the *reality*	Possible Probes:

of college compares with your expectations! Let's talk about areas in which your experience matches your expectations and areas in which it does not. [Note: it may be artificial to separate expectations and reality – you won't need this if the interviewee already addressed it]	• Using what the interviewee offered re expectations, return to each one asking to what degree experience matches [i.e., you said you expected classes to be pretty hard – what is your sense of that so far?] Draw out why the person sees it this way and what it means to her/him. • What has been your experience as a student at this institution? What has been your experience as a [race, ethnicity, gender] student at this institution [*only if person raised these dynamics*]? • What has surprised you most? Draw out the description, why it was surprising, how the person is making sense of it.
I'm interested in how you experienced the transition to college. What did you gain in high school [or prior experience if not coming directly from high school] that helped you as you began college?	Possible Probes: • How have your prior experiences influenced your transition to college? • How did your life prior to college affect your transition to college?
NOTE: It may be helpful when appropriate to use our basic Framework for drawing out meaning:	**Framework** for drawing out meaning: • Describe the experience • Why was it important? • How did you make sense of it? • How did it affect you?

In-Depth Interview: Liberal Arts Education Study
Making Sense of Educational Experiences Segment

Basic Foundation: 3 dimensions by 7 outcomes chart	
Means to Access: meaningful experiences and how students made meaning of them	
Multiple Ways to Approach:	
Our conversation so far has given me some context to understand you, your prior experiences and your initial expectations of college. Let's talk more about important experiences. How would you describe your college life so far? NOTE: while we want to talk about college, we have to recognize that participants have been in college only a few weeks. So this segment may need to include high school experiences as well.	Probes: How do you think you will balance these various parts of college life? What are some of the ups and downs you've encountered so far?
Let's focus in specifically on the experiences you've had that you think have affected you most. What has been your *most significant experience* so far?	**Framework** for drawing out the dimensions and outcomes: • Describe the experience • Why was it important? • How did you make sense of it? • How did it affect you?
Tell me about your *best experience*; *worst experience*	**Framework**
Tell me about some of the *challenges* you've encountered	**Framework;** also inquire about challenges in other dimensions if response is uni-dimensional
Who/what are your *support* systems? Tell me about them.	Probes: when you need support, where do you find it? Who do you go to for help? Who do you trust to help when something important is on your mind?
Usually college is a place where you *encounter people who differ from you* because of different backgrounds, beliefs, preferences, values, personalities, etc. Have you had interactions with people who you perceive as different from you? If so, tell me about them.	What have these interactions been like? How have you made sense of them? What ideas have you gathered from these interactions?

Have you had to face any *difficult decisions*?	**Framework**: also inquire about decisions in other dimensions (i.e., cognitive, intrapersonal, interpersonal) if response is uni-dimensional
Often college students report feeling *pressure* from multiple directions – pressure to study and succeed academically, pressure to belong socially, pressure re: family or work obligations, pressure to participate in campus activities, pressure to figure out career directions. Have you encountered any of these pressures?	If so, describe; how did you handle it, why, how did it affect you.
Has there been any time that what you wanted and what others wanted from you *conflicted*?	If so, what was that like? How did you handle it?
Have you been in a situation where you struggled with doing the right thing?	If so, describe, how did you handle it, why, how did it affect you?
How do you think coming to college, to [institution] has *affected you?*	What do you think prompted this? How do you feel about it? Draw out possible challenges to beliefs, sense of self, relationships.

In-Depth Interview: Liberal Arts Education Study
Integration of Learning Segment

Basic Foundation: access Integration of Learning outcome and synthesize the student's experience as shared in the interview	
Means to Access: how your collective experiences are influencing your thinking about what to believe, yourself, and relations with others	
Multiple Ways to Approach	
Synthesis	
You've talked about some of your important experiences [such as x, y, z] and what they've meant to you. How did the experiences you've shared influence your transition to college?	Draw out meaning.
As you have reflected on your experiences, has anything come up that you expect you'll want to *explore further*?	Describe, why is this important, how do you anticipate you will explore this.
How has this past year experience helped you think about how you want to approach *this year*?	Possible Probes: • How has it shaped your goals? • How has it shaped your view of yourself? • How has it shaped how you learn?
Integration of Learning/Summary	
We have about [x] minutes left and I'd like to be sure I have the key points you think are important. Thinking about your overall experience, what is the most important thing you *gained* from this past year?	Possible Probes: • Where did this come from? • What prompted this?
How has this *past year influenced* your everyday decisions and actions?	Possible Probes: • How do these experiences influence your thinking about college? Your goals here? • How do these experiences influence your relations with others? • How do these experiences influence how you see yourself?
Tell me about any connections or themes you see among your	Draw out description and meaning.

experiences.	
How are you evaluating new ideas you've encountered thus far? Do any of the ideas you've encountered thus far conflict? If so, how are you thinking about that?	
Are there any *other observations* you would like to share?	Draw out description and meaning.

Post-Interview Checklist: Wabash National Study of Liberal Arts Education
Fall 2006

Post-Interview Checklist/Commentary: Recorder Turned OFF

- √ Thank student for participating.
- √ Answer any questions student has about study, payment, etc.
- √ Have student complete interview evaluation.
- √ Give them your business card and tell them to contact you with any questions or additional information they think of relevant to the conversation today.
- √ Tell student you enjoyed meeting them and you hope they will continue in study next year. You hope you will be able to interview them again next year, but if that doesn't work out the person who does interview them will have read your notes from today and will understand the essence of today's conversation. Reiterate how important it is for them to stay with the project and wish them well in their first year of college.

[Student Leaves]

Post-Interview Interviewer Commentary: Recorder Turned ON

- √ What do you see as the major themes for this interview?
- √ What experiences did the student identify as most significant? Were these "developmentally effective" experiences?
- √ What meaning did the student make of her/his experiences this year?
- √ What are the areas that the student finds challenging? Rewarding?
- √ What areas would you want to follow-up with a year from now? As the student progresses through his/her college years?
- √ Additional thoughts and reactions?

APPENDIX B: Year Two Interview Protocol

In-Depth Interview: Wabash National Study of Liberal Arts Education
Fall 2007

<table>
<tr><td colspan="2">Introduction to the Interview: Greet student as he/she arrives, ask his/her name, thank him/her for coming, put at ease and begin completion of consent form</td></tr>
<tr><td>Provide student a written description of the study and provide a copy of a consent form that you sign; collect the one that student signed.

“I will reintroduce the study to you but before we begin there is a consent form that I would like to review with you and, if you are willing to participate, I need you to sign.”

“I have reviewed the summary of last year’s interview, so the ideas you shared last year are fresh in my mind.”</td><td>Review the consent form and ensure he/she consents to both the participation and audio recording.

Highlight:
✓ your role as the interviewer
✓ voluntary participation, they can refuse to answer or end interview at any time
✓ confidentiality
✓ 90 minute time commitment (confirm interview end time)
✓ opportunity for questions at the end
✓ how interview will be used and by whom
✓ confirm the process of payment</td></tr>
<tr><td>Reintroduce the study verbally and welcome them back to the project for a second year.</td><td>e.g., “We are delighted that you’ve returned for a second interview and I’m eager to hear about your year.”

e.g., “Our purpose in meeting today is to learn about you & your experiences in college so that we can better understand how students approach and gain from educational experiences. Because every student is different and brings a unique perspective and set of experiences we believe it is important to hear about your experiences from your point of view.”</td></tr>
<tr><td>Provide an overview of the organization of the questions</td><td>e.g., “As you’ll recall from last year, I’ll ask you to talk about your experiences. I’d like to hear about your specific experiences during the past year of college. I’ll ask you to be the judge of what is most important as we move through the conversation. Overall I will want to hear how you make sense of all you are experiencing and learning…Just like last year, this is an</td></tr>
</table>

	informal interview. I'll ask you to introduce what is important to you and we'll use that to guide our conversation. We are interested in hearing about the past year, but if there are ideas from the previous year you want to revisit, that is okay too. We are also interested in all areas of life – not just college or the classroom.
Turn on recorder: State "This is [interviewer name], today's date, interviewing at [institution]." Do NOT state the students' name.	

Introduction Continued & Expectations Segment

Basic Foundation: To access meaning making during and as a result of the first year of college and build rapport	
Means to Access Foundation: Expectations and degree to which they matched reality	
Multiple Ways to Approach:	
Provide a brief recap of the main points from last year's interview to convey interviewer is familiar with it and to set the tone.	e.g., "Last year, I remember we discussed X, Y, and Z." or "Reading the summary I see that you discussed X, Y, and Z."
Let's start with an update on how college has been for you since the last interview. What has stood out for you over the past year? What's new or different?	Possible Probes: • Tell me about your classes – what were they like? • Tell me about your friends. • Tell me about life outside of class – what is important to you? What experiences have you participated in? • Tell me about any goals you have for this year [try to draw out both academic and personal goals].
I'm interested in how you experienced the transition from first year to second year. What did you gain in your first year that helped you as you began this year? What surprised you most about last year?	Possible Probes: How have your prior experiences influenced how you are approaching your second year?
Let's talk about *your expectations* coming into this year. What do you expect it to be like to be a second year student?	Possible Probes: • What did you expect [or hope] the learning environment to be like? • What did you expect would go well for you and what would be challenging in your courses? • What kind of relationships did you expect [or hope] to build with other students? With faculty? • How did you expect [or hope] you would grow or change this year? • In what ways did you expect [or hope] to get involved in campus activities?

I'm interested in your perspective on how your experience of this year *compares with your expectations*! Let's talk about areas in which your experience matches your expectations and areas in which it does not. [Note: it may be artificial to separate expectations and reality – you won't need this if the interviewee already addressed it]	Possible Probes: • Using what the interviewee offered re expectations, return to each one asking to what degree experience matches [i.e., you said you expected classes to be pretty hard – what is your sense of that so far?] Draw out why the person sees it this way and what it means to her/him. • What has been your experience as a student at this institution? What has been your experience as a [race, ethnicity, gender] student at this institution [*only if person raised these dynamics*]? • What has surprised you most? Draw out the description, why it was surprising, how the person is making sense of it.
NOTE: It may be helpful when appropriate to use our basic Framework for drawing out meaning:	**Framework** for drawing out meaning: • Describe the experience • Why was it important? • How did you make sense of it? • How did it affect/influence you?

In-Depth Interview: Liberal Arts Education Study
Making Sense of Educational Experiences Segment

Basic Foundation: 3 dimensions by 7 outcomes chart	
Means to Access: meaningful experiences and how students made meaning of them	
Multiple Ways to Approach:	
Our conversation so far has given me some context to understand you and how you experienced the first year of college. Let's talk more about important experiences. How would you describe your college life since the last interview?	Probes: How are you balancing the various parts of college life? What are some of the ups and downs you've encountered so far?
Let's focus in specifically on the experiences you've had that you think have affected you most. What has been your *most significant experience* since the last interview? By significant, I simply mean something that stands out in your mind, something that is important to you.	**Framework** for drawing out the dimensions and outcomes: • Describe the experience • Why was it important? • How did you make sense of it? • How did it affect/influence you?
Tell me about your *best experience*; *worst experience*	**Framework**
Tell me about some of the *challenges* you've encountered	**Framework;** also inquire about challenges in other dimensions if response is uni-dimensional
Who/what are your *support* systems? Tell me about them.	Probes: When you need support, where do you find it? Who do you go to for help? Who do you trust to help when something important is on your mind? What does the support look like? How does it play out? What did you do with it?
Usually college is a place where you *encounter people who differ from you* because of different backgrounds, beliefs, preferences, values, personalities, etc. Have you had interactions with people who you perceive as different from you? If so, tell me about them.	What have these interactions been like? How have you made sense of them? What ideas have you gathered from these interactions?
Have you had to face any *difficult decisions*? If so, tell me about how you work through or process such decisions. Are there	**Framework**: also inquire about decisions in other dimensions (i.e., cognitive, intrapersonal, interpersonal) if response is uni-

people you look to for guidance in these situations?	dimensional
Often college students report feeling *pressure* from multiple directions – pressure to study and succeed academically, pressure to belong socially, pressure re: family or work obligations, pressure to participate in campus activities, pressure to figure out career directions. Have you encountered any of these pressures?	If so, describe; how did you handle it, why, how did it affect you.
Has there been any time that what you wanted and what others wanted from you *conflicted*?	If so, what was that like? How did you handle it?
Have you been in a situation where you struggled with doing the right thing?	If so, describe, how did you handle it, why, how did it affect you? How did you decide what to believe? Was there anyone to guide you through this?
How do you think being a student at [institution] has *affected you?*	What do you think prompted this? How do you feel about it? Draw out possible challenges to beliefs, sense of self, relationships.

In-Depth Interview: Liberal Arts Education Study
Integration of Learning Segment

Basic Foundation: access Integration of Learning outcome and synthesize the student's experience as shared in the interview	
Means to Access: how your collective experiences are influencing your thinking about what to believe, yourself, and relations with others	
Multiple Ways to Approach	
Synthesis	
You've talked about some of your important experiences [such as x, y, z] and what they've meant to you. How did the experiences you've shared influence the person you are today?	Draw out meaning.
As you have reflected on your experiences, has anything come up that you expect you'll want to *explore further*?	Describe, why is this important, how do you anticipate you will explore this.
How has this past year helped you think about how you want to approach *this upcoming year*?	Possible Probes: • How has it shaped your goals? • How has it shaped your view of yourself? • How has it shaped how you learn?
Integration of Learning/Summary	
We have about [x] minutes left and I'd like to be sure I have the key points you think are important. Thinking about your overall experience, what is the most important idea you *gained* from this past year?	Possible Probes: • Where did this come from? • What prompted this?
How has this *past year influenced* your everyday decisions and actions?	Possible Probes: • How do these experiences influence your thinking about college? Your goals here? • How do these experiences influence your relationships? • How do these experiences influence how you see yourself? • How do these experiences influence how you make decisions? How do they influence how you determine your beliefs and opinions?

How are you evaluating new ideas you've encountered thus far? Do any of the ideas you've encountered thus far conflict? If so, how are you thinking about that?	
Tell me about any connections or themes you see among your experiences.	Draw out description and meaning. Draw out the nature of these connections.
Are there any *other observations* you would like to share?	Draw out description and meaning.
Are there any observations you'd like to share about participating in this study?	

Post-Interview Checklist: Wabash National Study of Liberal Arts Education
Fall 2007

Post-Interview Checklist/Commentary: Recorder Turned OFF

- √ Thank student for participating.
- √ Answer any questions student has about study, payment, etc.
- √ Have student complete interview evaluation.
- √ Give them your business card and tell them to contact you with any questions or additional information they think of relevant to the conversation today.
- √ Tell student you enjoyed meeting them and you hope they will continue in study next year. You hope you will be able to interview them again next year, but if that doesn't work out the person who does interview them will have read your notes from today and will understand the essence of today's conversation. Reiterate how important it is for them to stay with the project and wish them well in their second year of college.

[Student Leaves]

Post-Interview Interviewer Commentary: Recorder Turned ON

- √ What do you see as the major themes for this interview?
- √ What experiences did the student identify as most significant? Were these "developmentally effective" experiences? If so, what was the effect of the experiences on how the student sees the world, self and/or relationships??
- √ In what ways (if any) do you think this student has grown from first to second year? In other words, what movement(s) has the student made?
- √ What meaning did the student make of her/his experiences this year?
- √ What are the areas that the student finds challenging? Rewarding?
- √ What areas would you want to follow-up with a year from now? As the student progresses through his/her college years?
- √ **Offer a summary and feedback on the quality of the interview, distinguishing characteristics, student reactions/responses to the interview.**
- √ Additional thoughts and reactions?

Guide to Creating a WNSLAE Transcript Summary

09-30-07 Version

The authors gratefully acknowledge the contributions of the Center of Inquiry in the Liberal Arts at Wabash College in support of this project. For further information, see http://www.liberalarts.wabash.edu/nationalstudy.

We also appreciate the contributions of research team members who helped craft this guide, in particular James Barber, Anat Levtov, Brianne MacEachran, and Kari Taylor.

Long, detailed interviews are rich and fascinating portraits of students' lives, and have the potential to provide key insights into students' educational experiences – and what educators can do to improve their experiences to promote liberal arts outcomes and student development. Rich as whole transcripts are, other steps involving data reduction are necessary to allow for data analysis. This is the function of the Transcript Summaries, to retain the substance of the interview while reducing the amount of data for analysis.

Analysis of the WNLSAE interviews should lead to an understanding of:

(1) how and to what extent the specific programs, practices and conditions that a student experiences at an institution promote the development of liberal arts outcomes; and
(2) how and to what extent the student's level of development (or level of readiness) affects the development of liberal arts outcomes.

We will create summaries in two phases to focus on these two questions. Both phases are described in this guide.

Process for Dealing with Transcription Errors

If you find substantial, meaning altering mistakes in a transcript, please notify Pat King immediately, noting the transcript number, line numbers, and the nature and frequency of the mistakes. If you find minor typos and other easily correctable mistakes (such as "their" and "they're" or reference to institution-specific acronyms), please make the corrections, alert the transcription coordinator, and upload the corrected transcript to IFS space in the correct institution folder under "Completed Transcripts" [Michigan team only]. Those outside the immediate Michigan team should bring this to Pat's attention.

Phase I Summary Writing

I. Goals of the Phase I Summary

- It will identify important student characteristics and any information the summarizer judges important to understand the interview.
- It will identify all experiences the student identifies as important, describe each experience, its effect on the student, the relationship of the effect to liberal arts outcomes, whether and if so, how it contributed to the student's development, and illustrative quotes from the student.

II. Phase I Summary Format and Content

A. Transcript and Summarizer Identification Information

[see Summary Template later in this document]

B. Student Characteristics and Important Background Information

This is a brief introduction to the interviewee and includes background information such as year, major, family background and dynamics, and any information that might influence a student's experience (e.g., type of high school attended, living overseas, a summer internship, a health problem). A succinct paragraph or two will typically suffice.

C. Experiences the Student Identifies as Important

This section describes and analyzes all experiences that the interviewee identifies as important.

1. Describe the nature of each important experience (e.g., the type of workshop attended, the pedagogical strategy used), the dynamics of the student's learning experience (e.g., a competitive atmosphere where students were unwilling to study together), the qualities of the learning experience (e.g., what aspects of a sorority initiation made the student feel welcome), etc. Readers should be given enough information about the experience and its context to understand the practice, program, or condition.
2. Describe how the experience affected the student (e.g., s/he reported being more open-minded, s/he felt less confident, s/he reported greater independence, s/he became confused about what to do). Use the student's language as much as possible to describe the effect.
3. If the effect relates to one of the WNSLAE liberal arts outcomes, note the outcome and what you see as the connection between the experience and/or its effect and the outcome. Use the student's language to describe outcomes (e.g., critical thinking, more open to others) and translate that to our outcomes (e.g. effective reasoning and problem solving, intercultural effectiveness) in your observations.
    a. An experience and its effect could promote a liberal arts outcome. For example, a student who learns to read texts more critically is growing toward effective reasoning and problem solving.
    b. An experience and its effect could also hinder a liberal arts outcome. For example, a student who becomes more close-minded about

difference due to peer interactions is losing ground on intercultural effectiveness.

D. Interview Excerpts ["Footnotes"]

The relevant section(s) of the interview for each experience should be included verbatim as a footnote. These quotes illustrate the experiences and effects in the student's own words, and show the basis for your descriptions and assessments about this student's experience. These examples give you the opportunity to select and offer the best evidence from the transcript in support of your observations. When pasting in a quote, add context where it's not otherwise apparent in the quote itself. For example, what question is the student answering? To what experience, organization, person, etc. is he/she referring?

E. Optional Exemplary Content Quotes

Use the code XC to mark useful student quotes that are particularly pithy, but do not otherwise meet the criteria for inclusion in the summary. If you come across an exemplary quote about content, include it at the end of your summary. You can also say a few words to clarify the context of the quote or why you found it interesting.

Please see the summary template on the next page for formatting specifications.

Phase I Summary Template

- Use 12-point Times New Roman font
- Follow summary template for headers: Summary - ID, page X of Y in upper right hand corner (e.g., Summary – G0612, page 1 of 11)

Summary, Phase I
Summary ID number: (Letter that designates the institutional ID)(Year of data collection)(*Transcript #*) [Example: G0705]
Summarizer Name (Email address)Example: Patricia King (patking@umich.edu)
Date summary completed Example October 1, 2007

When inserting direct quotes in sections I-II, please use **bold** to bring attention to the quote(s).

I. Student Characteristics & Background Information

II. Experiences the Interviewee Identifies as Important

1. <u>*Caption for Experience*</u>: [# of transcript footnote]. Example: T&L paper feedback [1]
   Nature, dynamics, quality of experience
   Effect of the experience
   How effect relates to Liberal Arts Outcomes if applicable

2. <u>*Caption for Experience*</u>: [# of transcript footnote].
   Nature, dynamics, quality of experience
   Effect of the experience
   How effect relates to Liberal Arts Outcomes if applicable

Repeat until all experiences are described.

III. Quotations Referenced Above

[1] *Excerpt from transcript*

---
[2] *Excerpt from transcript*

[OPTIONAL: Exemplary Content Quotes]

- If you use track changes, accept all changes before saving a final version
- Use the correct summary template naming protocol (e.g., SummaryG0712.doc); check header for correct ID number.

Phase II Summary Writing

I. Goals of the Phase II Summary

- It will provide an assessment of the student's level of developmental meaning making in all three dimensions – cognitive, intrapersonal, and interpersonal – as well as an overall assessment of developmental level.
- It will provide the summarizer's observations on how the student's meaning making influenced his/her experiences and their effects.

II. Phase II Summary Format & Content

A. Transcript and Summarizer Identification Information

[see Summary Template later in this document]

B. Developmental Meaning-Making Level

This section includes your assessment of the student's development on three dimensions – cognitive, intrapersonal and interpersonal – and an assessment of the student's overall developmental level. We recommend doing this holistically through a careful reading of the transcript rather than conducting a unit-by-unit analysis. Write several descriptive sentences or a paragraph, and illustrate your conclusions and observations through the verbatim examples organized into footnotes and by referring to other supporting pieces of information in the transcript that could be retrieved if needed. Assign a letter (see Meaning-Making Continuum later in this document) for each dimension and for overall development. This section should end with a statement on the richness of the data, which has an impact on the level of confidence with which we can say that the developmental meaning levels were accurately assessed.

C. Summarizer Observations: Links between Development and Experiences

Review the important experiences in the Phase I portion of the summary and consider how the student's meaning-making level influenced her/his experience. Note any links you observe regarding how the student's meaning-making level influenced how this student approached, engaged in, or reacted to experiences s/he described. For example, you would note that an externally defined student willingly interacted with diverse peers because she had been brought up to do so, but did not reflect on encountering difference or what it meant for her own identity or understanding multiple perspectives. In contrast, for another externally defined student you would note that she felt considerable dissonance by encountering those with diverse perspectives, and reacted by realizing the need to rethink initial stereotypes about others. Finally, note the experiences you judge to be Developmentally Effective (DE) – that is, they resulted in a more complex view of the world, self or relationships.

D. Interview Excerpts ["Footnotes"]

Select verbatim quotes that illustrate the developmental meaning-making level in the student's own words, and show the basis for your assessments about this student's experience. Note these as "footnotes" using a number in brackets to refer to the specific

number of the footnote. These examples give you the opportunity to select and offer the best evidence from the transcript in support of your observations. When pasting in a quote, add context where it's not otherwise apparent in the quote itself. For example, what question is the student answering? To what experience, organization, person, etc. is he/she referring?

E. Optional Exemplary Self-Authorship Quotes

Use the code XSA to flag exemplary quotes related to meaning making level. XSA's are quotes that illustrate some level of self-authorship [across the E-I continuum] particularly well. These are the ones we'd be after for research papers; marking these quotes as excellent examples now saves digging for them later. These quotes will likely appear in the body of the summary so simply mark them by writing XSA next to the quote (e.g., [XSA5] or [XSA7]).

Please see the summary template in the next page for formatting specifications.

Phase II Summary Template

- Use 12-point Times New Roman font
- Follow summary template for headers: Summary - ID, page X of Y in upper right hand corner (e.g., Summary – G0612, page 1 of 11)

Summary, Phase II
Summary ID number: (Letter that designates the institutional ID)(Year of data collection)(*Transcript #*) [Example: G0705]
*Summarizer Name (Email address)*Example: Patricia King (patking@umich.edu)
Date summary completed Example: October 1, 2007

When inserting direct quotes in sections I-II, please use **bold** to bring attention to the quote(s).

I. Developmental Meaning Making

Overall Meaning Making
Brief summary of the overall meaning-making level and assessment of meaning making on the E-I continuum.

Cognitive: How the student thinks about the world
Include details of your assessment, the rationale for this assessment, and reference specific transcript excerpt; include the "bottom line" on the E-I continuum.

Intrapersonal: How the student thinks about him/herself
Include details of your assessment, the rationale for this assessment, and reference to specific transcript excerpts; include the "bottom line" on the E-I continuum.

Interpersonal: How the student thinks about his/her relationships with others
Include details of your assessment, the rationale for this assessment, and reference to specific transcript excerpts; include the "bottom line" on the E-I continuum.

II. Summarizer Observations

1. *Caption for Experience*: [# of transcript footnote]. Example: T&L paper feedback [1]
Observations regarding how the student's meaning making, either overall or on a particular dimension, influenced how this student approached, engaged in, or reacted to this experience.
Does this experience meet the criterion for a DE?

2. *Caption for Experience*: [# of transcript footnote].
Observations regarding how the student's meaning making, either overall or on a particular dimension, influenced how this student approached, engaged in, or reacted to this experience.

Does this experience meet the criterion for a DE?

Repeat until all experiences are analyzed.

III. Quotations Referenced Above

[1] *Excerpt from transcript*

---
[2] *Excerpt from transcript*

[OPTIONAL: Exemplary Self-Authorship/Meaning-Making Quotes]

- Accept all track changes before saving a final version
- Use the correct summary template naming protocol (e.g., SummaryG0712.doc)

Meaning Making Continuum
September 18, 2007

Based on our experience creating summaries for the pilot and the first year longitudinal data, we have arrived at the following category continuum for interpreting meaning making in the interviews. We still want your narrative explaining why you think the interviewee makes meaning in the way you interpreted; we also want you to choose one of these points on the continuum for overall interpretation and for each dimension – cognitive, intrapersonal, and interpersonal.

A note about the overall interpretation: This is NOT simply the "sum" of the three dimension interpretations. Rather, it is an interpretation of overall meaning making based on your judgment of each of the three dimensions. Clearly, if you chose the same letter for all three, the overall is going to be that letter (e.g., if all three dimensions are E(I), the overall will be E(I). However, if you have a mix, you should read your narrative explanation and arrive at the one that makes the most sense. For example, if you have E for cognitive, E(I) for intrapersonal, and E for interpersonal, it may not be wise to default to E. If the intrapersonal dimension is the strongest for the person, you may judge that E(I) is the best overall rating. If it is the weakest, you may judge the E is the best overall rating.

A Note on Language/Content versus Structure:
Our interest is in the source of people's thinking, feeling and social-relating, not WHAT they think, feel, etc. Students may advocate for multiple perspectives, diversity, weighing pros and cons for a decision from either an external or internal perspective. If they are parroting these ideas from an external source, they sound advanced when the underlying structure may still be external (e.g., Bard students argue for social justice and diversity and in some cases they are saying what they think is expected). Likewise an internal person could advocate ideas that sound external (e.g., a strong stance on a religious belief).

The best way to identify structure as you read the transcript is to find the reasons for the person's thinking. What is the central reason the person thinks this way? What is the central reason the person sees him/herself this way? What is the central reason the person constructs relationships this way? There may be multiple reasons – try to find the one that brings them all together into a coherent whole. Who is in charge of all this? The person or someone else?

Keep in mind, too, that we are making our judgment based on the material we have – and the interview may not be an accurate portrayal of the person. We are making our best interpretation based on the data we have, knowing that it is an educated guess. Subjectivity at its finest!

The category system we are using is explained below.

E (a, b, c)	E(I)	E-I	I-E	I(E)	I (a, b, c)

External voice means that the source of beliefs, values, identity and nature of social relations exists outside the person in the external world. The person relies on external authorities (actual authority figures or societal expectations) to determine what to believe, how to see himself/herself, and how to construct social relations. Authorities' perspectives are accepted uncritically.

Internal voice means that the source of beliefs, values, identity and nature of social relations exists inside the person in their internal psychological world. The person reflects on, evaluates, and makes choices about information from external sources to construct an internally defined belief system, identity, and way of relating to others.

Relationship of external and internal voice: external voice is typically in the foreground early in college. At E(a, b, c) there is no meaningful internal voice. As an internal voice appears and grows, it moves closer to the foreground until it eventually becomes the foreground and the external voice moves to the background. When the internal voice is developed enough, the external voice disappears [this does not equate to external influence disappearing].

E(a,b,c) means **firmly external**. The majority of the transcript suggests reliance on external sources for knowledge, self-definition, and social relations. Any seeds of internal voice that may be present are not sufficient to take note of. While there may be LANGUAGE that sounds internal, we are focused here on structure. The overall structure is clearly external. Note that a person can rely on external to varying degrees. A person could be in "early" external **(Ea)** in which case they consistently and unquestioningly rely on external sources with no recognition of possible shortcomings of this approach. Alternatively, a person could be in "middle" external **(Eb)** in which case they rely pretty consistently on external sources but may be experiencing tensions in some areas in doing so, particularly if external sources conflict with each other. They look to authorities to resolve these conflicts. Finally, a person could be in "late" external **(Ec)** in which case s/he still rely on external for the most part but recognize that this stance has shortcomings. However, s/he has yet to develop a sense of internal voice toward which to shift. Thus the person using Ec still looks to authorities for some process to resolve these shortcomings.

E(I) means **primarily external** but with enough sign of internal voice that we should take note of it. The majority of the transcript suggests reliance on external sources for knowledge, self-definition, and social relations, however there is recognition of the *need* for an internal voice. For example, the person begins to question authorities' plans, realizes the dilemma of external definition, and sees the need for crafting one's own vision, developing one's internal identity, and bringing one's identity to relationships. This awareness of the need for internal voice may be in only one dimension, or it may be spread among the three dimensions. A beginning awareness of how the person constructs their world, identity, or relationships in comparison to how external others construct them emerges as the first sign of internal voice. The external voice is clearly still in charge and there is not yet any real struggle or conflict between the two voices.

E-I means **both voices are actively present and competing for dominance but external still edges out internal overall**. The internal voice is growing because the person is exploring how s/he wants to construct beliefs, identity, and relationships. The external may be predominant in some places, the internal in other places, yet the external still edges out the internal overall. The person is "controlled" by the external but fighting to get the internal to take over. Two examples of this are Kurt (pp. 98-99) and Lauren (p. 99) in *Making Their Own Way*. Kurt and Lauren both have a growing awareness of how they see the world, themselves, and their relationships. These notions conflict with those of others around them whose approval they desire. They both articulate that they want to and should use their internal voices instead of act to please others, yet they both find it difficult to do.

I-E means **both voices are actively present and competing for dominance but the internal edges out the external overall**. Continued work on the internal voice takes the form of *listening* carefully to oneself and trying to hear one's internal voice over the noise and clutter from the external environment. The external may be predominant in some places, the internal in other places, yet the internal still edges out the external overall. The internal has taken over, but the external is still very much present and pulls on the person's internal voice making it hard to maintain the internal voice consistently.

I(E) means **primarily internal**. The person is now actively working to *cultivate* the internal voice, engaging in introspection to analyze interests, goals, and desires. The internal voice is becoming more firmly established and now mediates most external influences as the person makes decisions about life using the internal voice. The internal voice now is dominant, yet there may still be some areas in which the person still uses external enough that we should take note of it. Again this may be in one dimension or across dimensions. Note that an internal person does evaluate external sources – so using external still means *uncritical* acceptance of external authority. If the person is mediating external influence by critical analysis, this is still internal.

I(a, b, c) means **firmly internal**. The internal voice is the mainstay; the overall structure for knowledge, identity and social relations is all internal. The internal voice mediates external influence, critically analyzing it and making judgments about it based on internal criteria. If there are any leftover hints of external, they are not sufficient to note. There are still gradations of internal functioning. Initially this focuses on learning to *trust* the internal voice (**Ia**). Increasing use of the internal voice engenders confidence in it. Once a person trusts the internal voice s/he is able to build an *internal foundation* (**Ib**) by using the voice to establish beliefs, identity and social relations internally. As the foundation becomes more comprehensive, the person secures these *internal commitments* by living out these conceptualizations (**Ic**). In Ic the internal foundation becomes second nature.

In comparison to Marcia's longitudinal study language, *E(a,b,c)* and *E(I)* reflect external formula, *E-I* and *I-E* reflect the crossroads, *I(E)* reflects moving toward self-authorship,

and *I(a, b, c)* reflects self-authorship and the internal foundation, which emerges when the person refines and solidifies her/his internal voice.

Resources for Understanding Developmental Meaning Making

The E-I continuum is a composite of multiple theories of student development. We have included three figures here that are useful visuals of the three dimensions of development across the external-internal continuum. Additional references are also listed for your exploration.

Baxter Magolda, M. B. (2001). *Making their own way: Narratives for transforming higher education to promote self-development*. Sterling, VA: Stylus.

Figure 2.1: Four Phases of the Journey Toward Self-Authorship (p. 40)

	Following Formulas	**Crossroads**	**Becoming the Author of One's life**	**Internal Foundation**
Epistemological dimension: how do I know?	Believe authority's plans; how "you" know	Question plans; see need for own vision	Choose own beliefs; how "I" know in context of external knowledge claims	Grounded in internal belief system
Intrapersonal dimension: who am I?	Define self through external others	Realize dilemma of external definition; see need for internal identity	Choose own values; identity in context of external forces	Grounded in internal coherent sense of self
Interpersonal dimension: what relationships do I have with others?	Act in relationships to acquire approval	Realize dilemma of focusing on external approval; see need to bring self to relationship	Act in relationships to be true to self, mutually negotiating how needs are met	Grounded in mutuality

Torres, V., & Hernandez, E. (2007). The Influence of Ethnic Identity Development on Self-Authorship: A Longitudinal Study of Latino/a College Students. *Journal of College Student Development, 48*(5), 558-573.

		External Formulas	Crossroads	Becoming Author of One's Life	Internal Foundation
How do I know?	Cognitive	•Family and known peers are the authority.	•Expands own views to recognize multiple perspectives. •Recognizes racism.	•Recognizes their own cultural reality and internalizes choices between cultures to create their own principles.	•Knowledge and decisions are contextually interpreted and inclusive of cultural choices.
Who am I?	Intrapersonal (Ethnic Identity)	•Geographic definition of identity. •Identity is determined by family. •May believe negative stereotypes of Latinos.	•Recognition of stereotypes and deliberate choice about how they influence self. •Understanding of positive and negative cultural choices.	•Integration of cultural choices into daily life—an informed Latino/a identity. •Advocate for Latinos.	•Comfortable illustrating culture in behavior and choices. •No longer intimidated by differences.
What relationships do I want with others?	Interpersonal (Cultural Orientation)	•Avoid anything outside of comfort zone. •Dichotomous view of culture (either Latino or Anglo). •Negative support to try new experiences.	•Change in environment (place or friends) brings about new diversity that is incorporated into social circle. •Manages family influence. •Ease with individuals from multiple perspectives.	•Re-negotiate relationships that are more consistent with an informed Latino perspective.	•Living an interdependence that maintains own cultural values within the context of a diverse environment.

FIGURE 1. Matrix of Holistic Development Including of Latino/a Cultural Choices

King, P. M., & Baxter Magolda, M. B. (2005). A developmental model of intercultural maturity. *Journal of College Student Development, 46*(6), 571-592.

Table 1. A Three-Dimensional Developmental Trajectory of Intercultural Maturity (p. 576)

Domain of Development and Related Theories	Initial Level of Development	Intermediate Level of Development	Mature Level of Development
Cognitive Perry, Baxter Magolda, Belenky et al., M. Bennett, Fischer, Kegan, King & Kitchener	Assumes knowledge is certain and categorizes knowledge claims as right or wrong; is naïve about different cultural practices and values; resists challenges to one's own beliefs and views differing cultural perspectives as wrong	Evolving awareness and acceptance of uncertainty and multiple perspectives; ability to shift from accepting authority's knowledge claims to personal processes for adopting knowledge claims	Ability to consciously shift perspectives and behaviors into an alternative cultural worldview and to use multiple cultural frames
Intrapersonal Cross, Helms, Phinney; Cass, D'Augelli; Parks; Kegan; Marcia, Josselson	Lack of awareness of one's own values and intersection of social (racial, class, ethnicity, sexual orientation) identity; lack of understanding of other cultures; externally defined identity yields externally defined beliefs that regulate interpretation of experiences and guide choices; difference is viewed as a threat to identity	Evolving sense of identity as distinct from external others' perceptions; tension between external and internal definitions prompts self-exploration of values, racial identity, beliefs; immersion in own culture; recognize legitimacy of other cultures	Capacity to create an internal self that openly engages challenges to one's views and beliefs and that considers social identities (race, class, gender, etc.) in a global and national context; integrates aspects of self into one's identity
Interpersonal M. Bennett, Chickering & Reisser,	Dependent relations with similar others is a primary source of identity and social affirmation;	Willingness to interact with diverse others and refrain from judgment; relies on independent	Capacity to engage in meaningful, interdependent relationships with diverse others that are

Gilligan, Kegan, Kohlberg, Noddings	perspectives of different others are viewed as wrong; awareness of how social systems affect group norms and intergroup differences is lacking; view social problems egocentrically, no recognition of society as an organized entity	relations in which multiple perspectives exist (but are not coordinated); self is often overshadowed by need for others' approval. Begin to explore how social systems affect group norms and intergroup relations	grounded in an understanding and appreciation for human differences; understanding of ways individual and community practices affect social systems; willing to work for the rights of others

Additional References to Three-dimensional development that contain figures and/or narrative examples

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