

Rehearsal and improvisation: Aligning campus scripts with millennial student development

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The title for this AAC&U national meeting—*Intentional Learning, Unscripted Challenges*—invites consideration of the college and university experience as “rehearsal” for challenging problems and situations of life and the world beyond the boundaries of campus time and space. Rehearsals may, of course, be more or less guided by playwrights and scripts: Our higher education classrooms vary in their teacher-centeredness with as much or more range as that between an Edward Albee (who approves the director and cast for each production) and a Terrence McNally (who views theatre as a collaborative enterprise for which he has responsibility, but not sole artistic control). Our campus co-curriculum vary in their student-centeredness and intentionality with as much or more range as those who view a play as a produced script and those who view a play as evolving from a script through creative rehearsal (Austin and Devin, 2003, pp. 35-36).

Education as Rehearsal. To consider our work as college educators as an ongoing process of rehearsal is a useful heuristic. Any successful artistic ensemble recognizes that every production is “live” and, consequently, a performance is never finished. The quality of “freshness” required for each new audience—each newly enrolled class section, each new first-year cohort—the constant vigilance to produce the best product, and the continued striving not just to maintain but to improve performance, are valuable motivations for a high quality college learning community. Each day of teaching and learning, every semester’s cycle of activity, are in this sense an ongoing rehearsal process. Our ensembles of faculty, staff and students in an academic community have the privilege of being able to stretch, experiment, reconceive and refine a performance that is always-in-process.¹

Always-in-process work is the work of an always-learning community; that is the discussion into which we invite you this morning. In particular, we encourage you to consider how new discoveries in adolescent brain development and ongoing study of knowing and reasoning challenge campus leaders—faculty and administrators alike—to align educational goals and practices with the physical, cognitive, and social developmental capabilities and needs of millennial students. We invite your reflections on the question of what balance of script and improvisation will result in the finest student learning on our college campuses.

¹Lee Devin, professor emeritus of theatre at Swarthmore College has written: “As rehearsal goes along, each artist will make uncountable choices, gradually closing in on the artwork that all are making but which doesn’t yet actually exist. At each moment, each artist strives to include in his or her own work, the work of all the others. No one exactly knows how it will all turn into one thing, a whole: the group, together, makes a leap of faith, trusting as individuals in their own methods and as a group in the integrity of the process. This reconceiving goes on a rehearsal continues and the play emerges out of everyone’s work. Each choice influences the range of possibility for the next choice, and so on until the artists achieve closure. The final choices come together to make a play that no one could have predicted, even though it will all seem, looking back, as if the entire process was inevitable” (in Austin, 1999, p. 20).

Student Development. Efforts to consider student learning from a developmental perspective date at least to the work of Jean Piaget and John Dewey, if not to Quintilian’s *Institutes of Oratory*. Research to assist our understanding of students as knowers was begun more than forty years ago by William Perry (1970). Perry and his colleagues interviewed (mostly) male students each spring of their undergraduate years and formulated a sequence of “epistemological perspectives” or “positions” through which students make sense of their educational experience. Concerned that Perry’s template might mask “those themes that might be more prominent among women,” Mary Field Belenky and her colleagues (1986) interviewed (mostly) female students from nine institutions in the 1980s and suggested that women’s “perspective on knowing” move through five stages parallel to Perry’s positions.

Noting gender similarities and difference between Perry et al. and Belenky et al., as well as gaps in existing research, Marcia Baxter Magolda sought “to create a more comprehensive picture of students’ ways of knowing” (1992, p. 8). In a five year longitudinal study of college students, she found more similarity than difference in men and women students’ ways of knowing (p. 13). She identified four ways of knowing used by both women and men: absolute knowing, transitional knowing, independent knowing, and contextual knowing. A resulting framework, the Epistemological Reflection Model, suggests that most students enter college as absolute knowers, believing that knowledge is certain and that firm answers exist in all fields. When students begin to see some authorities as less than all-knowing, they become transitional knowers. They begin to view knowledge as falling into two categories—certain and uncertain—and their emphasis shifts from simply acquiring knowledge to understanding it. As independent knowers, students come to see knowledge as mostly uncertain. During this stage, students not only see authorities as representing a range of possible views, but see their own opinions as equally valid in discussions about an uncertain world. Coming to understand that “some knowledge claims are better than others in a particular context” (p. 69) marks the achievement of contextual knowing. Here, students will view knowledge as uncertain, but make judgments about what to believe and what point of view to defend based on a review of evidence integrated and applied in context.

Student movement into and through the four patterns of knowing is somewhat fluid, notes Baxter Magolda (pp. 70-72). Her observations of college student knowing and reasoning are summarized in Table 1.

Table 1
Ways of Knowing by College Year

	<i>Absolute</i>	<i>Transitional</i>	<i>Independent</i>	<i>Contextual</i>
1 st year	68%	32%	0%	0%
2 nd year	46	53	1	0
3 rd year	11	83	5	1
4 th year	2	80	16	2
5 th year	0	31	57	12

Baxter Magolda's research aligns well with the Reflective Judgment Model developed by Patricia King and Karen Kitchener (1994). The King and Kitchener model "describes a sequence of changes in thinking that affects the ways students justify their beliefs and make judgments about ill-structured problems" (King, 1992). Table 2 illustrates the portion of the Reflective Judgment Model applicable to college and university populations.² Students demonstrate considerable variability, both within and across individuals, in their development of reflective thinking, often "regress" to an earlier stage as they face new challenges, and only generalize their growing judgmental skills to a broader range of tasks and learning domains with extensive practice.

Writing in the early 1990s, Professor King emphasized the significance of a student's learning environment in her or his development: "That is, environmental factors such as the types of intellectual challenges offered, quality of feedback, and opportunities for practice without fear of failing or being penalized affect how well a person learns to reason to conclusions. Although the direction of cognitive changes—that is, toward greater complexity and adequacy—is predictable, the rate of change for any individual fluctuates, depending in part on the characteristics of the environment, including the perceived amount of stimulation and support" (1992). Education is a critical factor in the pace and level of development, including what educational practitioners have come to call a student's "zone of proximal development" (Vygotsky, 1978) or the "scaffolding" necessary to support and maximize learning (Wood, Bruner, and Ross, 1976).

Writing a decade later, Kurt Fischer and Ellen Pruyne summarize the physical developments of the brain—evidenced through EEG research—that enable increasingly complex tiers of human development, ranging from reflexes through actions to representations and abstractions (2002, p. 176). These include myelination, synapse formation including dendritic branching, and bursts of brain activity that occur in adolescence and early adulthood (p. 186). These physical developments apparently set the upper limits on cognitive development, such as capacities for reflective thinking. Fischer and Pruyne, thus, link the physical and environmental dimensions of student development: "The dynamic interaction of cognitive/brain capacities with the presence or absence of environmental demands for serious engagement in reflective thinking are largely responsible for the timing that characterizes the emergence of reflective thinking in each individual" (p. 183).

Magnetic resonance imaging (MRI) has made possible further examination of the brain development that occurs in adolescence and early adulthood. Dr. Jay Giedd of the National Institute of Mental Health and colleagues working at several universities have

²I am indebted to my University of Puget Sound colleagues Professors Cathy Hale and David Moore for the use of Table 2, based on the work of Fischer & Pruyne (2002), "Reflective thinking in adulthood," in Demick & Andreoletti (eds.), *Handbook of Adult Development* (p. 187) and P. K. Wood (1997) cited at <http://web.missouri.edu/~woodph/rjstages/rjstages.html>.

Table 2
Reflective Judgment: Approximate Age Ranges for Optimal³ and Functional⁴ Levels

Stage of Reflective Judgment	Emergence of Optimal Level	Emergence of Functional Level
<i>Pre-reflective judgment</i>		
<i>Stage 3</i>		
-Dualistic/absolutist thinking -Sources of knowledge: authority or personal beliefs -Failure to use evidence	6-7 years	Middle & high school 12-17 years
<i>Quasi-reflective judgment</i>		
<i>Stage 4</i>		
-Beliefs can't be known with certainty for pragmatic reasons -Evidence seen as important but often used inconsistently or in a way that is one-sided -After examining conflicting claims, prone to make decisions based on intuition or "gut instinct"	10-12 years	Late high school, college and beyond 16-23 years Never for many people and domains
<i>Quasi-reflective judgment</i>		
<i>Stage 5</i>		
-Knowledge is subjective; only interpretations of evidence or events can be known -Quality of evidence is evaluated (strong/weak) -Different types of evidence recognized and assertions justified based on 'rules of inquiry' for a particular context or discipline	14-16 years	Early graduate school 19-30+ years Never for many people and domains
<i>Reflective judgment</i>		
<i>Stage 6</i>		
-Knowledge is contextual and activity constructed, based on one's own and others' evaluations of evidence -Assertions must be based on relevant data and evaluated to determine their validity	19-21 years	Advanced graduate school 23-40+ years Never for many people and domains
<i>Reflective judgment</i>		
<i>Stage 7</i>		
-Judgments seen as outcome of process of rational inquiry, based on multiple considerations -Beliefs justified probabilistically using evidence and arguments; conclusions defended as representing most complete, compelling, or plausible understanding of an issue, based on current evidence -Assertions continually re-evaluated in light of new evidence	24-26 years	Advanced graduate school 30-45+ years Never for many people and domains

³ *Optimal level* refers to the maximum skill level possible only in the presence of high contextual support and challenge, and tends to be observed as "growth spurts."

⁴ *Functional level* refers to the skill level observed independently, in the absence of external support and challenge; functional development is slow and incremental.

used longitudinal MRI scans to document “a second wave of proliferation and pruning” of the brain occurs near the time of puberty and that “the final, critical part of this second wave, affecting some of our highest mental functions, occurs in the late teens” (Wallis and Dell, 2004). Neuroscientists have discerned further that the initial wave of myelin (or “white matter”) growth from age 6 to 12 occurs from the front to rear of the brain, but that “gray matter” maturation occurs in the opposite direction, with full development of the prefrontal cortex not completed until the early 20s for females and about age 30 for males. Other MRI studies are showing that adolescents activate the amygdala (the source of our “fight or flight response”) rather than the reasoning capacities of the frontal lobe to process their emotions, but that as teens grow older their brain activity related to emotional tasks “shifts to the frontal lobe, leading to more reasonable perceptions and improved performance” (NIMH, 2001).⁵

Meanwhile, Howe and Strauss summarize for us that “millennial” students (and their parents) expect only “the best,” place significant emphasis on quality of campus life, and are both demanding and “choosy” in what they perceive as necessary in higher education (2003, p. 41). Core traits of this generation are outlined in Table 3.

Table 3
Core Traits of Millennial Students⁶

Special	Sense that they are, collectively, vital to the nation and to their parents’ sense of purpose
Sheltered	Focus of the most sweeping youth-protection movement in US history
Confident	High levels of trust and optimism, with strong connection to parents and future
Team-oriented	Strong team instincts and tight peer bonds gained through media, structured sports activities, school uniforms, group learning
Conventional	Take pride in improving behavior and share parents’ values
Pressured	Study hard, avoid personal risks, take full advantage of offered opportunities, “trophy kid” pressure to excel
Achieving	Subject to measurement for accountability, may become best-educated generation ever

To the extent that student development is influenced by “the types of intellectual challenges offered, quality of feedback, and opportunities for practice without fear of failing or being penalized,” (King, noted above) the higher education learning environment—particularly on campuses where the student body is largely a traditional-aged one—thus must be attentive not only to students’ capacities but the demands (and permissions) of parents as well.

⁵ Correlation of this neuroscientific research with earlier work by Lawrence Kohlberg (1984), Nancy Chodorow (1978), Carol Gilligan (1982), and others who have studied the moral and emotional development of men and women is beyond the scope of this short paper. For a useful summary, see Fischer and Pruyne, p. 189.

⁶ Table drawn from Howe and Strauss, 2003, p. 31.

Application. In short, the college and university students with whom we have the privilege to work are even more exciting and challenging beings than we have long known them to be. As Alyce DeMarais will discuss in a few minutes, we have at Puget Sound begun to invite faculty members teaching first-year, writing-intensive seminars to consider the implications of cognitive and brain development for course-based “scaffolding”—the instructor- and peer-provided support for learning. The challenge in this work is for faculty members to learn to assess where students are in their developmental capacities and performance, and to target the next (but not higher) level of skill development. Specific applications include appropriate crafting of assignments, appropriate evaluation of student work, and adapting to a range of skill levels in a given course.

It is important, however, that new work in student development also ground programmatic initiatives on our campuses. King suggested in 1992 that:

Thinking, reasoning, and judging are thus at the heart of the intellectual process, and learning to make reflective judgments is associated with participation in college programs and activities. Encouraging students to develop the habits of mind associated with reflective thinking and teaching them the importance of these skills are among a college's most important responsibilities. In addressing this responsibility, however, we must remember that many factors influence this process of learning to make reflective judgments: from a student's established reasoning skills, [and we would today add ‘the student’s brain development’] to a student's emotional readiness to defend a point of view, to the educational values emphasized in the college, to the broader societal norms and expectations for reasoned discourse about current events. In other words, learning to think reflectively occurs within the context of an intellectual community.

Baxter Magolda and King (2004) synthesize their work in the Learning Partnerships Model, a collaboration of challenge and support across epistemological, intrapersonal, and interpersonal domains of development toward promotion of students’ self-authorship during the college years (pp. 41-43). The essential message of all of this work is that each classroom, co-curricular program, residence hall, and campus community as a whole are all rehearsal spaces for the open-ended and “ill-structured” problems of life beyond college. Whittier College, University of Puget Sound (see <http://www.ups.edu/currentstudents.xml>), and Willamette University—as, we are confident, are many of your campuses—are engaged in developmentally-based curricular and co-curricular initiatives. In this session, we will talk a bit about that work and invite your consideration of questions such as:

- What are the challenges of designing academic, residential, and co-curricular programs that involve students in progressively more challenging problems, projects, and standards for performance?

- Are millennial adolescent students (and their parents) prepared for, or capable of, the rising expectations residential liberal arts colleges script for their personal and social development?
- How do we who design the settings and direct the actors locate the appropriate balance of script v. improvisation in campus rehearsals for real-world challenges?

Our objectives are that you will be able to take away from the session (1) key questions to explore on your campuses, (2) examples of successes and challenges, with reflective feedback from presenters and fellow participants, (3) sample assessment instruments and results, and (4) bibliography of resources for further study.

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