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Abstract

In this paper, we examine the problem of underachievement in higher education. We begin by seeking to establish that the quality of learning among undergraduates is, as a whole, limited. Undergraduate underachievement cannot be attributed to any single cause. Quite the contrary, we argue that the origins of underperformance in the academy are systemic, coactive and multi-layered. At the proximal level of teaching and learning, we identify four mutually reinforcing processes that contribute to student underachievement: (a) fragmentation of the curriculum, (b) entrant knowledge level and skills gaps; (c) student culture, and (d) pedagogical ineffectiveness. At a more distal level, these processes operate within a set of macro-level systems and influences, including (a) economic pressures and academic commercialization, (b) specialization of expertise within the academy, (c) a culture of entitlement, amusement, and indulgence outside of the academy, and (d) constraints related to governmental and socio-economic infrastructure. In this paper, we examine the interplay among systems of teaching and learning operating within the academy that lead most directly to academic underachievement. We argue that any attempts to improve student learning must proceed by seeking systemic change, however incremental and long term. Such change requires acknowledging the ways in which fissures and tensions within the academy work against the goal of fostering integrative teaching and learning.

Keywords

Underperformance, higher education, proximal systems

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The Origins of Underperformance in Higher Education in America: Proximal Systems of Influence

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Abstract In this paper, we examine the problem of underachievement in higher education. We begin by seeking to establish that the quality of learning among undergraduates is, as a whole, limited. Undergraduate underachievement cannot be attributed to any single cause. Quite the contrary, we argue that the origins of underperformance in the academy are systemic, coactive and multi-layered. At the proximal level of teaching and learning, we identify four mutually reinforcing processes that contribute to student underachievement: (a) *fragmentation of the curriculum*, (b) *entrant knowledge level and skills gaps; (c) student culture, and (d) pedagogical ineffectiveness*. At a more distal level, these processes operate within a set of macro-level systems and influences, including (a) *economic pressures* and *academic commercialization*, (b) *specialization of expertise* within the academy, (c) a c*ulture of entitlement, amusement, and indulgence* outside of the academy, and d) constraints related to *governmental and socio-economic infrastructure*. In this paper, we examine the interplay among systems of teaching and learning operating within the academy that lead most directly to academic underachievement. We argue that any attempts to improve student learning must proceed by seeking systemic change, however incremental and long term. Such change requires acknowledging the ways in which fissures and tensions within the academy work against the goal of fostering integrative teaching and learning.

I

Hacker and Dreifus' (2011) criticism of higher education in America only serves to remind us of the age-old caveat in a spate of works old and new: higher education is broken or at least not what it used to be and something needs to change (AACU, 2002; Altbach, Berdahl & Gumport, 2011; Arum and Roska, 2011; Blumenstyk, 2014; Bok, 2003, 2007, 2013; Castillo, Wakefield & LeMasters, 2006; Deresiewicz, 2014; Goodman, 2001; Hersh & Merrow, 2005; Johansson & Felten, 2014; Lewis, 2007; Mettler, 2014; Nussbaum, 2010; Roth, 2014; Palmer & Zajonc, 2010; Taylor, 2010). Among other questions the authors ask what the average family sending their son or daughter off to college is buying for a commodity whose price has increased exponentially over recent years, and if in fact schools are at minimum achieving Dewey's higher purpose of instilling 'democratic citizenship' (Hacker and Dreifus, 2011). In their scathing criticism Hacker and Dreifus (2011) note that '…Higher education has become a colossus—a $420-billion industry—immune from scrutiny and in need of reform" (p. x). The Spelling Commision's (2006) report convincingly spells out just how badly the deterioration of higher

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education has been of late; in a ten year period, proficiency in English has fallen by at least 10%, while proficiency in mathematics has remained stagnant. In short, hard evidence indicative of the underperformance that has been the hallmark of the recent upheaval for reform of higher education.

In the effort to address the dismal picture these authors paint, we offer a model of the origins of underperformance in higher education as a fundamental factor of decline. Specifically, we argue that "well-intentioned faultiness" has tended to introduce unintended consequences, which rather than resulting in improvement in higher education, has instead created a system characterized by poor student outcomes. Despite our best efforts, colleges and universities have proceeded from the pinnacles of scholastic achievement at their inception, to a current state of mediocrity at best, and, at worst, a system needing to be scrapped and re-invented.

We develop the paper as follows: we first provide a brief analysis of the problem of underachievement in higher education. Thereafter, we present a multi-leveled systems model describing the processes that have led to the current state of undergraduate education. At the most proximal level of teaching and learning, we identify four mutually reinforcing processes that contribute to student underachievement: (a) *fragmentation of the curriculum*, (b) *entrant knowledge level and skills gaps; (c) student culture; and (d) pedagogical ineffectiveness*. At a more distal level, these problems take shape within a confluence of higher level complex forces: (a) *economic pressures* and *academic commercialization*; (b) *specialization and entrenched structures* within the academy; (c) a *broad culture of entitled individualism, amusement, and indulgence* outside of the academy; (d) issues related to *governmental and socio-economic infrastructure*. We argue that interactions among these systems have made a system that at one time was producing the best and the brightest citizen-scientists-businessmen-scholars to one that is lagging by world standards. More concretely, we examine systems of proximal influences that lead most directly to underachievement in higher education. Finally, in broad strokes, we articulate a set of principles for initiating local changes that can catalyze increasingly global shifts in the structure and functioning of higher education over time.

The Problem: Declining Learning of Undergraduates

While many have expressed ample concern about the quality of higher education, the task of producing clear and compelling evidence of educational decline is a difficult one. There are several reasons why this is the case. First, many analyses of higher education rely more on critiques of educational practices than they do on analyses of declining educational outcomes. While we cannot assess the effectiveness of higher education without the analysis of teaching practices, pedagogical analysis is limited without an examination of its relation to educational outcomes. Analyses of teaching practices without considering their relation to educational outcomes run the risk identifying "good education" in terms of one or another preferred pedagogy. Second, although there is much research that examines learning during the college years (Pascarella & Terenzini, 2005), there are surprisingly few studies that systematically assess the effects of a liberal arts education on learning outcomes (Seifert, Pascarella & Erkel, 2010). Research in this area faces some rather difficult challenges: (a) the scope and diversity of educational goals and practices that occur within and between institutions; (b) and the lack of

agreed-upon methods – especially longitudinal studies that examine the same students over the course of their education -- for assessing desired educational outcomes (Seifert, Pascarella & Erkel, 2010; William, 2010). In addition, (c) prior to the recent call for assessment of learning outcomes in higher education (Astin, 1991; Hatzipanagos & Rochon, 2011), colleges and universities have not made it a practice to clarify their learning objectives and assess student progress in relation to those goals. Further, to demonstrate the effects that college has on students, one must not only identify changes in knowledge and skills over the college years, but one must show that such changes result from the college experience itself.

Pascarella and Terenzini (1991, 2005) conducted two comprehensive reviews of the vast, diverse and complex body of research assessing how the college experience affects student academic and socio-moral development. The first reviews relevant research performed over the 1980's, while the second addresses research produced in the 1990's. Pascarella and Terenzini's (2005) conclusions come mainly in the form of statistical estimates of the degree of improvement in student performance in various academic areas. Pascarella and Terenzini (2005) not only provide estimates of the simple change that occurs over the college years, but they also report estimates of *the net effects of college* in each area-- the effects of college that cannot be attributed to extra-college factors that occur over the same period of time. Based on meta-analyses of research using a wide variety of assessment methods in a diverse sample of college environments, effect sizes (measured in standard deviation units) for *student gains over time* and *net effect of college* for several academic areas are reported in Table 1.

Table 1
Estimated Magnitude of Gains in Academic Areas over the College Years (1990's Data)

Dimension	**Freshman-to-Senior Effect Sizes** (in Standard Deviation Units)	
	4-Year Gains	**Net College Effects**
English (reading, writing)	.77	.59
Mathematics	.55	.32
Science	.62	.47
Social Studies	.73	.46
Critical Thinking	.50	.55*
Reflective Judgment	.90	.90
Mean	**.68**	**.54**

* First three years of college only.

Inspection of Table 1 indicates that students made significant gains in English, math and science among others. However, despite the prodigious findings that authors review, the implications of their study remain unclear. There are many reasons why this is the case. First, because the investigators aggregated data from diverse studies using a variety of different assessment tools, the question of what exactly is being measured remains unclear. Second, as the level of aggregation across diverse assessment tools increases, the resulting measures become increasingly abstract and disconnected from local learning contexts. Relations between such aggregate assessments and the knowledge and skills that are taught within and among various institutions ~~is~~ are unclear at best. A third difficulty concerns the *relative* nature of the measurements on which effect sizes like those provided in Table 1 are based. Because gains

must be assessed using standardized scores, effect sizes are defined on a relativistic scale rather than to clearly defined standards of mastery. How large should effect sizes be to constitute evidence of meaningful learning? What types of gains are we trying to promote? What constitutes evidence that students are approaching these standards? In the absence of clearly articulated standards of achievement against which we can assess student learning, the task of identifying the effects of college on student learning becomes extremely difficult.

Arum and Roska (2011; Arum, Roksa & Cho, 2012) reported findings of the Social Science Research Council (SSRC) Longitudinal Project assessing academic gains over exhibited by college students between 2005 and 2009. Their initial research assessed over 2,322 students attending 24 four-year US colleges using the Collegiate Learning Assessment (CLA) and a brief questionnaire designed to assess college activities related to student learning. The CLA consists of a trio of essay tasks that establish measures of critical thinking, analytical reasoning and written communication. Arums, Roksa & Cho (2012) characterize the learning gains exhibited by students over the course of the college years as "disturbingly low" (p. 4). The basic findings indicate that 45% of students showed no evidence of significant improvement in learning over the first two years of the study; while thirty-six percent of students failed to demonstrate significant improvement over the four-year period of the study. Overall, the entire sample improved by .18 standard deviation over the first two years, and .47 standard deviation over the course of four-years. These effect sizes are lower than those reported by Pascarella and Terenzini (2005).

Critics call into question the use of the essay-based CLA as a valid procedure for assessing the quality of learning over the college years (Glenn, 2011). Arum and Roska (2010) are nonetheless corroborated by the results of the Wabash National Study of Liberal Arts Education (WNS) (Pascarella, Blaich, Martin & Hanson, 2011). The WNS consists of a longitudinal analysis of 2,212 students from 17 four-year colleges and universities. Students completed the Collegiate Assessment of Academic Proficiency Critical Thinking Test (CAAP-CT), a standardized multiple-choice assessment in which students read a series of passages and indicate which of a series of conclusions can be drawn from the passages. The longitudinal results using the CAAP-CT were extremely similar to those reported by Arum and Roksa (2010) using the CLA. Over the course of the first year, students made gains of .11 standard deviation, which is about half of the gain that Arum and Roksa (2010) reported over a two-year period using the CLA (.18). Projecting linearly over a four-year period, Pascarella, Blaich, Martin & Handson (2011) suggested that the predicted gain would be approximately .44 standard deviation, which is comparable to Arum and Roksa's finding of .47 standard deviation gain over a four-year period. These gains are less than half of the four-year gains (1.0 standard deviation) reported by Pascarella and Terenzini (1991) for research assessing critical thinking conducted between 1969 and 1989. It is important to note that the results reported by Arum and Roksa (2010) and by Pascarella, Blaich, Martin and Hanson (2011) focus only on *gains over time*. As they do not control for the role of extra-college factors (e.g., increasing maturity, experiences outside of college, etc.), they do not function as an indication of the effect that college *per se* has on student development.

Although these studies are exceptionally valuable in shedding light on questions of value and need for college, they suffer certain shortcomings. They employ a small number of

assessment tools to assess a limited range of skills (e.g., critical thinking, writing, moral understanding). They do not assess, for example, the content of what students learn in courses; nor do they assess the development of mathematical or scientific skills. Moreover, the challenges associated with assessing student learning over the college years are not simply methodological; they are conceptual and axiological as well. For example, while the studies described above are intended to assess critical thinking, there is no clear consensus on the meaning of this concept. Most important, the question of what and how to assess student learning presupposes a prior understanding and articulation of what should be taught in college. In this way, the empirical analyses of educational gains in college requires articulation of the values that structure what is considered to be knowledge and skills worth having (Williams, 2010). Nonetheless, while claims of educational decline may exceed the scope of available data, these findings nonetheless support the sense that there is much room for improvement in student learning over the college years.

II

Academic Underperformance: Proximal Influences

The problem of underperformance in higher education is a complex one. Like most complex problems, its origins are not to be found in any single cause or even in a series of different causes considered in isolation of one another. Instead, the problem is determined by a confluence of mutually sustaining influences. Figure 1 displays our model of multi-layered and mutually reinforcing systems that we believe contribute to the problem of underperformance in higher education. These include (I) *fragmentation* of academic curricula, (II) *knowledge and skills gaps* that students bring with them into the college setting*;* (III) *student cultures* that privilege social life and careerism over academics, and (IV) *gaps between college teaching and student need*. In what follows, we examine each of these influences in turn.

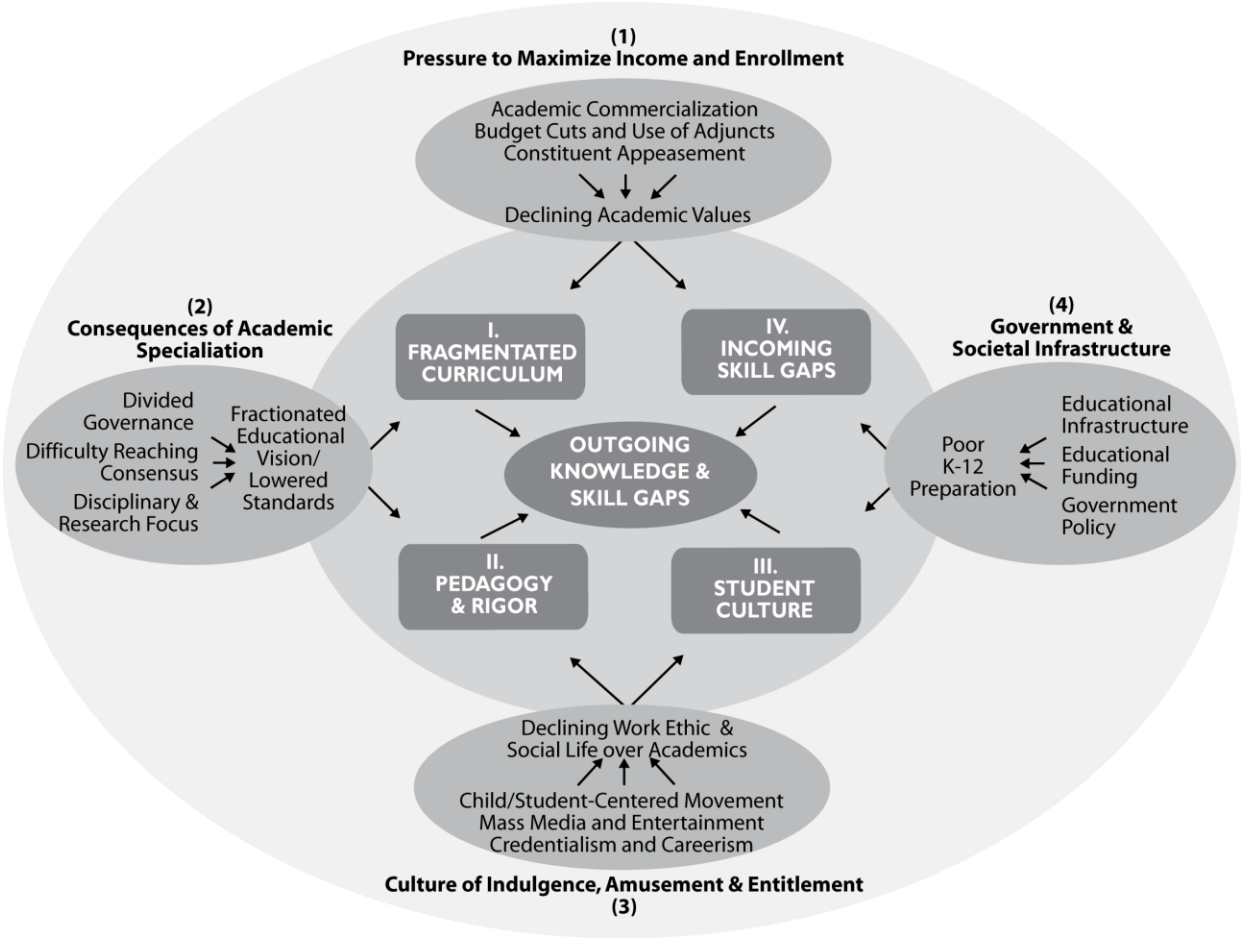

Figure 1. A Systems Model of Underperformance in Undergraduate Education

The Fragmentation of Curriculum

We begin at the local level with an analysis of the *fragmented* nature of curricula at many institutions of higher learning (I). In general, most contemporary undergraduate institutions divide curriculum into two parts: *General education* and *academic majors and minors*. This dichotomy reflects long-standing debates along two overlapping dimensions. The first concerns the extent to which higher education should be concerned with general education or with vocational training. The second involves whether or not higher education should embrace a unified curriculum or one that incorporates student choice and flexibility. Beliefs about these issues have shifted over the years ever since these ideas were articulated in Bloom's (1987) seminal work *The Closing of the American Mind*. When Harvard University was founded in 1636, students – primarily white men from wealthy families who would enter into law, medicine or the Church – were required to pass through a single unified curriculum. In 1863, Harvard President Charles Eliot implemented an "elective" system that allowed students to select courses on the basis of their own interests (Bourke, Bray & Horton, 2009; Wehlburg, 2010). During this time, academic departments gained in ascendency, and the number of course offerings proliferated. As one scholar noted, "Their choices were so varied that students earning the same degree at the same institution may not have taken any of the same courses" (Boning, 2007, p. 5,

cited in Wehlburg, 2010). As an alternative to Harvard's response to Eliot's system of electives, in 1901, Yale University developed a curriculum organized around a concentration and set of distribution requirements (Brint, Proctor, Murphy, Bieakei & Hanneman, 2009). Since that time, the curricular pendulum has moved toward and away from both extremes, with most schools settling upon some form of the Yale-inspired hybrid approach organized around a set of broad general education requirements and academic majors.

Brint, Proctor, Murphy, Bieakei & Hanneman (2009) performed an empirical analysis of the structure of undergraduate curricula in 262 American colleges and universities. They reported four basic styles of curricula. These include curricula organized around (a) traditional *classic liberal arts* (organized around the humanities, including literature, history, philosophy and foreign language), (b) *core distribution requirements* (students select courses from various broad academic areas) , (c) *cultures and ethics* (analyses of Western civilization and/or comparative cultures), and (d) *civic/utilitarian preparation* (structured around courses related to US government, business and technology). Of these, the *core distribution model* was the most prevalent. Although Brint et al. (2009) did not report the percentage of institutions that adopted each form of curriculum, Bourke, Bray and Horton (2010) found that 65% of the doctoral-granting institutions and 80% of the liberal arts colleges employed distribution requirements as their general education curriculum. The most common distribution requirements are organized around three basic areas: social sciences, humanities, and natural sciences (Brint et al., 2009).

Curricula that are organized around distribution requirements are sometimes referred to as "core" curricula. The concept of a "core" suggests that the knowledge and skills that taught through general education courses provide some type of coherent foundation. To what extent does the fulfillment of distribution requirements provide a foundational knowledge? In their analysis of general education requirements, Warner and Koeppel (2009) calculated options available to students to fulfill distribution requirements at institutions of different types and ranks. They found that within any given core distribution area, students could fulfill distribution requirements by electing a wide variety of different courses. For example, across schools, the mean number of options available to fulfill requirements in humanities (i.e., history, literature, philosophy) was 35 courses; for mathematics, the mean was 16; for natural sciences, 39; and for social sciences, 52. The number of options increases with the size and mission of the institution. Doctoral-granting institutions provided more options than Comprehensive Masters-Granting institutions, which offered more choices than traditional liberal arts colleges. Across different institutions, few courses are required of all students. The courses that were most often required for all students included writing and English composition courses. Between the period of 1975 and 2000, there was a rise in the number of institutions requiring some form of mathematics course.

In the United States, freedom, choice and self-determination are foundational values. Based in part on these values, we extend to our students the opportunity to choose their academic and career paths. This includes the opportunity to select courses based on interest and preference. However, the capacity for genuine choice can only be established with a kind of *a priori* knowledge. That is, a choice can never be genuine unless it is informed by knowledge about the number and nature of one's options and their consequences.

Many colleges and universities speak of a "core" general curriculum. In the vast majority of cases, the core curriculum tends to be a core in name only. Most colleges and universities organized their curricula around loosely connected distribution requirements. The distribution requirements model solves a suite of problems in one fell swoop. First, it provides *students* with the opportunity to exert control over their academic and career trajectories. This allows us to respect time-honored values such as freedom, choice and self-determination. Second, it gives *faculty* the opportunity to teach within their disciplines without having to privilege one set of disciplines or ideas over another. Third, it provides administrators with a way to satisfy the demands of multiple stakeholders (e.g., students, faculty, and parents) and thus maximize income and enrollment. Nonetheless, it is likely that the fragmentation of curriculum leaves students without the structure needed to build systematic and integrated bodies of higher-order skills and knowledge.

Incoming Knowledge and Skill Gaps

All new knowledge and skills arise from the application and modification of existing skills and knowledge. Thus, in order to profit from an undergraduate education, students must have developed the requisite level of skills and background knowledge to perform the types of learning tasks expected of college level students (Bharuthram, 2013; Conley, 2008; Harvey, Slate, Moore, Barnes & Martinez-Garcia, 2013). Requisite background knowledge includes a basic understanding of the content in major areas of study typically pursued in college: sciences, mathematics, literature, history, and so forth. Requisite skills include the capacity to (a) read and understand novel and complex material from different primary and secondary sources; (b) listen actively and organize the content of class-based lectures and discussions; (c) take meaningful notes by selecting and organizing important information culled from classroom activities; (d) write effectively by integrating information from multiple sources into a coherent thesis. In addition, because much learning occurs outside of class when students study for examinations, student learning depends upon the acquisition of effective study skills. These include the capacity to (e) organize information from multiple sources in meaningful ways, (f) retain information by understanding relations between main points and supporting details, and (g) apply retained knowledge in the various tasks (e.g., examinations, papers, presentations, etc.) used to assess performance in different courses. Still further, success in college requires a degree of mastery of a suite of socio-emotional and self-regulation skills, such as the capacity to organize a schedule, the ability to put forth the level of sustained effort to acquire new knowledge and skills, and the capacity to balance school and personal life.

There are good reasons to believe that many – if not most – American students begin college with significant knowledge and skill gaps Jackson & Kurlaender, 2014; Tierney & Sablan, 2014). Hard evidence comes from a variety of sources. First, as measured by PISA assessments (OECD, 2012), the United States does not figure among the highest achieving nations in measures of educational achievement. As a nation, the United States fails to rise to the level of the most achieving nations. Asian nations are at or near the top of lists that rank nations in the level of academic achievement attained by students. In assessments of reading, mathematics and science among 15-year-old students, China (Shanghai) ranks at the very top of the list of the 65 nations studied by the Program for International Assessment (PISA). The United States ranked 35th in mathematics (average), and 27th in science achievement (average),

23rd in reading, and 18th in problem solving skill, and 18th in problem solving (above average). The results for reading are instructive. The 2009 PISA (OECD, 2010) reading test assessed three basic area: The capacity to (a) *access* and *retrieve* information, (b) *integrate* and *interpret*, and (c) *reflect upon* and *evaluate* information. Students from the United States ranked 10th (above average for all nations) in their capacity to *reflect and evaluate* information. However, Americans ranked 25th and 22nd respectively on the *access/retrieval* and *integrate/interpret* subscales. This means that American students are not excelling in basic reading comprehension skills. According to these results, American students tend to have difficulty *putting together* and *understanding* the information they read. These are precisely the types of basic skills that students need to succeed in an institution of higher learning. Taken together, the PISA data suggest that, on average, American high school students have not developed the level of proficiency in basic skills and content areas needed to profit from postsecondary education.

These results are corroborated by studies assessing the *college readiness* of American students (Harvey, Slate, Moore, Barnes & Martinez-Garcia, 2013). Estimates of college readiness are based on a variety of criteria, including standardized test scores, grade point average, and the level and types of courses taken by students in high school (Roderick, Nagaoka & Coca, 2009). Green and Foster (2003) estimated that only 32 percent of high school graduates in the United States achieved the level of readiness necessary to profit from a college education. The rates of college readiness were 37% for White students; 38% for Asian-Americans; 20% for African-Americans, 17% for Hispanics and 14% for Native-American students. Research using the ACT examination (ACT, 2009) suggests that only 23% of high school graduates could be deemed ready for college. Similar studies demonstrated a steady decline in college readiness between 1994 and 2005 (ACT, 2006). These declines have occurred at the same time that *access* to college has *increased* (Roderick, Nagoaka & Coca, 2009). However, of those who enter college, many students require remediation in basic skills and content areas. According to Parsad et al., (2003), in 2000, 28% of first-year students were enrolled in some type of remedial courses. Twenty-two percent were enrolled in remedial mathematics, 14% in remedial writing, and 11% in remedial reading. Adelman (2004) estimated that 41% of students are enrolled in a remedial course at some point in college. Schmidt (2008) reported that 75% of students who received remediation in college nonetheless had acceptable grades in high school.

All new skills and knowledge develop from the application and revision of existing skills and knowledge (Mascolo, 2009; Mascolo & Fischer, 2010; 2015; Piaget, 1975; Rogoff, 1990; Vygotsky, 1978). Simply put, students need knowledge in order to gain knowledge. This is especially the case in higher education where instructors generally assume that students arrive at college with a requisite level of knowledge and skill in a variety of areas. Further, in a college or university, much of process of learning occurs independently outside of the context of formal instruction. Learning occurs when students interpret lectures and take notes; read assignments; study for examinations; write papers or prepare presentations, and so forth. Without remediation, students who enter college without the skills and knowledge needed to profit from college level instruction inevitably fall behind and/or withdraw. Instructors who teach such students face the choice of either providing additional assistance or relaxing standards for academic rigor (Schnee, 2008).

Student Culture: Privileging the "College Experience" over a College Education

Across many college campuses, student cultures tend to embrace the values of social life over academics, narrow careerism over broad-minded preparation for life, and the "path of least resistance" over hard work and dedicated effort. We argue that in this way, student culture on campuses contributes directly to academic underperformance.

Use of time during the college years. In higher education, instructors often invoke the time-honored rule of thumb that students should spend at least two hours in outside-of-class work (e.g., studying, completing projects, etc.) for every single hour spent in the classroom. Thus, for a typical three-credit course, students would be expected to spend at least six hours per week in study time. For a full 15-credit academic load, students would be expected to devote 30 hours of time to outside of class studying. A series of studies has indicated that there have been dramatic decrements in the past 50 years in the amount of time students devote to their studies (HERI, 2003). In their analysis of data produced in a series of studies, Babcock and Marks (2010) reported that the amount of time devoted to academic study fell from 24 hours per week in 1961 to 14 hours per week in 2003. Research reported by the National Center of Education Research (2010) suggests that the number of hours spent studying per week has remained steady at about 14 hours over the past decade. Thus, for every hour spent in class, a typical student spends one hour in out-of-class academic activity. What are students doing during the time that they are not studying? A series of studies suggest that on average (Brint, Douglas, Thomson & Chapman, 2010; McCormick, 2011; NNSE, 2011; Nonis & Hudson, 2010), students spend 11-41 hours per week in leisure time or socializing with peers, 12 hours per week in paid work outside of the academy, and 6 hours in co-curricular activities (e.g., internships, community service, etc.). In a study of how students use their time, Hanson, Drumheller, Mallard, McKee & Schlegel (2011) reported that students spend on average 14 hours per week texting; 6.5 hours talking with friends on the telephone; 5 hours per week on social networking sites; and 11 hours per week watching videos (e.g., television, movies, etc.). Between 1961 and the present, the amount of time that students spend in paid work and in other non-academic activities has increased (McCormick, 2011; Tuttle, McKinney & Rago, 2005). The percentage of students who engage in paid employment has increased from 40% in 1961, to 67% in 1986 to 80% in 2000 (Cuccaro-Alamin & Choy, 1998; Stern & Nakata, 1991; US Department of Education, 1998, 2003). Research examining relations between time studying and academic achievement has produced a bevy of enlightening findings (Rytkönen, Parpala, Lindblom-Ylänne, Virtanen & Postareff, 2012). Ilgan (2013) reported that 23% of the variance in academic achievement in undergraduate science courses could be explained by variation in the amount of time students spent in out-of-class work. Nonis & Hudson (2006, 2010) found that relations between amount of study time and levels of achievement vary for different types of students and modes of studying. Students who benefit from increased study time appear to those who already equipped with higher levels academic skills (e.g., students who are more able to focus attention; students with high ACT scores). For example, increased study time produces higher level achievement for students who are able to sustain their concentration over time, but not for students who are less able to do so (Nonis & Hudson, 2010). Further, research demonstrates that it is not simply the amount of time that students spend studying that produces higher level achievement; the ways in which students spend their time matters as well (Barnett, Sonnert & Sadler, 2014; Kamp, Dolmans, Berkel & Schmidt, 2012; Masui, Broeckmans, Doumen Groenen & Molenberghs, 2014). For example, Arum and Roksa (2010) reported that amount of study time

was related to academic performance, but only for students who studied alone; increased study time did not result in higher academic performance for students who studied in groups. These results suggest that academic performance depends on both the quantity and quality of time that students invest in their classes.

Careerism, consumerism and attitudes toward academics. The motives and mindsets of students are important aspects of student culture (Ilgan, 2013; Yeager et al., 2014). The motives for attaining a college education have changed substantially since the establishment of Harvard College as in 1636 (Bok, 2003; Lewis, 2007; Wehlburg, 2010). The first colleges in America were the province of the elite; college functioned as a place where wealthy white men could study for the clergy, or otherwise prepare for a life of leadership in the Church or in political life. Inspired by the Enlightenment, while still serving the wealthy elite, Thomas Jefferson advocated a collegiate system based on the study of the science rather than theology. His ideas would not take hold until after the civil war. In the late 19th century, a series of agricultural colleges were established to support practical pursuits and economic expansion. It was not until the 20th century that the modern research university emerged. Modern American universities founded upon the need to support research and development in the basic and applied sciences, and to foster a meritocracy based upon "competitive excellence" through higher education. Over time, employers began to use the baccalaureate as a criterion for hiring. The use of college as a means for preparing for career continued expanded after World War II with the establishment of the Servicemen's Readjustment Act (GI Bill) in 1944. The GI Bill provided government benefits that enabled returning veterans to complete a college education. Thereafter, an undergraduate education became increasingly sought after as a means of career preparation and upward mobility. Public policy became increasingly oriented toward supporting college access through the funding of public universities, government backed loans, affirmative action policies, and so forth. Community colleges emerged to assist working class and underserved students into higher education.

Thus, ever since the civil war, the professoriate has grappled with two competing functions of a college degree: (a) to educate students broadly in the knowledge and skills deemed necessary to live an informed life, and (b) to prepare students for a careers. Thus, the desire to attend college as a means to a career is not a novel one. Research suggests that college students nominate both career preparation and intellectual curiosity as important motives for seeking a college education (Phinny, Dennis & Osorio, 2011). Corts and Stoner (2011) administered the *College Motives Scale* to students a variety of different types of colleges. The scale assesses five types of motives for attending college. For students attending liberal arts colleges and comprehensive (non-doctoral granting) universities, scores on the five motives were as follows: *intellectual curiosity* (4.00), *self-discovery* (3.66), *social life* (3.44) *career and financial preparation* (3.07), and *normative expectations* (1.96). These data suggest that while both intellectual and career preparation are viewed as important, students report entering college privileging intellectual pursuits over career preparation. Pursuing a fun *social life* was also seen as important, falling between intellectual curiosity and career preparation. Corts and Stoner (2011) reported that students who embraced motives related to intellectual curiosity and self-discovery were more likely to adopt a *learning orientation* in school work; conversely, students whose motives were organized around *career preparation* and *social life* were more likely to assume a *grade-focused* orientation. Although students endorse intellectual motives in choosing

a college, there is evidence that student learning motives change over the course of a student's four-year college career. Similarly, Lieberman & Remedios (2007) reported that although students reported high levels of mastery motivation (desire to master their subjects) in their first year of study, mastery motivation declined precipitously in the second year and remained low through to graduation. Beginning in the second year of study, students reported an increased focus on obtaining grades rather than mastering subjects, as well as decrements in the extent to which they anticipated enjoyment in the classes they had selected. Thus, while many students appear to enter college with an intellectual mindset, many soon shift to a grade-focused mindset associated with lower levels of academic success. The epitome, of course, is graduating students who succumb to the malaise colloquially known as "senioritis" or the failure to demonstrate mastery motivation and instead rely on minimal performance to acquire a passing grade.

While careerism has long been a feature of academic life, over the past decades, many have argued that an ethos of *consumerism, entitlement and narcissism* functions as an aspect of student culture (Boswell, 2012; Naidoo & Jaimeson, 2005; Potts, 2006). Consider the following email sent from a student to his professor (Lippman, Bulanda & Wagenaar, 2009):

> After getting my grade for your class a couple of days ago, I keep going over and over what exactly you expected out of your SOC152 students. I'm questioning who/what sets the standard for your class.…To me, if a student does/hands in all assignments, misses class no more than two times, participates during lecture, takes notes, attentively watches videos, and obviously observes/notes sociology in his/her life, it would make sense for that student to receive a respectable grade—an A.

Academic consumerism refers to the mindset that a college education is viewed as a type of service or commodity that can be bought or sold. From this view, the fact that a student (or his or her family) pays tuition, attends classes, completes assignments, etc. are sufficient grounds to receive high grades. Few empirical studies exist that assess the scope and structure of academic consumerism and entitlement among college students (Crage and Fairchild, 2007; Greenberger, Lessard, Chen & Farruggi, 2008). In one survey of 195 sociology students in a public university Northeastern U.S., Dellucci & Korgen (2002) found that 42.5% of students agreed with the statement, "If I'm paying for my college education, then I'm entitled to a degree." Seventy three percent agreed with the statement "I would take a course in which I would learn little or nothing but would receive an A." Fifty-two percent agreed with the statement that, "It is the instructor's responsibility to keep me attentive in class." Greenberger, Lessard, Chen & Farruggi (2008) reported that students who exhibited more academically entitled attitudes scored higher than their peers in achievement anxiety and extrinsic motivation, and also engaged in more academic dishonesty. Other studies suggest that students who exhibit high levels of consumerism tend to have slightly lower GPAs (Crage and Fairchild, 2007; Denis, 2010).

In one of the only attempts to examine consumerism among students in higher education, Fairchild & Grage (2014) developed a questionnaire to assess consumerist attitudes among undergraduate students. Fairchild & Grage reported considerable variability in student careerism. Using their measure, students who exhibited lower levels of consumerism were more likely to have higher GPAS, higher critical thinking skills, and to have received merit-based

financial aid. They were more likely to major in physical and biological sciences. In contrast, students who espoused consumerist beliefs were more likely to major in pre-professional, professional disciplines, as well as in humanities and social sciences. Students who exhibited higher levels of consumerism rated themselves as more grade-focused than learning-focused, and were more likely to indicate that they selected their majors on the basis of income potential than intellectual interest. They tended to attribute responsibility to the university and faculty for satisfying educational experiences and viewed higher education as a venue for job preparation rather than intellectual cultivation. Such students were more likely to agree that their role at the university was more like a customer than a scholar. Fairchild and Grage (2014) argued that while consumerism is well represented among the students they sampled, it is not ubiquitous. They cautioned against invoking student careerism as a "catch all" explanation for educational problems among students in the academy.

Evidence consistent with claims of increased entitlement come from studies that document generational changes toward increased *narcissism* among college students (Gentile, Twenge & Campbell, (2010; Twenge, Konrath, Foster, Campbell & Bushman, 2008a, 2008b) amassed persuasive evidence that college students have exhibited increased levels of narcissism and self-esteem since the early 1980s. As defined by Twenge et al (2008a) *narcissism* consists of an overly positive and inflated view of the self. According to Twenge (2008b), contemporary college students are more likely than their predecessors to exhibit higher levels of assertiveness, self-liking, narcissistic traits, high expectations of others, and lower levels of self-reliance. Twenge's (2010) analyses show that contemporary cohorts raised in the 1990's and 2000's tend to identify work as less central to their lives and leisure as more central; they exhibit weaker work ethic and are more focused on external incentives (e.g., salary) than students from previous generations. Relative to their predecessors, Mellienials born after 1980 tend to exhibit an increasingly external local of control (Twenge, Liqing & Im, 2004), a weaker orientation toward civic life, decreased concern for others (albeit an increase in community service) (Twenge, Campbell & Freeman, 2012), as well as an increased orientation toward social approval (Twenge & Im, 2007) and extrinsic (money, image, fame) rather than intrinsic values (self-acceptance, affiliation, community) (Twenge, Campbell & Freeman, 2012).

Alcohol use, Greek life and an ethos of partying. A third aspect of student culture that leads to educational decline involves "partying" and the use and abuse alcohol on college campuses. A large volume of research indicates that the vast majority of college students routinely use alcohol (Wheeler, 2011). Boekeloo, Novik & Bush (2011) that at the University of Maryland at College Park, 75% of first-year students who reported having consumed alcohol in the past month indicated doing so with an explicit intention to become intoxicated. College students consume alcohol in greater numbers and more often than peers who do not attend college (Hingson, Heeren, Winter, & Wechsler, 2005). Up to 44% percent of college students engage in binge drinking (White, Kraus, and Swatzwelder, 2006). In a study assessing the motivates of college students According to Engs, Diebold and Hanson (1996), the average college student consumes 10 alcoholic beverages per week. Students report four primary categories of motives for drinking: *enhancement* (i.e., drinking for the feeling); *socialization* (i.e., to socialize with others); *coping* (i.e., to deal with emotionally difficult events); and *conformity* (i.e., to"fit in"). *Social* motives and *enhancement* motives are most strongly associated with levels of alcohol use (Hughes, 2012; Martens, Rocha, Martin, Serrao, 2006;

Wheeler, 2011; Vaughan, Corbin & Fromme, 2009). *Conformity* motives also play an important role in alcohol use among college students. Martens, Rocha, Martin, Serrao (2006) reported that *conformity* motives for drinking were highest among first year college students. However, the correlation between *conformity* motives and alcohol use became *stronger* over the college years[3]. These data suggest that motives to conform to the dominant student culture play an important role in explaining variation in alcohol use among college students. Students who drink in an attempt to conform may be at risk for heavy alcohol use. These data suggest that college students tend to view alcohol use as a *normative* aspect of college culture (Hughes, 2012).

Not all college students engage in high levels of alcohol use. Students who endorse *academic* and *moral* values and motives tend to consume lower amounts of alcohol and to have fewer alcohol-related problems (Lewis, Phillip & Neighbors, 2007; Mikhailovich, George, Rickwood & Parker, 2011**;** Vaugh, Corbin & Fromm, 2009). Wechsler, Dowdall, Davenport, and Castillo (1995) reported an association between beliefs that academic work as unimportant, decreased study time and binge drinking. Studies suggest that high levels of alcohol use are associated with lower grade point averages (Porter & Pryor, 2007; Singleton, 2007). Of special importance, the acquisition of a morally based identity plays an important role in regulating risky behavior. Students who base their self-esteem on moral standards rather than on other concerns (e.g., popularity, etc.) tend to engage in lower levels of alcohol use and abuse; spend more time participating in spiritual activities and events unrelated to alcohol use; and spend less time "partying" (Crocker, Luhtanen, Cooper, & Bouvrette, 2003; Lecci, MacLean, & Croteau, 2002; Lewis, Phillip & Neighbors, 2007). Martin, Cremeens, Umstattd, Usdan, Talbott-Forbes & Garner (2012) have shown that students who use "protective strategies" to regulate their alcohol intake show higher levels of academic performance than those who do not. These data suggest that students who have cultivated an identity defined in terms of personal values and moral principles are more able to resist expectations of alcohol use and abuse shared by many college students.

Research suggests that students who participate in Greek life (i.e., fraternities and sororities) engage in higher levels of alcohol use, alcohol abuse and "partying" than their non-member cohorts (McCabe, Schulenberg, Johnston, O'Malley, Bachman & Kloska, 2005; Weschler & Nelson, 2008). In fact, the best predictor of college binge drinking is Greek membership (Weschler, Kuh & Davenport, 2009). There is also evidence that students who participate in Greek life have lower grade point averages and fail to live up to their statistically predicted potential than their non-participating peers (Debard, Lake & Binder, 2006; Grove & Wasserman, 2004; Grubb, 2006). Thus, Greek life operates as a subculture that embraces more extreme alcohol-related values and practices than those that operate within the larger student

[3]Ccorrelations between conformity motives and alcohol use increased from .00 among first year students, to .30, .45 and .29 for second, third and fourth year students. These findings may seem to contradict the finding that conformity motives were highest among college freshmen. However, this apparent contradiction can be readily explained as follows: Most first-year students who drink tend to drink in order to conform. Over the college years, the number of students who *drink to conform* tends to *decrease*. However, with advancing years in college, some students will still drink in order to conform. In later years of college, students who drink to conform tend to drink more than students who do not endorse conformity motives. In this way, the desire to conform may bias students toward higher levels of drinking.

culture of a school. A similar set of cultural conditions occurs in many colleges that sponsor celebrated athletic teams. In many such institutions, students engage in ritualized activities while attending sporting events. Glassman et al., (2010) reported that 16% of students who attended a football game engaged in *extreme ritualistic drinking behavior*, defined as 10 or more drinks for males and 8 or more drinks for females. Thirty-six percent of attendees drank heavily (five and four or more drinks for males and females respectively) during the game. The effects of these extreme ritualistic behaviors extend beyond their impact to the drinkers themselves to others in their peer group. "Secondhand" effects of student drinking include interrupted sleep (60%), taking responsibility for intoxicated peers (48%); being the object of insult and ridicule (29%) (Wechsler et al., 2002).[4]

For many college students, participating in "the college experience" is at least as important as obtaining a college education. Academic concerns compete with a suite of values in the marketplace of student culture. The college years have long been a time in which traditional college students typically explore the freedom that comes from spending long periods of time away from families. However, with the decline of the idea of *in loco parentis*, it is increasingly difficult for colleges and universities to advocate policies for student conduct based on the force of shared moral values. Colleges become more likely to treat students as consumers who can justify their freedom to pursue non-academic pursuits in terms of the power of their purses. Students are more likely to feel that they are entitled to the benefits of a college education. Social life, leisure time and "partying" increasingly compete with time spent in academic pursuits, while paid work competes with academic study as a matter of necessity.

Gaps between College Teaching and Student Needs

With important exceptions, there are significant gaps between the dominant modes of instruction provided at most colleges and universities and the learning needs of contemporary students. These gaps fall into several categories. First, there is ample evidence that there have been declines in academic rigor in recent decades synthesized in the findings of Spellings' Report (2006). The Spelling's Commission reported that "…over the past decade, literacy among college graduates has actually declined. Unacceptable numbers of college graduates enter the workforce without the skills employers say they need in an economy where, as the truism holds correctly, knowledge matters more than ever" (p. vii). Other evidence to this effect comes in the form of recent phenomenon of "grade inflation" as well as decrements in reading and writing requirements in college classrooms (Arum & Roksa, 2010; Grove & Wasserman, 2004).

[4] An important caveat is in order here. A college curriculum is more than simply its academic requirements. Students do not come in separate intellectual, emotional, physical, and experiential parts. The college years are a time when considerable socio-emotional and psychological development occurs. Such development takes place outside of the classroom as much as it occurs within the classes. Research indicates, for example, that involvement in certain forms of extracurricular activities, are associated with higher levels of performance over the college years (Kronholz, 2012). It occurs through the relationships that students establish between and among peers, social experimentation, the pursuit of enjoyable activities, and even risk taking. Colleges -- whether they acknowledge it or not – are in the business of educating whole students. Colleges can address the problems of risky behavior neither by prohibiting normative risk taking nor by adopting laissez-faire attitudes. Instead, there is a need for the active development of college cultures that embrace the responsible pursuit of nonacademic activity and socio-emotional development.

Second, the dominant mode of instruction in college classes remains the traditional lecture-and-test format. Although significant learning can occur using the traditional lecture, many contemporary students lack the background skills and knowledge needed to profit from this approach. Acknowledging this problem, colleges and universities have begun to call for a shift from traditional "teacher-centered" (lecture-based) approaches to "student-centered" teaching based on active learning principles. However, the shift to "student-centered" thinking raises problems that are the opposite of those associated with teacher-centered pedagogy. While teacher-centered thinking privileges the role of the *teacher* over the student, student-centered approaches can have the effect of privileging the role the *student* over the teacher.

We argue that the teacher-centered/student-centered distinction is not helpful in structuring thinking about the appropriate modes of pedagogy in the academy. The teacher-centered/student-centered dichotomy is based upon a false premise – namely that it is possible to separate the effects of teachers from those of students in the process of learning. Decades of research in developmental psychology and education shows that optimal learning occurs when instruction proceeds just ahead the developmental level of a student's skills and understandings. Thus, optimal learning is neither teacher-focused nor student-focused; it is *learning focused*. Optimal learning occurs under conditions of *guided activity*. Learning occurs best when teachers actively guide a student's participation through learning activities over time. Optimal learning occurs when teachers with high standards actively structure their student's learning activities just beyond the level that a student is capable of performing without instruction.

Insufficient academic rigor. One source of academic underachievement among college graduates may involve declining standards for academic rigor among college instructors. The most commonly cited indication of declining standards involves the phenomenon of grade inflation (Birnbaum, 1977). The average grade point average of college students has risen steadily since the 1960's. Between 1990 and 2002, mean grade point averages for students in different types of colleges rose from 2.93 to 3.09 (ASHE, 2005). Grove and Wasserman (2004) reported that GPA's increased at the rate of .0022 per year between 1998 and 2002, or a rate of one-third of a letter grade over a 12 year period. Grove and Wasserman reported that this rate of increase is similar to those reported by Juola (1980) for the period between 1960 and 1974, and by Kuh and Hu (1999) between and 1984-1997. Although grade inflation is a well-documented issue, no consensus exists about its origins. Research demonstrates that contemporary college students tend to expect higher grades than they might otherwise deserve (Landrum, 1999). Given documented increases in student entitlement (see below), some have speculated that professors raise grades to avoid complaints and difficulties from students and their parents.

Others have suggested a more complex dynamic between consumerist student expectations, student evaluations of teaching, and the collective desire to placate students. From this point of view, the phenomenon of grade inflation is a systemic one (Crumbley, Flinn & Reichelt, 2012). Students arrive at the academy with consumerist beliefs that payment for matriculation entitles them to high grades (Germain & Scandura, 2005). These same students play a highly significant role in evaluating the quality of faculty teaching for purposes of tenure and promotion. It is a standard practice at the vast majority of colleges and universities for students to provide commentary and to rate their professors on a variety of dimensions that are taken to be indicators of "effective teaching". Such evaluation carry considerable weight in

decisions about tenure and promotion. Although grades and student evaluations of teaching are correlated (Millea & Grimes, 2002), the relationship between grades, course rigor, and student evaluations are complex (Griffin, Hilton, Plummer & Barret, 2014; Hoefer, Yurkiewicz & Byrne, 2012). Many have speculated that faculty – especially untenured faculty – inflate grades out of a fear of retaliation for having assigned lower and more honest grades to student performance (Iqbal, 2013 Redding, 1998). Indeed, "fairness in grading" is often one of the dimensions on which faculty are typically rated. There is experimental evidence that, under certain circumstances, students do retaliate against professors who assign low grades (Vaillancourt, 2013). These dynamics occur within the context of broader attempts on the part of colleges and universities to retain students in a competitive economic market. Some have suggested that grade inflation occurs as part of the broader ethos in which students and families are viewed as consumers who must be kept happy in order to generate income (Crumbley, Flinn & Reichelt, 2012; George, 2007).

Beyond the phenomenon of grade inflation, firm evidence supporting the proposition of declining rigor in higher education is sparse. Arum and Roksa (2010) report evidence that suggesting academic rigor has decreased in recent years on college campuses. In their study, Arum and Roska reported that in a typical semester, 32 percent of students did not take any courses that required more than 40 pages of reading per week. In addition, 50 percent did not take a course that required more than 20 pages of writing over the course of the semester. Twenty-five percent of students took courses that required neither 40 pages of reading per week nor 20 pages of writing over the course of the semester. Over the course of their four-year college career, half of the students surveyed indicated that they had taken five or fewer classes requiring 20 pages of writing in a semester; twenty percent reported taking five or fewer courses requiring 40 pages of weekly reading. These findings, if representative of most institutions of higher learning, suggest that many students can pass through a four-year college education without engaging in the types of activities that are essential for the for the development of higher-order reading and writing skills and the acquisition of higher-level knowledge.

The promise and pitfalls of technology and online learning. Over the past decades, there has been a surge in the use and student of digital technology as a tool of learning in higher education (Cassidy, Colmenares, Jones, Manolovitz, Shen & Viera, 2014; Roberge & Gagnon, 2014). Online classes have proliferated; multi-modal technologies – from PowerPoint and Smartboards through Blackboard and Discussion Boards through computer-mediated instruction – have has become ubiquitous elements of the cultural landscape of higher education (McLoughlin, Wang & Beasley, 2008). Many scholarly and applied discussions – perhaps because of a sense of ubiquity or inevitability -- seem to be based on an unquestioned presupposition that the use of technology will necessarily lead to enhanced learning. Some have suggested that generations raised during the ascendency of digital technology think and learn in different ways than their predecessors (see Morgan & Bullen, 2011 for an opposing view), and therefore it is necessary to teach using digital technologies that are familiar to students (Garner & Bond-Raacke, 2013; Jeffries & Hyde, 2010). While some instructors embrace the use of digital technologies as learning tools, others are more reluctant. Reluctance comes in many forms, including, on the one hand, lack of expertise and, one the other wariness about the effectiveness of learning technologies (Buchanan, Sainter & Saunders, 2013; Price & Kirkwood, 2014; Selwyn, 2007). Indeed, the skills needed to use technology as an effective teaching tool are

many (Parkes, Reading & Stein, 2013). Indeed, Njenga and Fourise (2008) have suggested that "elearning in higher education … is being created, propagated and channeled … without giving educators the time and opportunity to explore the dangers and rewards of elearning on teaching and learning" (p. 1).

There is a massive literature on the role of digital technology as teaching tools in higher education. Research comparing traditional classroom instruction, online courses and hybrid courses has been mixed. Much research suggests that there are no significant differences traditional and online courses in promoting student achievement (Bell & Federman, 2013; Lyke & Frank, 2012; O'Brien, Hartshorne, Beattie & Jordan, 2011; Reagan, 2006; Rusell, 1999; Summers, Waigandt & Whittaker, 2005). Other research suggests that achievement is higher in traditional rather than online courses (Atchley, Wingenbach & Akers; 2013; Bergstrand & Savage, 2013; Emerson & MacKay, 2011); still other studies suggests that hybrid courses can produce higher levels of achievement than either traditional or fully online courses (Giannousi, Vernadakis, Derri, Antoniou & Kioumourtzoglou, 2014; Lancaster, Wong and Roberts, 2012). Studies also show that online instruction is less effective for older than younger students, and for students with academic skill deficits (Keramidas, 2012; O'Brien, Hartshorne, Beattie & Jordan, 2011). Some have argued that even when there are no discernable differences in level of achievement, other differences remain. For example, comparing traditional and online course in statistics, Summers, Waigandt and Whittaker (2005) differences in student assessments of relational aspects of teacher instruction, such as *clarity of explanation*, *enthusiasm of the instructor*, *instructor interest in student progress*, and *openness* to students. These data suggest that learning activities that blend traditional and digital modes of instruction may lead to enhanced learning in some circumstances.

Despite the immensity of the literature on the topic, there is still no consensus about the relative merits of traditional and online forms of instruction. There are many reasons why this is the case. First, there are, of course, many forms of traditional, online and blended modes of learning (Lichy, Khvotova & Pon, 2014). Without knowing the particular ways in which teaching and learning occur in any given study, it is hard to draw conclusions about what processes promote or do not promote learning (Kirkwood & Price, 2014). Second, to the extent that the effectiveness of traditional modes of higher education has been called into question (see above), findings suggesting that online and traditional modes of teaching produce comparable levels of achievement beg the question of what is learned using either mode of instruction. Similarly, comparative research based on crude distinctions (e.g., traditional versus online) often focus on student outcomes and perceptions (Gorra et al., 2010). They typically (but not always, see, for example, Epasa & Meneses, 2010) fail to assess the *process* of teaching and learning over the course of instruction, and how particular teaching and learning processes lead or fail to lead to particular learning outcomes (Kirkwood & Price, 2014).

Perhaps the most looming problem that impedes the effective use of technology in higher education involves placing the technological cart before the pedagogical horse. College and universities often seem to accept the idea that learning technologies will necessarily lead to increased learning. However, this assumption is simply not supported by a compelling body of evidence (Kirkwood, 2009; Price & Kirkwood, 2014). More important, many, if not most efforts to integrate technology into higher education have been technology-driven rather than

pedagogically-driven (Kirkwood & Price, 2013). That is, with exceptions, rather than designing technologies around clearly articulated models of teaching, learning and development, pedagogical practices are designed around available technologies. The ubiquitous use of PowerPoint in college classes illustrates how pedagogical practice is often driven by available technology rather than vice-versa (Craig & Amernic, 2006; Mann & Robinson, 2009). In the absence of guiding theory, unreflective use of technology risks transforming teaching in ways that disrupt rather than enhance learning (Flavin, 2011). To avoid this possibility, it is essential to make teaching technologies subservient to pedagogical goals, rather than vice-versa (Howard, 2013). El-Khalili and El-Ghalayini (2014) illustrated how learning technologies can be developed and used in the service of clearly articulated pedagogical principles. They assessed the effectiveness of different learning technologies for fostering different levels of learning as defined by Bloom's taxonomy. They classified the interactive complexity of learning technologies using the Guerra Scale (Guerra & Heffernan, 2004), which ranks learning tools in terms of 10 levels of complexity in human-computer relations.[5] Drawing on this scale, in a series of simple learning tasks, the investigators devised specific forms of instructional activity to correspond to different levels of learning as defined by Bloom's taxonomy. Learning was superior when the instructional technologies were matched to different learning objectives (i.e., Bloom's taxonomy) than when the learning technologies were held constant.

Technology will continue to play an important role in supplementing face-to-face teaching and learning in higher education. However, colleges and universities must implement teaching and learning technologies with caution. Learning technologies are tools. They are technological means toward pedagogical ends. As learning tools, they are only as good as their capacity to foster learning as defined by pedagogical goals. To optimize the use of technology for teaching and learning in the academy, it is necessary to subordinate learning technologies to the best of what we know about the process of teaching and learning. Happily, we already know a great deal about what works and doesn't work in teaching, learning and development.

Teacher-centered versus learner-centered pedagogy: The wrong debate. In recent decades, a voluminous literature has developed that compares traditional "teacher-centered" pedagogy to "student-centered" teaching (Mascolo, 2009; Wright, 2011). Theorists and researchers refer to "teacher-centered" pedagogy as teaching that is organized around the goals and expertise of the teacher. The best example of teacher-centered pedagogy is the traditional lecture-and-test format to college instruction. The lecture-and test format remains the most frequent approach to college teaching to the present day (Lammers & Murphy, 2002). Students are given reading assignments outside of class. In class, students attend ~~to~~ a lecture delivered by an instructor. Students may take notes, ask questions, and so forth. Outside of class, students are assigned textbooks or other reading assignments that support or augment the teacher's lecture. Student retention of knowledge from lectures and readings are assessed using examination, paper assignments, or other assessment techniques. In recent decades, educational theorists and researchers have challenged traditional "teacher-centered" approaches (i.e., the lecture and test format) to instruction in higher education. Following trends have their origins in primary and

[5] The 10 point Guerra Scale consists of the following: (1) pdf document, (2) page turner, (3) dynamic feedback, (4) movement, (5) multimedia elements, (6) user input workbook, (7) knowledge repository communities, (8) simulation, (9) real life coaching, (10) virtual reality.

secondary education, there have been repeated calls for a shift to more student-centered approaches to teaching and learning in college classrooms (Wright, 2011).

From a student-centered standpoint, the traditional lecture format casts the student in the role of a "passive receiver" of information rather than as an active doer. The student-centered approach is based on the idea that learning occurs best when students assume an active rather than passive role in learning. Instead of advocating "drill and kill" or "chalk and talk" modes of teaching, student-centered teachers operate more like "guides on the side" than as "all knowing sages on the stage". Rather than learning through the process of passively receiving a lecture, students learn by doing. From a student-centered perspective, students learn best when they construct or reconstruct knowledge through their own active efforts. A large body of research supports the idea that deeper levels of learning arise when students perform effortful learning activities that require integration of knowledge rather than relying upon traditional lecture and examination methods (Miller, McNeal, & Herbert, 2010; Stefanou, Stolk, Prince, Chen & Lord, 2013; Tynjala, 1998). As a result, to support the active construction of knowledge by students, student-centered learning casts the teacher as a facilitator of active learning rather than as the singular expert conveyer of information to passive students. In shifting the role of teachers from experts to facilitators, proponents of student-centered learning often call for the reduction or minimization of power differentials between teachers and students. The act of giving up the role of singular expert frees the student to engage in constructive acts of questioning, exploration, collaboration and knowledge construction. In this way, student-centered learning proceeds as an attempt to foster autonomy, creativity, independence and deeper learning among students. There are both strengths and weaknesses to the traditional lecture format. The traditional lecture can be a useful vehicle for teaching when the goal is communicate clearly defined bodies of knowledge. Bligh (2000) concluded that lectures were as effective as other techniques to teach bodies of information, but were less effective for promoting reflective thought, changing student attitudes or fostering the development of novel learning skills. Thus, the lecture format can be useful for communicating distinct bodies of information. However, it is less helpful in promoting the development of skills necessary for integrative learning and expression outside of the lecture context.

We often think that learning is a process that occurs *in class* through the transmission of knowledge from the teacher to student. If this were so, then good teaching would simply be the act communicating knowledge clearly to students. From this view, teaching is understood as a type of "giving" (e.g., we "give" a lecture) and learning a form of "taking" (e.g., students "take" notes). However, this simple give-and-take model fails to acknowledge the types of activities that students must actively perform in order to profit from traditional forms of instruction. In particular, students must be able to: (a) read assigned reading for *higher-order comprehension*; (b) *take meaningful notes*; (d) *integrate* one's understanding of readings with lectures; (e) *anticipate* instructor expectations of the student; (f) *express* understanding of target concepts *in writing* and in other communicative formats. Each of these tasks is a skilled activity that students must perform on their own, either in or out of class. Thus, contrary to what one might think, the learning that occurs through lecture-based instruction is *not* simply a product of what a student *receives* from a lecture or textbook; it is a product of what the student is *actively able to do* with the resources available to her. Thus, most of college level learning occurs when students are engaged in reading, studying or writing when students are on their own outside of the lecture

hall. However, *these independent learning skills are the very ones that many college students lack*. This puts students at a disadvantage. College instructors tend not to see it as their role to teach students these skills. They tend to expect students to arrive at college already equipped with skills needed to acquire the higher-level *content*.

The call for student-centered teaching has prompted many college instructors to rethink their teaching practices. Although the lecture remains the most dominant approach to teaching, increasing numbers of instructors have adopted student-centered and active learning techniques in their classroom (Wright, 2011). These strategies include small group discussion, student-led presentations, group projects, peer evaluations of writing, in class demonstrations and activities, use of video and media, and other techniques (Becker & James, 1994). Most educators would agree that such learning activities can operate as effective learning tools. ~~The~~ research assessing the effectiveness of active learning in college classrooms is mixed (Bligh, 2000; Prince, 2004). Although many studies suggest that college courses that employ active learning strategies produce deeper levels of learning than teacher-centered classrooms (Dochy, Segers, van der Bossche, and Gijbels, 2003; Lee & Jabot, 2010), other research suggests that there are no differences in learning (Andrews, Leonard, Colgrove & Kalinowski, 2011; Brittany et al, 2009). In his review of lecture-based and alternative modes of teaching, Bligh (2000) concluded that lectures were equally as effective as other techniques in teaching particular bodies of information, but were less effective in promoting the development of learning skills and the capacity for reflective and integrative thought.

Such mixed findings likely arise for several reasons. First, quite often, active learning techniques are used in a piecemeal fashion – often as an adjunct to traditional instruction – rather than as part of a systematic restructuring of teaching and learning. First, much research is based upon overly crude distinctions between "active learning" and "student-centered" learning (Mascolo, 2009; Taylor & Miflin, 2008). For example, Faust and Paulson (1998) defined "active learning" as "any learning activity engaged in by students in a classroom other than listening passively to an instructor's lecture" (p. 4). The concept of "student-centered" learning is often used as a synonym for a broad range of concepts and learning modes, including *active learning*, *experiential learning*, *cooperative learning*, *collaborative learning*, *inquiry-based learning*, and so forth. Not only are these modes of teaching and learning different, different instructors used them in different ways. Second, much of the research is unsystematic and uncontrolled. Thus, much research compares learning outcomes from courses that employ the traditional "lecture-and-test" format with those that employ one or more active-learning techniques. However, without a clear description of what teachers and students actually do in relation to each other, it is difficult draw clear conclusions from this research. Third, there are effective and ineffective ways to use active learning techniques (Ebert-May et al., 2011; Kane, 2004). It is likely that many instructors use active learning techniques in unstructured ways that fail to direct or constrain the form of activity that occurs during learning. For example, the use of small group work is an increasingly common active-learning strategy. When students work together to respond to a question or solve a problem posed by an instructor, they have the advantage of being exposed to multiple perspectives on a given issue. However, student collaboration can be either effective or ineffective; there is no guarantee that high quality discourse will occur when students work together (Choi, Land & Turgeon, 2005). Effective

group work must enable participants to coordinate their contributions in ways that produce higher-levels understanding.

However well-intentioned they may be, student-centered approaches run the risk of introducing problems that are the opposite of those associated with teacher-centered thinking. It is true that decades of research in developmental psychology supports the idea that optimal learning occurs when students are *actively engaged* in the learning process. However, while this is a truth, it is only a *half-truth.* The other half of this truth concerns the centrality of the *structuring* role that social and cultural agents play in the process of learning. While students must construct new skills and knowledge *for* themselves, they cannot ordinarily do so *by* themselves. Thus, by giving primacy to the student's own active contributions to learning, the concept of student-centered learning neglects the equally important role of the active teacher who structures learning activities for the child. Equally important, the privileging of student activity in the learning process fails to acknowledge that higher-order knowledge and skills have *cultural* rather that *personal* origins. If this is so, then students cannot construct or reconstruct knowledge independent of the structuring effects of cultural agents. In this way, by privileging the activity of students over that of instructors, student-centered approaches risk weakening the role of the very individuals who hold the cultural expertise that students lack: teachers.

The concept of guided learning. There is a need to move beyond teacher-centered versus student–centered thinking. Optimal learning is neither teacher-focused nor student-focused. Instead, optimal learning occurs when both the teacher and the student are active throughout the learning process. Thus, optimal learning is *guided learning*. Decades of research in developmental psychology and education unambiguously indicates that learning occurs best when sensitive teachers adjust their level of instruction just beyond the level of functioning that a student is able of achieving when working alone (Kozulin, Gindis, Ageyev & Miller, 2003; Mascolo & Fischer, 2004; Valsiner, 1998; Vygotsky, 1978). The concept of *scaffolding* (Gauvain, 2003; Mascolo, 2005; Wood, Bruner & Ross, 1972) illustrates the basic process of guided learning. Scaffolding occurs when more accomplished others assist learners as they participate in learning activities. When students perform any given activity, scaffolding has the effect or raising student performance to levels that students would be incapable of achieving without such support and direction. When scaffolding a student's participation in a learning activity, the more expert partner "holds" part of the task for the learner. This may require breaking down task; modeling actions; providing direction; managing frustration; asking questions that motivate thought, and so forth. As learners begin to master a given learning task, the teacher relaxes the level of scaffolding and increasingly turns responsibility for performing the task over to the learner. The teacher can then "up the ante" and scaffold still higher levels of task performance. For example, the process of providing corrective feedback on a student's essay functions as a form of scaffolding (Hattie, & Timperley, 2007). As the student revises the essay in accordance with principles and directions provided by the teacher, the quality of the student's writing improves. As the student masters new skills, he becomes ready for higher-order modes of scaffolding and direction. Thus, optimal learning occurs as a result of the ways in which instructors frame, direct and support the participation of students in higher-order learning activities.

Thus, optimal learning is neither teacher-focused nor student-focused; instead, it is *learning* focused. In particular, we use the phrase *guided learning* to refer to pedagogies that do not remove either the teacher or the learner from the active process of learning. Guided learning occurs when: (a) learning through active participation in an systematically designed activities; (b) scaffolding, instruction, direction, or feedback are provided throughout learning, either by instructors, more accomplished peers, computer, or by the task itself; and (c) students are continuously able to respond to feedback with corrective or higher-order action (Larkin & Richardson, 2013; Lizzio & Wilson, 2013; Sancho-Vinuesa, Escudero-Viladoms & Masià, 2013). Defined in this way, guided learning has been shown to be effective in face-to-face teaching and learning, computer-mediated learning, and collaborative learning contexts in a variety of different teaching modes. These include systematic versions of inquiry-based learning (Murphy, Picione & Holme, 2010); problem-based learning (Krause & Start, 2011; O'Neill & Hung, 2010; Savery, 2003); project-based learning (Blumenthal et la., 1991; Helle, Tynjälä, & Olkinuora, 2006); teacher-guided collaborative learning (Webb, 2009), web-based scaffolding (Bixler & Land, 2011; Fund, 2007) , and various combinations of these and related approaches. Although there are many examples of effective guided learning on college campuses, we provide two examples of how the systematic use of guided learning can promote higher-order learning.

The first example (Baldock & Chanson, 2006) involves the systematic integration of multiple modes of teaching and learning in an upper-level engineering course. The course designed to teach students key engineering concepts as well as experimental design. The pedagogy included a combination of lecture (i.e., to support basic ideas and methodology); student collaboration (i.e., students worked together toward a common goal); project- and problem-based learning (i.e., students completed inquiry-based projects designed to solve real world problems). Students were required to design, implement, analyze and report the results of two experimental studies illustrating key engineering concepts. Both their instructors and their peers assessed students on the quality of written and oral reports of their work. Baldock and Chanson's (2006) pedagogy is not noteworthy because it incorporates multiple modes of teaching and learning. Instead, it is noteworthy because it is designed with the explicit intention to provide the level of guidance needed so that students could achieve precisely-defined learning goals established by the instructors while simultaneously providing sufficient flexibility to allow students to create their own means for achieving those goals. As a result, expert teachers guide students through an interactive process of learning by doing.

The second example illustrates the strength of guided learning in the context of computer-assisted reading instruction (Yang & Hung, 2009). Below average readers often have difficulty maintaining their understanding of reference when reading a given text. They often lose track of what particular pronouns (e.g., *he*, *her*, *they*) refer to over the course of reading. In so doing, they fail to monitor their reading comprehension and soon give up attempting to comprehend a given text. Yang and Hung (2009) used a form of computer-assisted learning to Taiwanese undergraduates to identify and resolve reference problems when reading English. As students read through text presented online, the computer system prompts students to identify the terms and phrases to which reference terms (e.g., "they") refer. Using the computer, students draw a "map" linking the various reference terms other terms in the text to which they refer. When students had trouble, they used a "feedback tool" which identified three possible reference items for each referential term. Yang and Hung (2009) traced the development of the capacity

to resolve problems in reference over the course of reading four different texts. They found that in contrast to proficient readers who had few processing problems, the capacity of average and poor readers to resolve reference issues increased over the four readings. Further, reading comprehension was highly correlated with student capacity to resolve reference problems within each reading session.

The computer-assisted learning system employed by Yang and Hung (2009) provides richly textured scaffolding that directs and supports the student's active engagement in the reading process. By prompting the reader to identify and resolve problems of reference, the system directly supports both the development of a key reading skill (i.e., tracking reference) and a meta-cognitive skill (i.e., monitoring reading comprehension). In resolving these issues, students are required to engage *deeply* in the process of reading, problem-solving, and conscious reflection. Not only must they identify links among reference terms, but they also use the computer to create an explicit "map" visual map of those relations. In this form of learning, the teaching agent – in this case, the computer system – provides continuous structure and feedback that are sensitive to the student's level of competence while the study actively draws connections that are constitutive of his or her learning.

III

Contradictions that Complicate Educational Reform

In all of the foregoing, we have provided a descriptive analysis of the conditions leading to academic underperformance among American college students. Our analysis has been limited to processes operating within the academy, rather than on broader socio-political-economic contexts of academic life. In this section, we examine the conflicts and tensions existing within the academy that stand in the way of meaningful educational reform. Although a detailed analysis of solutions to the problems of undergraduate education is not the primary focus of this paper, the foregoing analysis suggests a series of broad directions for the reorganization of higher education. These include: (a) curricular integration rather than fragmentation; (b) pedagogy based upon guided learning and mastery; (c) a more academically serious student culture; and (d) ensuring that incoming students are capable of performing college level work. Given these goals, we ask: What is it about the current structure of higher education that makes it difficult to move in these directions? What aspects of the academy would have to change in order for meaningful progress to occur in these areas? Table 2 provides an outline of some of the internal contradictions and tensions that seem to arise as impediments to addressing these questions.

Table 2
Internal Contradictions that Complicate Educational Reform

Academic Issue and Goal	Issues, Contradictions and Tensions
Curriculum Integrating General Education	Universalism **vs.** Relativism Interdisciplinary Coordination **vs.** Disciplinary Silos Breadth **vs.** Specialization Shared **vs.** Corporate Decision Making Adaptability **vs**. Stagnation
Incoming Skill Gaps Academically Prepared Student Body	Remediation **vs.** Accommodation **vs.** Inflexible Standards
Student Culture Academically Serious Student Culture	Academic Seriousness **vs.** "The College Experience" Learning **vs.** Credentialism
Pedagogy and Rigor Guided Learning and Mastery	Teacher- **vs.** Student- **vs.** Learning-Centered Students as Emerging Adults **vs.** Fully Developed Adults

Toward an Integrated Rather than Fragmented Curriculum

Any attempt to address the problem of curricular fragmentation would require movement toward some sort of integration of general education (Anderson, 2013; Mirabella & Balkun, 2011; Reybold & Halx, 2012). The development of an integrative curriculum would require that an academic community (a) identify a body of knowledge and skills that all students should be expected to acquire (Gregorian, 2004); (b) instantiate ways to foster core knowledge and skill development in students (Shi, 2006; Thorp & Goldstein, 2010); and (c) continuously monitor and update core curriculum over time (Blasting, 2010). As indicated in Table 2, movement toward these goals is obstructed by a series of theoretical and practical conflicts reflecting different values about the purpose, structure and functioning of higher education. First, the *universalism/relativism* dimension structures much debate in this area (Bloland, 1989). Universalists are more likely to believe that it is possible devise a core curriculum around a set of common and broadly applicable values, skills and knowledge; relativists, however, are more likely to suggest that any proposed body of skills and knowledge is likely to be organized around arbitrary social and cultural standards. A related tension involves *interdisciplinary coordination versus disciplinary silos*. Construction of a consistently integrated curriculum would require considerable cross-disciplinary cooperation and interdisciplinary collaboration. Such inter-linkages are made difficult by the tendency of faculty to identify themselves with specialized disciplines (and even sub-disciplines) rather in terms of larger collegiate goals (Thorp & Goldstein, 2010). A privileging of *specialization* over than *breadth* grew out of the reformation of academia in the 1960's, where value shifted away from 'general' and 'liberal' education to the productive output of faculty who conducted research resulting in external funding, publications and, consequently, renown for their institutions (Kerr, 1991). Thus, institutions,

moved by a kind of 'survialist' or 'profit' motive gave rise to an organizational structure typified by the "…department with its own curriculum and the research institute with its own usually narrow segment of knowledge" (Kerr, 1991, p. 287). The consequential problem is that faculty rewarded for teaching and scholarship within specialized fields tend are not encouraged to extend their academic pursuits beyond the narrow scope of those fields.

The entrenchment of faculty activity within disciplinary silos contributes to a tension between institutional *adaptability vs. stagnation* (Findlow, 2008; White & Glickman, 2007). To illustrate, consider the controversial issue of faculty tenure. The function of tenure is to provide faculty with academic freedom – the capacity to pursue teaching and creative scholarship without intrusion by non-academic interests. While the autonomy of tenure provides academic freedom, it also gives faculty– individually or collectively – the capacity to oppose, resist or simply opt out of college-wide initiatives that may be necessary to ensure the viability of an institution. In this way, the autonomy necessary for academic innovation can come at the cost of the forms of collaboration necessary to forge consensus on broader academic initiatives. The slow and contentious nature of academic decision-making raises the perennial issue about the value of *shared versus corporate* models of academic governance (Findlow, 2008; Lapworth, 2004; Shattock, 2002; Trakman, 2008). On the one hand, problems with shared governance arise when the interests of faculty are incongruent with the aims of administrators (i.e., elimination of classes/programs with less than optimal registration; challenges to academic freedom; tenure and promotion, etc.).

Skill Gaps, Student Culture, and the Dilemmas of Recruitment and Retention

How should institutions of higher learning respond to the problem of the skills gap of entering freshmen? It is well understood that "open" enrollment policies have made the dream of college more accessible to minorities and otherwise underprivileged classes of students (Lucas, 1996). However, without some form of intensive remediation for such students, "…the influx of mediocrities relentlessly lowers the standards at colleges to levels the weak ones can meet" (Henry, 1994). Thus, the question persists: What is the best utilitarian solution? Academic standards that flex with the times? Rigidly high standards that represent a minimum level of achievement for tackling challenging material? Or should institutions revise traditional curricula and pedagogy in search of ways to bridge the gap between incoming skill deficits and college level work?

These questions are deeply intertwined with issues related to student culture, recruitment and retention on college campuses. In difficult times, colleges compete for students whose tuition ultimately determines the economic viability of the institution. Within this context, colleges face a tension between the desire to promote cultures of *intellectual seriousness* versus student desire for "*the college experience"* – then tendency to equate nonacademic and academic pursuits as equally important features of college life. For better and for worse, students tend to place a high priority on non-curricular aspects of college life, such as social life (Pryor, de Angelo, Blake, Hurtano & Tran, 2012), extracurricular activities (Kronholz, 2012), risk-taking (Dworkin, 2005) and "partying" (Page & O'Hegarty, 2006). Within this context, colleges compete to provide innovative facilities and a broad range of extra-curricular experiences for their students (Reynolds, 2007). Paradoxically, these non-academic interests function to

increase the cost of tuition, which makes it increasingly difficult for many students to afford a college education (Vedder, 2004). The duality between *intellectual seriousness* and *the college experience* parallels a related tension between *learning* and *credentialism* as motives for attending college. Although reasons for attending college vary by ethnicity, the most frequently cited reasons involve preparation for careers (Phinny, Dennis & Osario, 2006) rather than learning or personal cultivation (Pryor, de Angelo, Blake, Hurtano & Tran, 2012). While career preparation is undeniably a worthy collegiate goal, viewing coursework primarily as a means toward an external credential orients students *away* from deep learning and *toward* the path of least resistance en route to attaining a degree (Acee, Cho, Kim, & Weinstein, 2012).

Pedagogical Tensions

A final set of tensions is organized with reference to teaching and the ways in which instructors conceptualize students. As we have argued above, in the academy, there exists a tension between traditional *teacher-centered* and more progressive *student-centered* approaches to college pedagogy. We have argued above against both extremes of this dichotomy. In its place, we have proposed the concept of *guided learning* (Mascolo, 2009; Rogoff, 1990) as a synthesis that brings together complementary aspects of teacher-centered and student-centered thinking while transcending their contradictions. The concept of guided learning challenges presuppositions that undergird *both* teacher- and student-centered learning – namely the idea that students come to college as more-or-less *competent adults* who are equipped with the skills and knowledge necessary to profit from college level instruction on their own. In drawing upon this premise, teacher-centered pedagogy is based on the assumption that students come to college equipped with the level of reading, writing, note-taking and study skills that would allow them to profit from lecture-and-test based instruction on their own. In contrast, student-centered approaches tend to presume that students have the requisite skills and knowledge needed to seize control of their own education through self-directed and active inquiry. We believe that both of these assumptions are incorrect. Instead of viewing college students as competent adults who can simply be held responsible for their own learning activities, it may be more helpful to view traditional college students as *emerging adults*. The study of *emerging adulthood* is an emerging field in developmental psychology focused on the transition from adolescence to adulthood (Arnett & Tanner, 2006). It is founded upon the premise that development proceeds well into adulthood, and, as a result, young adults are not yet fully formed. Instead, young adults continue to require nontrivial degrees of scaffolding and direction en route to the development of higher-order skills and knowledge. The concept of guided participatory learning follows from acknowledgement that college students continue to require considerable support in forging the skills that are necessary for success in college and life beyond college (Johnson, Gans, Kerr & LaValle, 2010; Murphy, Blustein, Bohlig, & Platt, 2010).

IV

Conclusion: Facing Internal Tensions in the Academy

The tensions that exist within academia are real. They are the result of conflict among deeply held beliefs and traditions. As authors, although we may have our own positions on appropriate ways to resolve these tensions, we do propose any particular pole of any particular

tension as a straw person. It is not our intent to suggest that one pole of any given dimension is obviously or necessarily superior to another. On the contrary, it is our belief that genuine progress in educational reform compels us to acknowledge these tensions and face them directly. In so doing, however, we caution against casting the issue of education reform as a series of winner-take-all debates that pit one side against the other. Our belief is that such a situation would simply exacerbate the conflicts that already exist, without resolving, managing or mitigating them. It is our belief that institutions can resolve these tensions in many different ways. Our preferred approach is to seek resolution of educational fissures through the direct confrontation and synthesis of opposing positions. We have provided one example of this process in our own analysis of the tension between teacher-centered and student-centered pedagogy in the preceding section. By identifying and honoring (what may be) the primary interests and considerations of both teacher- and student-centered pedagogies, our hope is to synthesize a conception of teaching that coordinates central features of each pedagogy in a way that resolves their contradictions. Without efforts to transcend different and seek common ground, it is unlikely that meaningful reform in higher education will take place.

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