

# ADDRESSING THE CRISIS IN HIGHER EDUCATION: AN EXPERIENTIAL ANALYSIS

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## ABSTRACT

*Drawing on Buckminster Fuller's concept of the knowledge-doubling curve, the thesis of this paper is that the rate of knowledge accumulation now exceeds the rate at which college students are able to absorb new knowledge. The result is that many college students are graduating heavily in debt, but without the knowledge and skills they need to compete in today's workplace. To address this, we propose that colleges and universities should invest relatively more time and resources in developing students' capacity to rapidly acquire relevant knowledge and skills as needed, thus enabling the students to quickly adapt to new work environments as they enter the workforce. Our paper draws on experiential learning theory and its underlying concept of individual absorptive capacity to suggest how business curricula might be reformulated to develop students' ability to recognize and acquire relevant knowledge and skills.*

## INTRODUCTION

The premise of this paper is that higher education faces a crisis created by an increasingly large gap between increasing educational demands on and the cost-effectiveness our current university establishment provides. Our rationale rests in the analysis of three graphs (Exhibits 1 through 3). The first (Exhibit 1) represents the knowledge-doubling curve introduced by Buckminster Fuller in 1982. While Fuller was only one of many who have commented on the exponential growth of knowledge over time, the knowledge-doubling curve provides a particular cogent presentation of how human knowledge has grown. (For alternate approaches, see Kurzweil, 2005; Moravec & Hoff, 2015; Vinge, 1993). According to Fuller (1982) around the turn of the 19<sup>th</sup> century, knowledge was doubling every 100 years. By the end of World War II, knowledge was doubling every 25 years. Current estimates are that knowledge is now doubling approximately every 12 months, and IBM estimates that, with the advent of "the Internet of things" (where computing devices will be embedded in everyday objects, sending and receiving data), knowledge will be doubling every 12 hours (Schilling, 2013)!

The second graph (Exhibit 2) portrays the increase in the cost of higher education relative to corresponding increases in the cost of medical care and the general cost-of-living index (CPI). The increase in the cost of medical care is well-publicized in the popular press (Gillespie, 2016; Levey, 2015; Light, 2016; Mercado, 2016; Patton, 2015; Renter, 2014). We assume that healthcare cost increases relate to increasing levels of highly specialized medical knowledge and treatments. We offer the rising cost of healthcare as a point of comparison to highlight the relatively larger increase in the cost of higher education, which we also attribute to the increasing rate of overall knowledge creation, and its potential for application.

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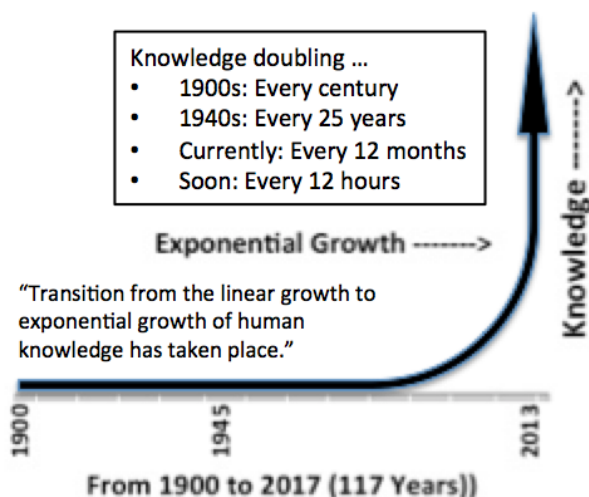
The increasing cost of higher education has any number of potential drivers. However, we see it as a direct consequence of the way colleges and universities have responded to the increasing rate of expansion in human knowledge. As the putative creators, repositories, and dispensers of knowledge, colleges and universities are faced with an increasingly demanding task of conveying knowledge to their students and to society in general in an economically sustainable way. Faculty are expected to engage in significant research to stay abreast of and contribute to the knowledge in their fields. Consequently, colleges and universities have

increased the educational qualifications for their faculty, with doctorates and even post-doctorate degrees now virtually obligatory for regular tenure-track positions (Ehie & Karathanos, 1994; Jantzen, 2000; Jing & Zhiying, 2007; Jolley, Cross, & Bryant, 2014). Further, in order to make time available for research and other scholarly activity, teaching loads have dropped dramatically (Hedrick, Henson, Krieg, & Wassell Jr., 2010; Stepanovich, Mueller, & Benson, 2014). The higher salaries and other expenses required to attract qualified scholars, combined with less time spent teaching, has resulted in the escalating costs reflected in Exhibit 2 (Archibald & Feldman, 2008; Kimball, 2014; Petress, 2007; Sobel, 2013).

The third graph (Exhibit 3) portrays unemployment and underemployment rates among recent college graduates versus the unemployment rate of the overall population. Note that unemployment among recent college graduates exceeds that of the population as a whole. The results are even more dramatic when we consider underemployment. It appears that not only are recent college graduates having trouble securing jobs, but many of them are settling for jobs that do not require the knowledge and skills they have paid to obtain. Among other things, these jobs are not likely to pay enough to compensate the recent graduates for the high cost of having gained a college education.

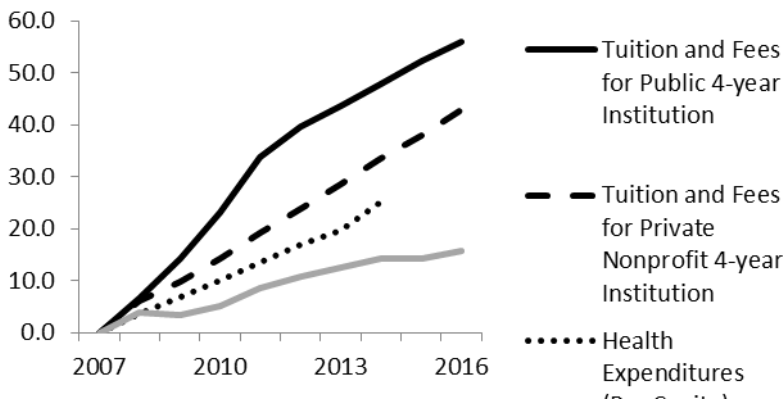
While the data presented in Exhibit 3 may seem counter-intuitive, they make sense when considered in light of Exhibits 1 and 2. Referring first to Exhibit 1, not all knowledge is equal in importance. Given the number of potential jobs available to graduates, enormous breadth and depth knowledge that students might need in preparation for any specific job with a specific

**EXHIBIT 1:  
THE KNOWLEDGE DOUBLING CURVE**



Source: Schilling, D. R. (2013). Knowledge Doubling Every 12 Months, Soon to be Every 12 Hours. Retrieved September 30, 2017, from <http://www.industrytap.com/knowledge-doubling-every-12-months-soon-to-be-every-12-hours/3950>

**EXHIBIT 2:  
RELATIVE INCREASES IN THE COST OF COLLEGE TUITION VERSUS PER-CAPITAL HEALTHCARE VERSUS THE CONSUMER PRICE INDEX, 2007 TO 2016**



Sources: Tuition data from Annual Survey of Colleges, the College Board, weighted by full-time undergraduate enrollment and Integrated Postsecondary Education Data System (IPEDS), U.S. Department of Education, National Center for Education Statistics, weighted by full-time equivalent enrollment; CPI data from Consumer Price Index, 1913-2016, and United States Department of Labor, 2017; Health Expenditures data from “Health Care Expenditures per Capita by State of Residence,” 2017, and “World Health Organization,” 2017)

employer, and the rate at which this knowledge changes, universities cannot possibly keep up, and students could not possibly absorb all they might need to know, even if the knowledge were available.

Given this situation, one might argue that key theories and understanding of general principles would be more important than knowledge of specific solutions to situation-specific problems. The nature of theory and general principles is to represent general patterns that address classes of phenomena. Understanding the general patterns should enable students to work by analogy drawing on past experience to the kind of knowledge they will need to acquire in order to address the new situation (Duit, 1991).

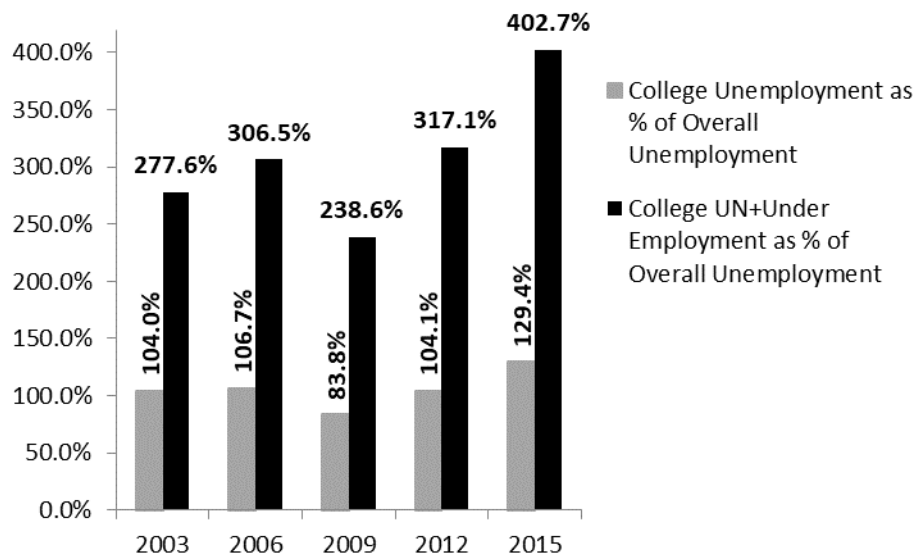
While the body of theory and general principles knowledge may still increase at an exponential rate, it may not be increasing as rapidly as knowledge relating to more specific applications, such as knowledge specific to an industry. The relatively slower growth rate of general knowledge may make its teaching more tractable and thus enabling it to be conveyed more efficiently in a university curriculum. Furthermore, general knowledge may be more useful to students than specific knowledge in the long run as specific industry needs change over time. This is implicit in the increasing emphasis on “critical reasoning” in business schools, a general set of thinking skills that transcend the specific knowledge required to address industry and situation-specific business problems (Smith, 2003). However, in the short-term, college graduates still need to acquire the specific knowledge required by their jobs and industry before they can be productive.

Combining the lag in college-graduate productivity created by a teaching emphasis on theory and general principles with the cost of education trends illustrated in Exhibit 2 suggests a partial explanation for the relatively high un- and under-employment rate for recent college graduates. The increase in the cost of a college education is reflected in higher salaries required to compensate graduates for escalating costs. This means that hiring recent college graduates represents a potentially very large investment on the part of employers, who must absorb the costs associated with low productivity while the graduates learn the specifics required for their jobs. Employers are understandably reluctant to make this investment, especially in difficult economic times, when more experienced workers are likely to be available.

Vedder, Denhart, and Robe (2013) offer an alternative explanation for the high underemployment of recent college graduates that figures so prominently in Exhibit 3. They suggest that the desire for a college education has stimulated a growth in the number of college graduates without a commensurate increase in their intellectual/productive qualifications. According to their argument, the increasing supply of graduates has resulted in over-credentialing of job requirements (showing a preference for college graduates) where their level of education is not required.

While Vedder et al.’s analysis is somewhat different from ours, it is not inconsistent. Their data show that students from more selective and demanding universities fare much better in the job market. We would argue that students who are educationally well prepared tend to have accumulated more and a broader range of knowledge than the average college graduate, along with a greater ability to apply this knowledge to new situations. In other words, they learn faster and adapt more quickly to new, demanding employment situations.

### EXHIBIT 3: UNEMPLOYMENT RATE OF RECENT COLLEGE GRADUATES VERSUS THE OVERALL UNEMPLOYMENT RATE



Source: Kroeger, T., Cooke, T., & Gould, E. (2016). *The Class of 2016: The Labor Market Is Still Far from Ideal for Young Graduates* (p. 40). Washington, DC (recent college graduate unemployment and underemployment data) and Economic Policy Institution. Retrieved from <http://www.epi.org/publication/class-of-2016/> (general unemployment data)

In this paper, we suggest that the broader range of universities, and business schools in particular, might be able to increase the marketability of their graduates by consciously focusing on the adaptive skills that graduates of more selective institutions tend to acquire as a by-product of their educational experience. First, we address the failure to deliver a cost-effective education that prepares students for their initial employment upon graduation, and second, we address the larger problem of graduates' information overload and career obsolescence. The paper will be conceptual in nature. The analysis will draw principally on three different, but complementary conceptual frameworks: first, service-dominant logic from marketing; second, individual absorptive capacity from management; and third, experiential learning from education. In the end, we will propose specific curricular and cultural changes that might be implemented within a business school to address our educational crisis.

## EDUCATIONAL EFFICIENCY

We frame the market for higher education using three key constituents. We represent colleges and universities as marketers, engaged in a transaction with students, the consumers of educational services (Naidoo, Shankar, & Veer, 2011; Taylor & Judson, 2011). Students, in turn, represent marketable products that colleges hope to present to an end consumer, employers.

### Service-Dominant Logic

Recent developments in service-dominant logic (SDL) from the field of Marketing provide a useful framework for our analysis (Judson & Taylor, 2014; Ng & Forbes, 2009). Unlike conventional Marketing, which focuses on innovation and product development, SDL focuses on the consumption process. The logic states that satisfaction grows out of the consumption process, not the product (or service) itself. Indeed, it posits that there are no such things as products or services, but rather, that these are simply pre-bundled resources that consumers draw on to co-create satisfaction (Vargo & Lusch, 2004). Resources come in two varieties – *operand*, the generally physical aspects of a consumption event upon which *operant* resources act to create value (Madhavaram & Hunt, 2008).

To illustrate, consider the case of a Tesla automobile. To some people, the Tesla is a method of supporting a more responsible environmental policy. To others it is a symbol of progressive technological insight, giving its consumers social approval and status rather than a personal affirmation of values. For yet another segment of the market, Tesla provides a more economical means of transportation.

In each of these cases, Tesla provides its cars as a resource to consumers for generating the kind of satisfaction they desire. The car itself is an operand resource, as are the physical attributes of the people who drive it, drive in it, observe it, think about it, and so forth. However, embedded in the Tesla are not only the myriad of design factors that enable it to perform the way it does, but also the intangible social and psychological attributes with which the company seeks to imbue it through the company's marketing activities. These are operant resources, as are the thoughts and actions of the consumers who own and/or drive the car. The interacting system of marketers and consumers, operand and operant resources is what we refer to as the co-creation of value.

If the value of a Tesla automobile depends on the unique needs, perceptions, and consumption activities of each individual consumer, how much more does the value of an educational program depend on the needs, perceptions, and the way a particular student pursues his or her educational activities? Indeed, Geddes, Cannon, Cannon, and Feinstein (2015) argue that, in many cases, the value of an education program might depend more on providing supportive resources to stimulate motivation and/or networking ability than on delivering the kind of content knowledge the program was designed to deliver.

The concept of SDL sets the stage for addressing the rising cost of education. One way to lower educational costs would be to increase operational efficiency by delivering more effective educational service per dollar of professorial and other educational inputs. Fortunately, modern technology provides a host of useful tools for leveraging educational resources. For instance, synchronous audio and video Internet feeds can link large numbers of students to classroom discussions, independent of physical location. The Internet also allows students to stream recorded sessions asynchronously, making them available to an even broader group of students irrespective of when the original discussion took place.

In the extended environment of Internet-mediated delivery, SDL plays a particularly critical role. Professors cannot provide face-to-face individual attention to each student. However, by understanding the background, educational needs, and aspirations of their students, professors can use the tone and nature of their discussions with select students, who can participate to symbolically represent the larger number of non-participating students, giving them a sense of emotional and intellectual involvement. The physically disconnected students' sense of involvement facilitates the co-creative educational process (Booth & Kellogg, 2015; Drouin, 2008; Elsharnouby, 2015), increasing educational efficiency, and with it, the educational value delivered (Blau & Shamir-Inbal, 2017; Judson & Taylor, 2014; Moerkerke, 2015). Technology is available, if not yet in common usage, to provide professors with real-time feedback regarding the degree to which a discussion is addressing student needs (Shute, 2008). In the future, it is entirely possible that we will be able to harness data-driven computers through the use of artificial intelligence to help facilitate the recognition of individual student needs and the delivery of individualized instructional resources (Picciano, 2014; Rodríguez-Triana et al., 2017; Williams, 2017). However, we will need to better understand the educational co-creative process in order to program technology to effectively facilitate the process.

Geddes et al., (2015) formalized the educational co-creative process in mathematical form, providing a general framework for classifying the various types of educational resources that might be employed to facilitate a more efficient learning process. In a

subsequent paper, Geddes, Cannon, and Cannon (2017) updated the model by incorporating an additional variable to represent learning styles, as suggested by Kolb and Kolb (2005). The resulting model is shown in Equation 1.

$$V = f(R_{p,k,m,n,l}, R_{c,k,m,n,l}) \cdot BI \quad (1)$$

Where

- $V$  = Expected value to a student of planning to engage in the educational behavior,
- $R_p$  = A relevant system of operant resources provided by one or more teachers,
- $R_c$  = A relevant system of operand resources possessed by the student,
- $K$  = An index representing the particular knowledge and skill components incorporated in the resources provided by the teacher or possessed by the student,
- $M$  = An index representing the particular motivational components incorporated in the resources provided by the teacher or possessed by the student,
- $N$  = An index representing the particular networking components incorporated in the resources provided by the teacher or possessed by the student,
- $L$  = An index representing the learning style components incorporated into the resources provided by the teacher or possessed by the student.
- $BI$  = Behavioral intention or the degree to which the student intends to participate in the educational behavior.

While the framework is very general, it provides a useful starting place for an educator to design co-creative strategies. For instance, it identifies four key types of operant and operand resources, namely those related knowledge and skill ( $k$ ), those related to motivation ( $m$ ), those related to networking ( $n$ ), and those related to learning styles ( $l$ ). Geddes et al. (2015) provide a decision model for establishing the relative importance of resources addressing knowledge and skills ( $k$ ) versus motivation ( $m$ ) and networking ( $n$ ). One of Geddes et al.'s (2015) most important distinctions involves *informational* versus *transformational* educational strategies. *Informational* strategies focus on delivering the course content ( $R_{p,k}$ ), whereas *transformational* strategies place relatively more emphasis on increasing student motivation ( $R_{p,m}$ ). Greater student motivation results in greater student engagement in active, self-directed learning behaviors (represented by  $BI$  in Equation 1). Such self-directed activities might include studying, thinking about and discussing the material being studied, and asking questions.

### Teaching Motivation and Values

In a follow-up paper to Geddes et al. (2015), Cannon, et al. (2016) elaborate on the motivational aspects of the co-creative educational process, incorporating a broader range of theories. Geddes et al. (2015) draw heavily on Ajzen's (1991) theory of planned behavior, addressing methods for eliciting more student effort and involvement in a given educational activity, thus increasing co-creative efficiency. Ajzen's theory lends itself especially well to motivational appeals based on extrinsic motivation (Gorozidis & Papaioannou, 2014; Levesque, Copeland, Pattie, & Deci, 2010; Rhodes & Courneya, 2004). However, one of the most salient extrinsic motivations for many students, especially those enrolling in business schools, are to graduate and get a respectable, well-compensating job (McCabe & Trevino, 1995). Unfortunately, a student's focus on jobs that will give them prestige and financial success rather than on the learning process that develops the knowledge and skills needed to succeed in a job subverts the educational co-creative process (Judson & Taylor, 2014; Taylor & Judson, 2011). In fact, we contend that students' relatively short-term focus on a post-graduation job rather than the learning process may be a contributing factor to the employment statistics presented in Exhibit 3.

Cannon et al (2016) characterize the problem of students' focus on getting a job versus acquiring relevant skills as a "values" problem. They begin by drawing Krathwohl et al's (1964) *affective* taxonomy, as distinguished from Bloom, Engelhart, Furst, and Krathwohl, (1956) and Bloom's revised (Anderson & Krathwohl, 2001; David R. Krathwohl, 2002) taxonomies of *cognitive* educational objectives. At the highest levels of the *affective* taxonomy (*organization* and *characterization by value*), students co-create a system to guide the ethical and moral, and well as the practical, value of what they do. At the lower levels, the taxonomy addresses the ability and propensity to determine the relative value of the information, concepts, and thought processes they have acquired. Given the fact that students can't learn even a portion of the things they will need to know to succeed in the rapidly changing world of business, this ability to determine what is important will play a crucial role in their ability to succeed. Hence, it must figure prominently in the educational process.

Both extrinsic and intrinsic rewards drive values as Cannon et al. (2016) portray them. That is, Ajzen's (1992) theory of planned behavior suggests that students will learn to pay attention to and value those behaviors that they believe will lead to the outcomes they most value. The problem is that, as pointed out above, business school students tend to enroll in hopes of achieving extrinsic rewards, such as to graduate and get a respectable, well-compensating job (McCabe & Trevino, 1994). While many business schools aspire to teach higher-level value orientations, the extrinsic rewards business students seek tend to be based on visible and easily measured evidence of performance, such as grades. Unfortunately, no grading rubric fully represents the actual

learning that takes place (Bacon & Stewart, 2017; Bailey, 2014; M. Cohen & Billsberry, 2014; Kenworthy & Hrivnak, 2014; Riebe & Jackson, 2014). Cannon et al. (2016) offer a game theoretic interpretation of the impact this has on student motivation, based on a 40-year meta-analysis of studies addressing extrinsic versus intrinsic educational motivation conducted by Cerasoli, Nicklin, and Ford (2014). Cerasoli et al. found that extrinsic motivation tended to elicit a higher quantity of educational results, whereas the results of intrinsic educational motivation tended to be lower in quantity, but higher in educational quality. In the words of Cannon et al. (2016):

A game-theoretic interpretation [of Cerasoli, Nicklin, and Ford's (2014) results] would suggest that extrinsically motivated students optimize their satisfaction by investing the minimum effort required to get a high grade, freeing up their time and energy for garnering additional external rewards. By contrast, intrinsically motivated people maximize their satisfaction by making the investment necessary in the projects they undertake to feel pride in their work (p. 279).

In response to the problem of extrinsic versus intrinsic motivation, Cannon et al. draw on the work of Deci (1972) on cognitive evaluation theory. According to the theory, people tend to judge the value of their efforts by the rewards they receive. Business students who work hard to get grades which, in turn, enable them to get prestigious, high-paying jobs tend to value their education in terms of the grades they earn and the jobs they get, not the amount they learn or the value-based character they develop. To counter this, Cannon et al. draw on self-determination theory (Ryan & Deci, 2000). Self-determination theory proposes that intrinsic motivation can be increased by a feeling of competence, the autonomous ability to direct one's own behavior, and relatedness, or the ability to connect meaningfully with other people. These can be strategically nurtured as part of a value-based business program. In their review of the ABSEL literature, Cannon et al. (2016) noted Burns, Gentry, and their colleagues' (Burns & Gentry, 1998; Gentry et al., 2001, 2002; Gentry & McGinnis, 2008) adaptation of Loewenstein's (1994) gap-tension theory and Yakonich, Cannon, and Ternan's (1997) adaptation of Lawler's (1971) integrative expectancy-value model. These papers also suggest strategic approaches to encourage intrinsic educational motivation.

### **Addressing Learning Styles and Networking**

In yet another follow-up paper addressing the Geddes et al. (2015) model of educational co-creation, Geddes, Cannon, and Cannon (2017) discussed the implications of learning styles and networking for increasing the co-creative educational process efficiency. In laying the theoretical foundation for their discussion, they challenge the conventional notion of experiential learning. Whereas experiential learning is often defined by the nature of the learning activity (Young 2002), Geddes et al. argue that experiential learning actually takes place in students' minds, and that it includes any educational activity that stimulates students to engage in what Kurt Lewin (1946) called "action research." That is, the students observe and reflect upon their experience, develop theories to explain what is happening and why, test the implications of these theories in new situations, and experience the results of their tests, then repeating the cycle.

From this perspective, virtually all effective learning is ultimately experiential, in that it requires students to undergo the experience of thinking about what they are learning, organizing it into abstract concepts and testable generalizations, test the generalizations against past knowledge or new observations, and so forth (Kolb, 1984). Rather than categorizing learning experiences as experiential versus didactic (Berenson, Carkhuff, & Myrus, 1966; Davis & Leslie, 2015; Gentry & Schibrowsky, 1990; Payne, Weiss, & Kapp, 1972), the question is to what degree is the learning experiential, and the degree is highly individual. It depends on the nature and intensity of the co-creative process.

Geddes et al.'s (2017) discussion of learning styles and networking represent an effort to address the nature of the co-creative learning process. In order to addressing learning styles, they draw on the work of Kolb and Kolb (2005), presenting a framework for matching learning styles to different types of intellectual problems. The framework distinguishes between styles that put relatively more emphasis on active experimentation versus reflective observation and concrete experience versus abstract conceptualization. Following Kolb and Kolb (2005), Geddes et al. (2017) argue that effectively matching learning styles with experiential designs stimulates the co-creative process, and consequently enhances educational efficiency. For instance, a student whose style leans toward active experimentation and concrete experience would learn best from a design that featured experimentation with various concrete experiences, whereas a student whose style was more oriented toward reflective observation and abstract conceptualization would learn best from designs that involved a lot of reflective thinking.

Geddes et al. (2017) also addressed networking from the perspective of the co-creative educational process. They identified four different types of educational activities, classifying them according to whether the learning system involves individuals or groups and whether the work product is individual or a collaborative effort on the part of the group. The classification was useful in identifying different types of experiential designs, which, in turn, were then evaluated according to the types of learning objectives they were particularly well suited to address. In many ways, the classification was simplistic, ignoring key issues such as networking to harness social capital (Dika & Singh, 2002), to work within organizational structure and roles (Nonaka, 1992), or to harness the power of social media (Chen & Sharma, 2012). However, the framework provides a useful starting place for addressing a very broad and dynamic aspect of how networking principles can be incorporated into educational design.

## COPING WITH INFORMATION OVERLOAD: THE IAC INITIATIVE

Increasing educational efficiency strikes directly at the rising cost of business school education portrayed in Exhibit 2. However, in itself, it does not address students' challenge of coping with the explosion of knowledge portrayed in Exhibit 1. In fact, our contention is that no educational program can adequately prepare every student for immediate productivity in the wide variety of jobs that most sophisticated business school graduates might aspire to fill.

Our contention is based on three assumptions: First, following the logic of our earlier discussion about the accelerating rate of knowledge accumulation and the problem of information overload, we assume that the specific knowledge driving companies' efforts to achieve competitive advantage in today's market environment is changing so rapidly that no business school can absorb it quickly enough, much less pass it on to their students.

Second, the specific kinds of knowledge new employees need to be effective varies dramatically by industry, by function within industries, and by firms who choose to address similar problems with different technologies. The potential jobs new business school graduates may seek to fill span such a broad range of industries, specializations, and unique company approaches that, even if a business school could absorb the requisite knowledge and pass it on to students, they could not specialize sufficiently to prepare individual students with the knowledge they need to for the specific jobs they might seek to fill. Nor would the students typically know how to specialize even if they could, because most of them would have no way to anticipate the specific industry, specialization, and company in which an attractive job opportunity might become available.

Third, the knowledge students need to acquire is often proprietary to individual firms. That is, within competitive environments, individual firms may safeguard proprietary information associated with their respective competitive advantage. Consequently, business schools have difficulty acquiring the necessary knowledge, even if they had the ability to absorb it and pass it along to students.

How then are business schools going to be effective? We suggest that a solution rests in the concept of *individual absorptive capacity* (IAC). *Absorptive capacity* (AC) theory grew out of the management literature as researchers began grappling with the question of how companies cope with accelerating rates of technological change (Cohen & Leventhal, 1990). Zahra and George (2002) later distinguished between *potential* and realized AC, where potential AC addresses a firm's receptivity to and assimilation of relevant external knowledge and realized AC addresses the firm's ability to transform and exploit new external knowledge to the firm's advantage. Lane, Koka, and Pathik (2006) conceptualized AC as embodying three stages: *exploratory*, *transformative*, and *exploitative*. Burns and Gentry (1998) draw on Cohen and Leventhal's (1990) discussion of AC, applying it to individual students (IAC), suggesting that it is important as a means of increasing the effectiveness of simulation games as a pedagogical tool. In a paper directed specifically at the problem of higher education, da Silva and Davis (2011) apply Zahra and George's conceptualization to IAC. Cannon, Geddes, and Feinstein (2014) drew heavily on the work of Cohen and Leventhal (1990), Zahra and George (2002), and Lane et al. (2006) to develop a comprehensive model of IAC, addressing it from the perspective of the *absorptive task*, the *critical absorptive skills*, and the *organizational environment* students would likely face in their post-graduation employment.

Conceptually, IAC can be seen as a special case of AC. However, the literature tends to treat it as a separate construct. AC refers to an organizational capability, while IAC refers to individual capability. The AC literature both acknowledges and values IAC. For instance, in their seminal article on AC, Cohen and Leventhal (1990) dedicate an entire section to the discussion of the cognitive structures through which individuals encode prior knowledge. Cohen and Leventhal note, "The premise of the notion of absorptive capacity is that the organization needs prior related knowledge to assimilate and use new knowledge. Studies in the area of cognitive and behavioral sciences at the individual level both justify and enrich this observation." (1990, p. 129). This quotation clearly establishes IAC as a component of AC. However, organizations include formalized structures and specialized functions that determine to a great extent how individuals within the organization interact and relate to each other and the information technology available to the firm (Griffith, Sawyer, & Neale, 2003; Roberts, Galluch, Dinger, & Grover, 2012). We believe that the distinction between IAC and AC is useful, because dynamic synergies and interactions across individuals in an organization (AC) are both different and more complex than those existing within the mind of a single individual (IAC).

Returning to our discussion of Exhibit 3, we argue that the rapidly changing knowledge base that drives modern organizations, favors college graduates who are able to achieve high levels of IAC. That is, in order to be productive, graduates must quickly grasp the needs of their new jobs and acquire the knowledge and skills they need to address these needs.

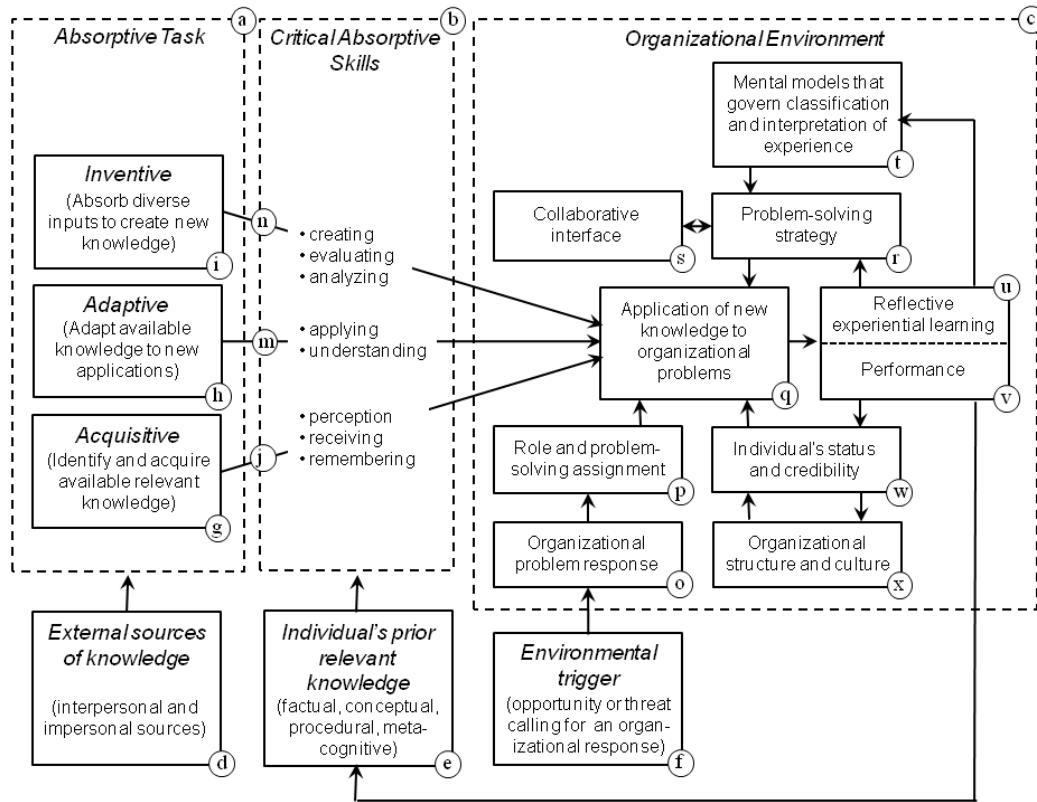
Several articles from the ABSEL/Simulation and Gaming literature specifically address IAC, suggesting that experiential methods might play an important role in incorporating it into business school curricula. Burns and Gentry (1998) addressed it as part of their discussion of motivation. They identify three types of resources that students might acquire to enhance their IAC: analytical language (the ability to categorize, conceptualize, and reconceptualize); learning skills (the cognitive, manual, and other knowledge acquisition abilities); and ecological interfacing (the willingness to put one's self in situations that require learning).

Levi, Cannon, and Friesen (2012) argued that live-case exercises provide a useful method of exposing students to actual situations for which students need to acquire IAC in order to quickly absorb new knowledge to succeed. Levi et al. do not offer any specific framework for developing IAC, but rather, they rely on the debriefing process to help the students understand what they have done, and generalize from the experience.

Cannon, Feinsein, Friesen, and Yaprak (2013) discuss the nature of AC and its application to IAC, drawing on the work of Lane et al. (2006). Consistent with Burns and Gentry (1998) and Levi et al. (2012), they argue that, in the end, the key to developing IAC rests in providing students with a broader range of knowledge and experience. Drawing on the work of Karns (1993), they offer simulations as a particularly good vehicle for providing students with this kind of experience.

In 2014, Cannon, Geddes, and Feinstein developed a model integrating many of the IAC principles addressed above, with the specific purpose of guiding experiential learning activities that would help develop IAC in graduating business school students. For purposes of convenience, we have included Cannon et al.'s (2014) model here as Exhibit 4. Given its comprehensive nature, we will use it as a reference point for discussing strategies for addressing IAC in the next section.

**EXHIBIT 4:  
AN INTEGRATIVE MODEL OF INDIVIDUAL ABSORPTIVE CAPACITY**



Source: Hugh M. Cannon, Bryon C. Geddes, and Andrew Hale Feinstein. *Experiential Strategies for Building Individual Absorptive Capacity. Developments in Business Simulation and Experiential Learning*. Volume 41, 2014, p. 379.

**IMPLICATIONS FOR THE BUSINESS SCHOOL CURRICULUM**

The diagram in Exhibit 4 suggests a host of different points of leverage for stimulating students to develop their IAC. We cannot address them all in a single article. However, we can capture much of the logic behind the diagram by addressing four general areas for the development of experiential activities. We say “activities,” because they imply changes in the curriculum that require students to actually engage in critical physical and mental behaviors. Given that IAC involves a set of skills, not a particular body of student knowledge, they cannot be relegated to specific classes, but must necessarily be spread across the curriculum in a way that gives students continual practice in applying them and recognizing/reinforcing their importance. We will refer to implementing these curricular changes as the *IAC Initiative*.

**Activities Addressing Knowledge Acquisition**

Boxes d and e in Exhibit 4 address the importance of students’ *knowledge acquisition* skills. Box d addresses external sources of knowledge, which come in two general varieties. The first involves impersonal sources. We can use Google as a metaphor for the host of impersonal resources available, from textbooks and other university-related materials, to libraries, to the various sources available on the Internet. Of these, Google is, of course, the most widely accepted impersonal resource, placing literally millions of informational data streams at the fingertips of students whenever a question should arise. The educational task is twofold: First, students need to develop their skill in finding the information they need with a manageable expenditure of effort from the



myriad sources available. Second, they need to develop the habit of consulting our metaphoric or literal Google whenever they have a question. Both of these tasks can be served by the same educational intervention. The teacher need only remind students at every opportunity, asking, “What did you find when you looked this up online?” Of course, as the questions arise, the teacher can coach the students on how to conduct an effective search, refining their skills in their quest for knowledge.

The second source of external information listed in Box d is networking. As we noted earlier in the paper, networking is a complex subject, involving a large set of different, and often very complex skills. We can’t address them all here. However, at the most rudimentary level, they can be addressed in much the same way as impersonal skills. The student faces the same two educational tasks: to develop their skills in networking and to habitually begin using them when they have a problem. Whenever a question or problem arises, the teacher may simply ask, “In your growing sphere of influence, who can you think of that could help you in this area?” Again, the teacher can coach the students in different networking approaches as the opportunities arise.

Moving to Box e, we encounter what many consider to be the most important element of IAC. Recall that Cohen and Leventhal (1990) begin the discussion of AC by noting that the most important determinant of a person’s ability to recognize and absorb new relevant knowledge is the accumulation of prior knowledge to which the new knowledge might be associated. Burns and Gentry (1998) pick up this theme as they discuss Loewenstein’s (1994) curiosity-gap theory of intrinsic motivation. People only tend to be curious when they believe they can find an answer. Therefore, the more they know, the more curious they become, and the more they learn, the more they continue to build their IAC.

Along these lines, Cannon et al. (2014) refer to general education requirements in the context of prior stores of relevant knowledge. The role of prior information in the development of IAC gives a new sense of importance to general education. Again, drawing on Burns and Gentry (1998), the key to making this useful in the cycle of curiosity à knowledge à greater curiosity, is to help students see the relevance of apparently unrelated bits of knowledge they might have acquired in prior classes, or in the course of life in general. The teacher can play a key role through simple coaching, pointing out how apparently irrelevant knowledge has proven useful in the past, and speculating on how knowledge from various fields outside of business might prove useful in the students’ future. The skills of a teacher in correlating the often-perceived irrelevant and unrelated bits of knowledge will only enhance learning curiosity on the part of the student, and ultimately build students IAC.

### Activities Addressing Cognitive Processing

The difference between *knowledge* and *cognitive processes* was the driving force in the development of Bloom’s revised taxonomy (Anderson & Krathwohl, 2001; Krathwohl, 2002). Whereas Bloom’s original cognitive taxonomy treated knowledge as the lowest level of a learning hierarchy, the revised taxonomy as a separate dimension, contrasted with thinking processes (Bloom, et al., 1956). The revised taxonomy addresses four levels of knowledge: factual (knowledge of facts and conventions), conceptual (knowledge of how things relate to each other), procedural (knowledge of how to do things), and metacognitive (knowledge of cognition in general, including self-awareness, or cognition of one’s own thinking processes).

The thinking, or *cognitive processes*, dimension addresses six levels: remembering (recognizing and recalling), understanding (recognizing patterns that enable one to classify, compare and contrast), applying (carrying out a procedure in a given situation), analyzing (breaking ideas into their constituent parts and detecting how the parts relate in an overall structure or purpose), evaluating (making judgments based on criteria and standards), and creating (putting ideas together to form a novel, coherent structure).

From the perspective of Bloom’s revised taxonomy, knowledge is the product of past thinking. Once stored, it can be retrieved to provide templates and building blocks for conceptualizing and solving new problems. This is what Cohen and Leventhal (1990), and Burns and Gentry (1998) in their application to experiential learning, were describing as they characterized prior knowledge as the basis for AC and IAC, respectively. In terms of Cannon et al.’s (2014) model, portrayed in it is the basis for the relationship between the knowledge boxes d and e and the thinking process boxes contained in a and b.

The thinking processes portrayed in boxes a and b represent what Argyris (1976) refers to as *single-loop* learning. That is, it involves the utilization of past knowledge in creating solutions to current problems. Argyris distinguishes between this *single-loop* learning and what he calls *double-loop* learning, where the learning involves rethinking existing approaches, and redefines the problem. This approach is captured in the relationship among boxes u, t, and r in Exhibit 4.

To illustrate *double-loop* learning, we can draw on the arguments made in this paper. While none of the specifics we are discussing are new, we argue that the basic approach business schools have taken in response to the knowledge crisis in universities is to make what we teach more relevant, to acquire the requisite knowledge more quickly, and to transfer this knowledge more efficiently to students. That is, they are seeking ways to better address the problem as they see it. While relevance, speed, and efficiency with which students accumulate knowledge is important, we are suggesting that the solution requires a major rethinking of the problem. The solution cannot rest on quantity or even efficiency of knowledge delivery, but rather, on the effective preparation of students to quickly recognize and absorb new, relevant knowledge when they need it. This rethinking of the educational problem is a *double-loop* approach

As with the case of *knowledge acquisition*, we are not suggesting specific exercises to help students develop their *cognitive processes* or their ability to engage in *double-loop* learning when appropriate. At most schools, the standard business school

curriculum is infused with learning activities that require the application of high-level *cognitive processes*. Instead, we advocate a more conscious approach to the different thinking skills, coaching students in the use of each type of cognitive process and how this relates to the nature of each type of knowledge, and how and when this relates to *double-loop* versus *single-loop* learning. Note that this is a distinctly meta-cognitive approach. We teach students to consciously think about the way they think!

### Activities Addressing Intrapersonal and Interpersonal Skills

In our prior discussion, we addressed Cannon et al.'s (2016) treatment of teaching, or facilitating the co-creation of, effective values and value systems, as opposed to knowledge, learning styles, and networking skills. Cannon et al. based their analysis on Bloom et al.'s (1956) *affective* taxonomy of educational objectives. At the lowest level, *values* address how students allocate their attention. At the highest level, they address a comprehensive system by which students decide not only what merits their attention, but what is actually worth doing, what is ethical; and, even more important, how students evaluate new possibilities in terms of their importance, consistency with personal objectives, and moral propriety. Boyatzis, Stubbs, and Taylor (2002) take a similar view regarding values. They observed that, regardless of the author or study, the literature addressing the causes or predictive factors of leadership effectiveness can be grouped into three clusters: (1) cognitive or intellectual ability; (2) self-management or intrapersonal abilities; and (3) relationship management or interpersonal abilities (p. 150). Whereas their cognitive or intellectual abilities relate to what we have addressed in our discussion of *knowledge* and *cognitive processing* skills, they argued that *intrapersonal* and *interpersonal skills* relate to values.

Returning to Exhibit 4, we see that *interpersonal skills* play a critical role in box s, where problem-solving (box r) generally involves a collaborative effort with other individuals and groups within and outside of the organization. Furthermore, effective problem solving involves an interaction between one's own mental models and those used by other people with whom our putative students would have to interface (box t). This suggests that our students must be aware of, and able to analyze both their own mental models, and those of other people who very well may come from highly diverse backgrounds, with varying intellectual, emotional, and value orientations. Box u, reflective experiential learning, requires ability to reconcile and, hopefully, capitalize on any differences.

Our rationale is as follows: If we look at the dysfunctions of both interpersonal relations and human institutions, from industry to governments to simply getting along with people with whom we work, values and value conflicts appear to play a central role. If our behavior is ultimately guided by a uniquely individual and complex system of values and priorities, as Krathwohl et al.'s (1964) *affective taxonomy* suggests, we should not be surprised by the conflicts. The systems are the product of a lifetime of experience, involving a myriad of social, intellectual, cultural, and highly personal factors. The variance in these factors increases with the diversity of the work group, the effect of which is multiplied by the growing importance of social networks (Chen & Sharma, 2012), the development of virtual organizations (Griffith et al., 2003), the expansion of the global marketplace, (Sigmar, Hynes, & Hill, 2012), and the increased dependence on combining expertise from disparate industries in order to stimulate innovation (Meige & Schmitt, 2015). When co-workers encounter highly disparate value systems, they are often unable to predict one another's behavior, or when they can predict it, they may oppose it because it is driven by different situational factors or value priorities. This naturally creates conflict.

In order to address this problem, Boyartzis et al. (2002) suggested that business schools should help their students develop value-bridging techniques, first, for assessing their own value-related issues, and second, by understanding and reconciling the differences between their values and those of the people with whom they work. As a basic theoretical framework they suggest the use of *emotional intelligence*. The concept of *emotional intelligence* suggests that *interpersonal skills* grow out of a kind of hierarchical process, beginning with the *intrapersonal skills* of *self-awareness* and *self-management*. Once students learn to recognize and manage their own value-related issues and emotional responses, they can use these to better understand what their fellow workers might be experiencing. The result is a kind of, empathic *social awareness*. Once they have achieved this awareness, again using their own experience as a guide, they can begin to predict the impact their actions might have on others. This enables them to inform their own behavior in order to facilitate *relationship management*. According to his conceptualization of *emotional intelligence*, *social awareness* and *relationship management* are the key elements of *interpersonal skills* (Goleman, 2006).

The question, of course, is how we can help students develop their ability to quickly recognize the need, and to further develop their value system when confronted with new and challenging work environments? Again, suggest a "coaching" model, where the teacher helps students become aware of their underlying value issues triggered by thoughts and emotions, then helping them think-through and practice healthy ways of managing their responses. Students can then leverage these intrapersonal insights to help them students imagine what their fellow students might be thinking or feeling. As with *knowledge acquisition* and *cognitive process* coaching, the process must be applied over and over again in subsequent classes, addressing a variety of settings and issues to be effective.

### Activities Addressing Tacit Knowledge

The final class of activities in the *IAC initiative* does not grow directly out of any particular component of the model portrayed in Exhibit 4. Rather, it addresses the fact that organizational decision-making takes place in real time, and that the factors going into the decisions are highly complex and interactive. While the decision model embedded in Exhibit 4 is useful for analyzing the IAC skills we would like to help our students develop, in the end, they express themselves in what managers might refer to as "good instincts." More formally, they would constitute what Bloom's revised taxonomy characterizes as *tacit knowledge* (Anderson

& Krathwohl, 2001; Krathwohl, 2002).

One framework for addressing the development of tacit knowledge is the *conscious-competence cycle* (Cannon, Feinstein, & Friesen 2010). It suggests that students acquire tacit knowledge through a four-stage process. In many ways, it parallels Kolb's (1984) experiential learning cycle. That is, students begin with a somewhat naïve theory regarding a given business problem (*unconscious incompetence*), acting on it's implications, then discovering that the solution doesn't work (*conscious incompetence*). They study the problem, reformulating their theory and try again with a similar problem (*conscious competence*), discovering that their new solution works. Of course, no two problems within the particular class to which a given theory might apply are identical. Nor are they likely to be simple. In the real world, decision makers face decisions involving a myriad of factors that do not lend themselves to a simple "conscious competence" solution. However, through continual practice across a broad range of similar decision situations, students gradually develop their instincts, or *tacit knowledge*, achieving *unconscious competence*.

In a sense, the development of *tacit knowledge* is a type of "uber objective." That is, it addresses the final outcome of each of the other three learning processes. It is the reason for the coaching process and the continual repetition. Coaching provides the feedback that is essential for stimulating students to reconsider their previous behavior. Repetition facilitates the minor corrections needed to develop a truly robust set of "instincts."

## SUMMARY AND CONCLUSIONS

We have suggested that universities are in a crisis situation, where relevant knowledge is increasing faster and in greater quantities than either universities or their students can absorb (see Exhibit 1). In consequence of these two phenomena, students are graduating with increasing amounts of debt (Dwyer, McCloud, & Hodson, 2012), but fewer job possibilities where the salaries are commensurate with the cost of their education (see Exhibit 3). In response to this situation, we have suggested what we have referred to as the *IAC initiative*, namely, that universities, and from the particular perspective of this paper, business schools, should change the relative focus of their educational approach from knowledge acquisition toward the development of *individual absorptive capacity* (IAC), or the ability to quickly recognize and acquire the knowledge graduates need as they face the demands of their employers.

We have suggested that this change in focus might be achieved by applying the principles of experiential learning. Consistent with Geddes et al.'s (2017) formulation, we argue that experiential learning is defined by the process of actively thinking about (experiencing) educational activities, formulating abstract concepts and generalizations to address them, and testing these concepts and generalizations in new situations. From this perspective, we argue that the actual nature of the classroom activity is less important than the guidance the teacher provides to help students gain useful insights from the activities.

The benefit of this is threefold: First, it shifts the burden of learning increasingly to the student, what we have characterized as the co-creation of learning, drawing on service-dominant logic (SDL) from Marketing (Geddes et al., 2016). Second, it establishes the groundwork for IAC, schooling students in the process of accumulating knowledge and using it as a foundation for recognizing, adapting, and applying the new knowledge needed to address the problems they face (Cannon et al., 2014). Third, because the teaching process we are suggesting can be administered through the kinds of interactions teachers typically have with their students, independent of the curriculum and experiential designs, it is flexible enough to be incorporated in virtually any type of business school program.

If changing the focus of the business school toward IAC versus increased knowledge acquisition, the *IAC Initiative*, is truly the answer to the educational crisis as we have described it, and if the activities required are truly compatible with virtually any curriculum or experiential design orientation, as we have suggested, why haven't business schools adopted this new approach? The answer may be that most business schools have simply not conceptualized the problem as we have described it. However, we believe that our proposal would encounter resistance, even if it were being actively considered. What follows are four of the most obvious educational barriers.

The first barrier relates to the way universities, including business schools, think about the nature of higher education. We believe that higher education today tends to be governed by what Geddes et al. (2015) characterize as an *informational* versus a *transformational* paradigm. Those who espouse the *informational* paradigm tend to view the university as a citadel of knowledge, where the brightest minds gather to do research and accumulate wisdom. They then dispense this wisdom to their students. According to the *transformational* paradigm, knowledge is no less important. However, the focus is on student learning, not faculty teaching. The *transformational* process seeks to immerse students in an environment of rich intellectual and constructive social stimuli, inspiring them to experientially process these stimuli in a way that will enable them to acquire the knowledge, skills, and habits they will need to thrive in a rapidly changing world. In this environment, the teacher's role is more like that of a coach than a dispenser of knowledge.

From a strategic perspective, the critical difference between a university that operates according to the *informational* versus *transformational* paradigm is reflected in the university's culture, its priorities, and ultimately, in the way it allocates resources. For instance, what kind of faculty does the university hire, promote, and otherwise reward? *Informational* universities tend hire and reward faculty based on their intellectual credentials and scholarship. *Transformational* universities tend to place more emphasis on faculty members' demonstrated ability to inspire students to become life-long learners. Helping students become life-longer learners, of course, is precisely what is required to support the *IAC initiative*.

The second potential barrier to adoption of the *IAC initiative* is more directly related to the nature of experiential learning. As we have pointed out, each of the four classes of educational interventions embodied in the initiative – those relating to *knowledge acquisition, cognitive processes, interpersonal skills, and tacit knowledge* – can only be administered through continual practice. This practice can take place in any number of different educational settings, but the interventions require teachers to coach students through the experiential learning cycle, actively thinking about (experiencing) educational activities, formulating abstract concepts and generalizations to address them, and testing these concepts and generalizations in new situations (Geddes, et al., 2017). Faculty would still be free to address the specialized knowledge related to the courses they are teaching, but the teaching process would be driven by common adherence to the tenants of the *transformational* versus the *informational paradigm*. We anticipate that many faculty would resist adherence to a new teaching paradigm, seeing it could be viewed as an infringement on their academic freedom.

The third educational barrier also relates to potential faculty resistance. Faculty members have typically been schooled in Ph.D. programs that are firmly anchored in the informational paradigm. That is, they focus on knowledge acquisition, not experiential application. They are trained as scientists in particular specialized areas, and therefore could not be expected to have process expertise in coaching students in an experiential learning environment. Faculty would naturally resist performance expectations for which their training did not prepare them, even if they accepted the value of the *IAC initiative*.

The fourth barrier grows out of the practical rather than philosophical faculty opposition to the changes embodied in the *IAC initiative*. Universities, both individually and collectively, represent complex social systems embodying various roles, expectations, rewards, and so forth that govern faculty behavior. Seeking to change faculty behavior is inevitably disruptive to the system, and stressful to the faculty who have adapted themselves to it. This would lead us to expect resistance. This resistance would likely take on the form of such things as simple refusal to comply with changing expectations, to political resistance, to using faculty governance and/or unions (where they exist), to appeals aimed at the larger community, arguing that the new initiative is compromising educational quality.

In our view, none of these barriers are insurmountable. Rather, they suggest areas for future research and practical experimentation. Given the seriousness of our putative crisis in higher education, we offer this paper as a call for more in-depth investigation of the nature and extent of the crisis, as well as the nature and effectiveness of our proposed solution. To what extent does each type of barrier to its implementation actually exist? Under what conditions does each barrier tend to arise? What approaches are most effective in addressing them?

## REFERENCES

- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211. doi:10.1016/0749-5978(91)90020-T
- Anderson, L., & Krathwohl, D. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Baxonomy of Educational Objectives*. Boston, MA: Allyn & Bacon.
- Archibald, R. B., & Feldman, D. H. (2008). Why Do Higher-Education Costs Rise More Rapidly Than Prices in General? *Change: The Magazine of Higher Learning*, 40 (3), 25–31. doi:10.3200/CHNG.40.3.25-31
- Argyris, C. (1976). Single-Loop and Double-Loop Models in Research on Decision Making. *Administrative Science Quarterly*, 21, 363–375. doi:10.2307/2391848
- Bacon, D. R., & Stewart, K. A. (2017). Why Assessment Will Never Work at Many Business Schools: A Call for Better Utilization of Pedagogical Research. *Journal of Management Education*, 41, 181–200. doi:10.1177/1052562916645837
- Bailey, J. R. (2014). Crossing the Rubric-con. *Journal of Management Education*, 38, 313–318. doi:10.1177/1052562913515657
- Berenson, B., Carkhuff, R., & Myrus, P. (1966). The Interpersonal Functioning and Training of College Students. *Journal of Counseling Psychology*, 13, 441–446. doi:10.1037/h0024026
- Blau, I., & Shamir-Inbal, T. (2017). Re-Designed Flipped Learning Model in an Academic Course: The Role of Co-Creation and Co-Regulation. *Computers & Education*, 115, 69–81. doi:10.1016/j.compedu.2017.07.014
- Bloom, B. S., Engelhart, E. J., Furst, W. H., & Krathwohl, D. R. (1956). *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain*. New York, NY: David McKay Company.
- Booth, S. E., & Kellogg, S. B. (2015). Value Creation in Online Communities for Educators. *British Journal of Educational Technology*, 46(4), 684–698. doi:10.1111/bjet.12168
- Boyatzis, R. E., Stubbs, E. C., & Taylor, S. N. (2002). Learning Cognitive and Emotional Intelligence Competencies Through Graduate Management Education. *Academy of Management Learning & Education*, 1(2), 150–162. doi:10.5465/AMLE.2002.8509345
- Burns, A. C., & Gentry, J. W. (1998). Motivating Students to Engage in Experiential Learning: A Tension-to-Learn Theory. *Simulation & Gaming*, 29, 133–151. doi:10.1177/1046878198292001
- Cannon, H., Cannon, J., Köksal, A., & Johnson, A. (2014). Customer Transaction Costs and Marketing Simulations: Modeling a New Relationship Marketing Approach. *Developments in Business Simulation and Experiential Learning*, 41, 36–46. Retrieved from <http://absel.org/>
- Cannon, H., Feinstein, A., & Friesen, D. (2010). Managing complexity: Applying the conscious-competence model to experiential learning. *Developments in Business Simulation and Experiential Learning*, 37, 172–182. Retrieved from <http://absel.org/>
- Cannon, H. M., Cannon, J. N., Geddes, B. C., & Feinstein, A. H. (2016). Teaching Values: an Experiential Approach. *Developments in Business Simulation and Experiential Learning*, 43, 273–283. Retrieved from <http://absel.org/>
- Cannon, H. M., Feinstein, A. H., Friesen, D. P., & Yaprak, A. (2013). The Role of Simulations in Organizational Learning: Building Individual Absorptive Capacity. *Developments in Business Simulation and Experiential Learning*, 40, 333–343. Retrieved from <http://absel.org/>

- Cannon, H. M., Geddes, B. C., & Feinstein, A. H. (2014). Experiential Strategies for Building Individual Absorptive Capacity. *Developments in Business Simulation and Experiential Learning*, 41, 378–389. Retrieved from <http://absel.org/>
- Cerasoli, C. P., Nicklin, J. M., & Ford, M. T. (2014). Intrinsic Motivation and Extrinsic Incentives Jointly Predict Performance: A 40-Year Meta-Analysis. *Psychological Bulletin*, 140, 980–1008. doi:10.1037/a0035661
- Chen, R., & Sharma, S. (2012). Understanding User Behavior at Social Networking Sites: A Relational Capital Perspective. *Journal of Global Information Technology Management*, 15(2), 25–45. doi:10.1080/1097198X.2012.11082754
- Cohen, M., & Billsberry, J. (2014). The Use of Marking Rubrics in Management Education: Issues of Deconstruction and Andragogy. *Journal of Management Education*, 38, 352–358. doi:10.1177/1052562914525757
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, 35, 128–152. doi:10.2307/2393553
- Consumer Price Index, 1913-2016. (2016). Retrieved October 2, 2017, from <https://www.minneapolisfed.org/community/teaching-aids/cpi-calculator-information/consumer-price-index-and-inflation-rates-1913>
- Davis, W. L., & Leslie, P. J. (2015). Short Research Report: A Comparison of Emotional Intelligence Levels between Students in Experiential and Didactic College Programs. *International Journal of Emotional Education*, 7(2), 63–65. Retrieved from <https://www.um.edu.mt/ijee>
- Deci, E. L. (1972). Intrinsic Motivation, Extrinsic Reinforcement, and Inequity. *Journal of Personality and Social Psychology*, 22, 113–120. doi:10.1037/h0032355
- Dika, S., & Singh, K. (2002). Applications of Social Capital in Educational Literature: A Critical Synthesis. *Review of Educational Research*, 72(1), 31–60. doi:10.3102/00346543072001031
- Drouin, M. A. (2008). The Relationship Between Students' Perceived Sense of Community and Satisfaction, Achievement, and Retention in an Online Course. *Quarterly Review of Distance Education*, 9, 267–284. Retrieved from <http://www.infoagepub.com/quarterly-review-of-distance-education.html>
- Duit, R. (1991). On the Role of Analogies and Metaphors in Learning Science. *Science Education*, 75, 649–672. doi:10.1002/sce.3730750606
- Dwyer, R. E., McCloud, L., & Hodson, R. (2012). Debt and Graduation from American Universities. *Social Forces*, 90, 1133–1155. doi:10.1093/sf/sos072
- Ehie, I. C., & Karathanos, D. (1994). Business Faculty Performance Evaluation Based on the New AACSB Accreditation Standards. *Journal of Education for Business*, 69, 257–262. doi:10.1080/08832323.1994.10117695
- Elsharnouby, T. H. (2015). Student Co-Creation Behavior in Higher Education: The Role of Satisfaction with the University Experience. *Journal of Marketing for Higher Education*, 25, 238–262. doi:10.1080/08841241.2015.1059919
- Fuller, R. B. (1982). *Critical Path*. New York, NY: St. Martin's Griffin.
- Geddes, B. C., Cannon, H. M., & Cannon, J. N. (2017). Conceptualizing Co-Creative Strategies in Experiential Education: Individual versus Group Approaches. *Developments in Business Simulation and Experiential Learning*, 44. Retrieved from <http://absel.org/>
- Geddes, B., Cannon, H., Cannon, J., & Feinstein, A. (2015). Developing Educational Strategies for Experiential Learning: An Application of Service Dominant Logic from Marketing. *Developments in Business Simulation & Experiential Learning*, 42, 226–232. Retrieved from <http://absel.org/>
- Gentry, J. W., Burns, A. C., Dickinson, J. R., Putrevu, S., Chun, S., Hongyan, Y., ... Gentry, R. A. (2002). Managing the Curiosity Gap Does Matter: What Do We Need to Do About It? *Developments in Business Simulation and Experiential Learning*, 29. Retrieved from <http://absel.org/>
- Gentry, J. W., Burns, A. C., Putrevu, S., Hongyan, Y., Williams, L. A., Bare, T., & Gentry, R. A. (2001). Motivating Students: An Initial Attempt to Operationalize the Curiosity Gap Model. *Developments in Business Simulation and Experiential Learning*, 28. Retrieved from <http://absel.org/>
- Gentry, J. W., & McGinnis, L. (2008). Thoughts on How to Motivate Students Experientially. *Developments in Business Simulation and Experiential Learning*, 35. Retrieved from <http://absel.org/>
- Gentry, J. W., & Schibrowsky, J. (1990). A Transaction Cost Analysis of Experiential Learning. *Developments in Business Simulation and Experiential Learning*, 17. Retrieved from <http://absel.org/>
- Gillespie, P. (2016, September 16). Health Care Costs Rise by Most in 32 Years. Retrieved September 30, 2017, from <http://money.cnn.com/2016/09/16/news/economy/health-care-costs-rise-most-in-32years/index.html>
- Goleman, D. (2006). Emotional Intelligence: Issues in Paradigm Building. In *The Emotionally Intelligent Workplace* (1st ed., pp. 13-26). San Francisco, CA: Jossey-Bass.
- Gorozidis, G., & Papaioannou, A. G. (2014). Teachers' Motivation to Participate in Training and to Implement Innovations. *Teaching and Teacher Education*, 39 (Supplement C), 1–11. doi:10.1016/j.tate.2013.12.001
- Griffith, T. L., Sawyer, J. E., & Neale, M. A. (2003). Virtualness and Knowledge in Teams: Managing the Love Triangle of Organizations, Individuals, and Information Technology. *MIS Quarterly*, 27, 265–287. Retrieved from <http://www.misq.org/index.html>
- Health Care Expenditures per Capita by State of Residence. (2017, June 16). Retrieved October 2, 2017, from <https://www.kff.org/other/state-indicator/health-spending-per-capita/>
- Hedrick, D. W., Henson, S. E., Krieg, J. M., & Wassell Jr., C. S. (2010). The Effects of AACSB Accreditation on Faculty Salaries and Productivity. *Journal of Education for Business*, 85, 284–291. doi:10.1080/08832320903449543
- Jantzen, R. H. (2000). AACSB Mission-Linked Standards: Effects on the Accreditation Process. *Journal of Education for Business*, 75, 343–347. doi:10.1080/08832320009599038
- January 1, L. L. M., 2016, & Light, L. (2016, January 1). How Painful Will Health Care Costs Be in 2016? Retrieved September 30, 2017, from <https://www.cbsnews.com/news/how-much-will-your-health-care-costs-rise-in-2016/>
- Jing, S., & Zhiying, W. (2007). Contrast Analysis of AACSB Accreditation Standards and Education Criteria for Performance Excellence. In 2007 *International Conference on Service Systems and Service Management* (pp. 1–6). doi:10.1109/ICSSSM.2007.4280097
- Jolley, M. R., Cross, E., & Bryant, M. (2014). A Critical Challenge: The Engagement and Assessment of Contingent, Part-Time Adjunct Faculty Professors in United States Community Colleges. *Community College Journal of Research and Practice*, 38, 218–230. doi:10.1080/10668926.2014.851969

- Judson, K. M., & Taylor, S. A. (2014). Moving from Marketization to Marketing of Higher Education: The Co-Creation of Value in Higher Education. *Higher Education Studies*, 4(1), 51. doi:10.5539/hes.v4n1p51
- Karns, G. L. (1993). Marketing Student Perceptions of Learning Activities: Structure, Preferences and Effectiveness. *Journal of Marketing Education*, 15(1), 3–10. doi:10.1177/027347539301500102
- Kenworthy, A. L., & Hrivnak, G. A. (2014). To Rubric or Not to Rubric: That Is the Question. *Journal of Management Education*, 38, 345–351. doi:10.1177/1052562914530103
- Kimball, B. A. (2014). The Rising Cost of Higher Education: Charles Eliot's "Free Money" Strategy and the Beginning of Howard Bowen's "Revenue Theory of Cost," 1869–1979. *Journal of Higher Education*, 85, 886–912. doi:10.1353/jhe.2014.0032
- Kolb, A. Y., & Kolb, D. A. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. *Academy of Management Learning & Education*, 4, 193–212. doi:10.5465/AMLE.2005.17268566
- Kolb, D. A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Prentice Hall, Englewood Cliffs, NJ.
- Krathwohl, D. R. (2002). A Revision of Bloom's Taxonomy: An Overview. *Theory into Practice*, 41, 212–218. doi:10.1207/s15430421tip4104\_2
- Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1964). *Taxonomy of Educational Objectives. the Classification of Educational Goals. Handbook II: Affective Domain*. New York, NY: David McKay Company.
- Kroeger, T., Cooke, T., & Gould, E. (2016). *The Class of 2016: The Labor Market Is Still Far from Ideal for Young Graduates* (p. 40). Washington, DC: Economic Policy Institution. Retrieved from <http://www.epi.org/publication/class-of-2016/>
- Kurzweil, R. (2005). *The Singularity is Near: When Humans Transcend Biology*. New York, NY: Penguin Books.
- Lane, P. J., Koka, B. R., & Pathak, S. (2006). The Reification of Absorptive Capacity: A Critical Review and Rejuvenation of the Construct. *Academy of Management Review*, 31, 833–863. doi:10.5465/AMR.2006.22527456
- Lawler, E. E., III. (1971). *Pay and Organizational Effectiveness*. New York, NY: McGraw-Hill.
- Levesque, C., Copeland, K. J., Pattie, M. D., & Deci, E. L. (2010). Intrinsic and Extrinsic Motivation. In P. Peterson, E. Baker, & B. McGaw (Eds.), *International Encyclopedia of Education (Third Edition)* (pp. 618–623). Oxford: Elsevier. doi:10.1016/B978-0-08-044894-7.00612-6
- Levey, N. N. (2015, September 22). Healthcare Costs Rise Again, and the Burden Continues to Shift to Workers. *Los Angeles Times*. Retrieved from <http://www.latimes.com/nation/la-na-healthcare-costs-20150922-story.html>
- Levi, A., Cannon, H. M., & Friesen, D. P. (2012). The Use of Data in "Live" Cases to Encourage Systems Thinking and Integrative Analysis: An Exercise Linking Human Resource Programs and Financial Outcomes in Real Organizations. *Developments in Business Simulation and Experiential Learning*, 39. Retrieved from <http://absel.org/>
- Lewin, K. (1946). Action Research and Minority Problems. *Journal of Social Issues*, 2(4), 34–46. doi:10.1111/j.1540-4560.1946.tb02295
- Light, L. (2016, January 1). How Painful Will Health Care Costs Be in 2016? Retrieved September 30, 2017, from <https://www.cbsnews.com/news/how-much-will-your-health-care-costs-rise-in-2016/>
- Loewenstein, G. (1994). The Psychology of Curiosity: A Review and Reinterpretation. *Psychological Bulletin*, 116(1), 75–98. doi:10.1037/0033-2909.116.1.75
- Madhavaram, S., & Hunt, S. D. (2008). The Service-Dominant Logic and a Hierarchy of Operant Resources: Developing Masterful Operant Resources and Implications for Marketing Strategy. *Journal of the Academy of Marketing Science*, 36(1), 67–82. doi:10.1007/s11747-007-0063-z
- McCabe, D. L., & Trevino, L. K. (1995). Cheating Among Business Students: A Challenge for Business Leaders and Educators. *Journal of Management Education*, 19, 205–218. doi:10.1177/105256299501900205
- Meige, A., & Schmitt, J. (2015). *Innovation Intelligence. Commoditization. Digitalization. Acceleration. Major Pressure on Innovation Drivers*. Absans Publishing (Online).
- Mercado, D. (2016, August 11). Expect Your Health Insurance Costs to Rise in 2017. Retrieved September 30, 2017, from <https://www.cnbc.com/2016/08/11/expect-your-health-insurance-costs-to-rise-in-2017.html>
- Moerkerke, G. (2015). Modern Customers and Open Universities: Can Open Universities Develop a Course Model in Which Students Become the Co-Creators of Value? *Open Learning*, 30, 235–251. doi:10.1080/02680513.2015.1117969
- Moravec, J. W., & Hoff, R. van den. (2015). Higher Education 3.0: Knowmads Create Their Own Value! *Transformative Perspectives and Processes in Higher Education* (pp. 233–239). Switzerland: Springer International Publishing. doi:10.1007/978-3-319-09247-8\_13
- Naidoo, R., Shankar, A., & Veer, E. (2011). The Consumerist Turn in Higher Education: Policy Aspirations and Outcomes. *Journal of Marketing Management*, 27, 1142–1162. doi:10.1080/0267257X.2011.609135
- Ng, I. C. L., & Forbes, J. (2009). Education as Service: The Understanding of University Experience Through the Service Logic. *Journal of Marketing for Higher Education*, 19(1), 38–64. doi:10.1080/08841240902904703
- Nonaka, I. (1994). A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*, 5(1), 14–37. doi:10.1287/orsc.5.1.14
- Patton, M. (2015, June 29). U.S. Health Care Costs Rise Faster Than Inflation. Retrieved September 30, 2017, from <https://www.forbes.com/sites/mikepatton/2015/06/29/u-s-health-care-costs-rise-faster-than-inflation/#1ae52c5c6fa1>
- Payne, P. A., Weiss, S. D., & Kapp, R. A. (1972). Didactic, Experiential, and Modeling Factors in the Learning of Empathy. *Journal of Counseling Psychology*, 19, 425–429. doi:10.1037/h0033193
- Petress, K. (2007). How We Can Attract and Retain Quality Teachers. *Education*, 128, 234–236. doi:10.1037/a0008646
- Picciano, A. (2014). Big Data and Learning Analytics in Blended Learning Environments: Benefits and Concerns. *International Journal of Artificial Intelligence and Interactive Multimedia*, 2 (Special Issue on Multisensor User Tracking and Analytics to Improve Education and other Application Fields), 35–43. doi:10.9781/ijimai.2014.275
- Renter, E. (2014, October 21). Health Care Costs Expected to Rise in 2015: Are You Ready? Retrieved September 30, 2017, from <https://health.usnews.com/health-news/health-insurance/articles/2014/10/21/health-care-costs-expected-to-rise-in-2015-are-you-ready>
- Rhodes, R. E., & Courneya, K. S. (2004). Differentiating Motivation and Control in the Theory of Planned Behavior. *Psychology, Health & Medicine*, 9, 205–215. doi:10.1080/13548500410001670726

- Riebe, L., & Jackson, D. (2014). The Use of Rubrics in Benchmarking and Assessing Employability Skills. *Journal of Management Education*, 38, 319–344. doi:10.1177/1052562913511437
- Roberts, N., Galluch, P. S., Dinger, M., & Grover, V. (2012). Absorptive Capacity and Information Systems Research: Review, Synthesis, and Directions for Future Research. *MIS Quarterly*, 36, 625–A6. Retrieved from <http://www.misq.org/index.html>
- Rodríguez-Triana, M. J., Prieto, L. P., Vozniuk, A., Boroujeni, M. S., Schwendimann, B. A., Holzer, A., & Gillet, D. (2017). Monitoring, Awareness and Reflection in Blended Technology Enhanced Learning: A Systematic Review. *International Journal of Technology Enhanced Learning*, 9, 126–150. doi:10.1504/IJTEL.2017.084489
- Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist*, 55(1), 68–78. doi:10.1037/0003-066X.55.1.68
- Schilling, D. R. (2013). Knowledge Doubling Every 12 Months, Soon to be Every 12 Hours. Retrieved September 30, 2017, from <http://www.industrytap.com/knowledge-doubling-every-12-months-soon-to-be-every-12-hours/3950>
- Shute, V. J. (2008). Focus on Formative Feedback. *Review of Educational Research*, 78, 153–189. doi:10.3102/0034654307313795
- Sigmar, L. S., Hynes, G. E., & Hill, K. L. (2012). Strategies for Teaching Social and Emotional Intelligence in Business Communication. *Business Communication Quarterly*, 75, 301–317. doi:10.1177/1080569912450312
- Silva, N. D., & Davis, A. R. (2011). Absorptive Capacity at the Individual Level: Linking Creativity to Innovation in Academia. *The Review of Higher Education*, 34, 355–379. doi:10.1353/rhe.2011.0007
- Smith, G. F. (2003). Beyond Critical Thinking And Decision Making: Teaching Business Students How To Think. *Journal of Management Education*, 27(1), 24–51. doi:10.1177/1052562902239247
- Sobel, A. E. K. (2013). The Escalating Cost of College. *Computer* (00189162), 46(12), 85–87. doi:10.1109/MC.2013.438
- Stepanovich, P., Mueller, J., & Benson, D. (2014). AACSB Accreditation and Possible Unintended Consequences: A Deming View. *Journal of Education for Business*, 89(2), 103–109. doi:10.1080/08832323.2013.763754
- Taylor, S. A., & Judson, K. M. (2011). A Service Perspective on the Marketization of Undergraduate Education. *Service Science*, 3, 110–126. doi:10.1287/serv.3.2.110
- United States Department of Labor. (2017, September). Retrieved October 2, 2017, from <https://www.bls.gov/cpi/>
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. *Journal of Marketing*, 68(1), 1–17. doi:10.2307/30161971
- Vedder, R., Denhart, C., & Robe, J. (2013). *Why Are Recent College Graduates Underemployed? University Enrollments and Labor-Market Realities*. Washington, DC: Center for College Affordability and Productivity. Retrieved from <http://centerforcollegeaffordability.org>
- Vinge, V. (1993, March). *Technological Singularity*. Symposium presented at the VISION-21 Symposium, NASA Lewis Research Center, Ohio. Retrieved from <http://www8.cs.umu.se/kurser/5DV084/HT10/utdelat/vinge.pdf>
- Williams, P. (2017). Assessing Collaborative Learning: Big Data, Analytics and University Futures. *Assessment & Evaluation in Higher Education*, 42, 978–989. doi:10.1080/02602938.2016.1216084
- World Health Organization. (2017). Retrieved October 2, 2017, from <http://www.who.int/en/>
- Yankovich, D. A., Cannon, H. M., & Ternan, A. (1997). The Energy Factor: Building Motivation in the Simulation Gaming Environment. *Developments in Business Simulation and Experiential Learning*, 24. Retrieved from <http://absel.org/>
- Young, M. R. (2002). Experiential Learning = Hands-On+Minds-On. *Marketing Education Review*, 12(1), 43–51. doi:10.1080/10528008.2002.11488770
- Zahra, S. A., & George, G. (2002). Absorptive Capacity: A Review, Reconceptualization, and Extension. *Academy of Management Review*, 27, 185–203. doi:10.5465/AMR.2002.6587995