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Measuring College Learning in Business

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This contribution articulates a forward-thinking vision for undergraduate business education, the largest major in the United States. This vision is undergirded by a commitment to fundamental business knowledge and skills, emergent business trends, and the integration of learning across multiple domains and is reflected in the chapter's framework of essential concepts (business and society; globalization; strategy; system dynamics; consumer engagement; and transparency, disclosure, and metrics) and competencies (mastery of diverse thinking styles; ethical judgment; informational and technological literacy; and management, teaming, and cross-cultural competence). After an overview of a range of existing assessment tools, the authors articulate a set of principles that should guide the development of future measures of student learning in business. In particular, the authors emphasize the importance of continuous and incremental assessment that takes advantage of technology-enhanced data gathering capabilities.

> The genius of democratic capitalism . . . is that new norms of economic behavior are likely to emerge from executives and entrepreneurs, workers and consumers, money managers and bankers who find the courage to demand something better of themselves and others.
>
> —Steven Pearlstein, *Washington Post*[1]

Introduction

In this white paper, we seek to describe the concepts and competencies business schools and programs must develop in their students if they are to tap the *genius of democratic capitalism* that Steven Pearlstein envisions. To do so, our educational institutions of business must both respect established domains of business knowledge and recognize how distinctive emerging trends will reframe and reconfigure such knowledge. In a world that is transforming itself with ever-greater rapidity, business education must be more intentionally transformational. It must develop in its students a renewed sense of their own agency in ultimately shaping the context in which business operates.

Our work here reflects our sense of the importance of this subject. Business is the largest undergraduate major in the United States today. Although the major's ready ties to the career aspirations of today's students undoubtedly contribute to its popularity, the contemporary significance of this field has much deeper roots. Fueled by the reach of globalized markets and the power of an ever-expanding digitalized environment, the influence of commerce is far-reaching and profound. This means the study of business today has value not only for those seeking professional opportunities but also for those desiring insight into the contemporary forces at work in our world. Commerce enters intimately

[1] Steven Pearlstein, "Can We Save American Capitalism?" *Washington Post,* August 31, 2012.

into the dynamics of our lives, affecting the way we think, play, consume, perceive, and relate to each other. Understanding business thus sheds a critical light on the broader societal choices we are making and the world we are creating.[2]

Accompanying the increasing influence of business practices throughout society is the growing academic richness of business as a field of study. Multiple academic disciplines contribute to the study of business today, and the number of such disciplines is increasing. Sociologists, political scientists, and philosophers may now find a professional home along with scholars of management, finance, operations, and marketing in contemporary business schools and programs. Indeed, there are renewed calls for bringing more generally the values and perspectives of liberal education to the study of business. As the authors of the Carnegie Foundation's recent Business, Entrepreneurship, and Liberal Learning (BELL) Study put it, "Business and liberal learning must be woven together to prepare students for their professional roles and work and also to prepare them for lives of social contribution and personal fulfillment" (Colby, Erlich, Sullivan, and Dolle 2011, 2). A rich description of business schools that have taken on this integration is provided in *Rethinking Undergraduate Business Education*, which opens with the question "What does it mean to think and live like an educated person?" (ix).

Given the increasing influence of business practices throughout society and the growing richness of business as an academic field of study, we have taken special note here of the future directions for business education. Trends ranging from globalization to Big Data to new business-and-society relationships are changing our practice and understanding of business. Increased focus on

[2] Take, for instance, the trend toward increasingly collaborative consumption, which is creating new business opportunities (e.g., Airbnb, Uber), changing the ways our goods-making supply chains will work (e.g., more leasing or renting, less ownership), and altering consumer behavior.

business analytics, new approaches to framing and solving problems spawned by a recent focus on design thinking, and the ability to customize learning through a variety of technologies are changing business schools. This new world will need to engage not only the admirers of business but also its critics. If we are, as Michael Sandel (2012) put it, moving from a market economy to a market society, this will require in business education greater self-reflection and thoughtfulness. Such evolving trends in business need to be part of our understanding of the expected learning outcomes and assessment approaches used for the business major.

To preview our argument regarding these trends, we highlight four central ideas that must inform business education if students are to understand and engage the professional environment they are entering. These central ideas involve having (a) a richer conception of how business is nested in society; (b) a more robust and multidimensional understanding of globalization; (c) a more sophisticated and nuanced appreciation of business analytics and technology; and (d) a greater engagement of cognitive diversity in business thinking. Rooting business students' education in these four central ideas will serve students well in navigating the global workspaces (physical, social, virtual, or otherwise) they will inhabit. They will be best prepared to confront the question that marks this contemporary moment in business: as we continue to generate more information about more things, will we have the knowledge to understand the meaning of this information and the wisdom to use this knowledge well?

In this white paper, our discussion of learning outcomes for the business major revolves around two broad areas: concepts and competencies. Concepts are the models and frameworks business professionals draw upon in their problem framing and solving work. Competencies are the skills and dispositions required by individuals in business in making their professional choices. It is worth noting that business differs from a number of other disciplines in that it draws from a wide range of disciplines itself, each of which has its

own set of learning outcomes. Rather than replicate learning outcomes from the underlying disciplines (e.g., economics, statistics, psychology, sociology), we focus here on the business concepts and competencies that integrate those underlying disciplines, describing learning outcomes that reflect what business graduates will have to do as they apply what they have learned in their work after graduation.

Through an iterative process that took into account prior efforts to define learning outcomes for business undergraduates as well as the expert opinions of a diverse group of business faculty,[3] we generated a set of *essential* concepts and competencies for the study of business in the 21st century. Such essential concepts and competencies reveal a broad, even if ultimately contestable, consensus regarding what business students should understand and be able to do by the time they graduate. They thus offer an opportunity both to engage a diverse group of faculty and to design effective assessment tools that faculty will be open to using.

We begin with a brief description of our approach to generating a set of essential concepts and competencies for the study of business in the 21st century. Next, we summarize some of the prior efforts to articulate learning outcomes for business undergraduates. Following

[3] The MCL Business faculty panelists were Sara Beckman (University of California–Berkeley), Thomas Calderon (University of Akron), Lynn Doran (Georgetown University), Anne Greenhalgh (University of Pennsylvania), Doug Guthrie (George Washington University, Apple Inc.), Kathleen Krentler (San Diego State University), Kathy Lund Dean (Gustavus Adolphus College), Jeffrey Nesteruk (Franklin & Marshall College), Claire Preisser (Aspen Institute), Robert Reid (Association to Advance Collegiate Schools of Business), Paige Reidy Soffen (The Aspen Institute), Scott Romeika (University of Pennsylvania), William Sullivan (Wabash College), Karen Tarnoff (East Tennessee State University), and Lynn Wooten (University of Michigan–Ann Arbor).

that, we propose a new set of learning outcomes for undergraduate business education in the 21st century, ones that draw on the emerging trends we see. In the final sections, we discuss the current state and future direction of learning outcomes assessment in undergraduate business education.

Methods

Any discussion of the learning outcomes desirable in a business major needs to be grounded in some conception of excellence regarding business practice, some sense, even if underdeveloped initially, of what it means to do business well. We thus began by bringing together a panel of business faculty drawn from a diverse group of institutions for a series of conversations about the current state and future direction of undergraduate education in business. We saw our charge as developing our conception of business excellence by articulating an explicit and structured set of learning outcomes essential to the study of business.

In our initial brainstorming sessions, we found that a general consensus regarding the learning outcomes for a major in business readily came to the fore. We grouped the learning outcomes that emerged under the two general headings of concepts (ideas and understandings) and competencies (skills and abilities).

We then subjected the results of our brainstorming sessions to two additional levels of critical scrutiny. First, we compared the outcome of our discussions to the results of prior prominent efforts to articulate learning outcomes for the business major. Second, we examined emerging trends within the contemporary business world and explored their significance for the future of business studies.

Drawing on our discussions and this review, we generated a set of essential concepts and competencies for the business major.

These concepts and competencies constitute a significant core for what business students should know and be able to do. What we articulate differs from prior efforts in that it points to the necessary recalibration of such concepts and competencies in the future business environment that is now emerging, and suggests more thoughtful integration of materials across the disciplines around which our delivery of content is generally organized at present.

Although we believe that articulating essential concepts and competencies as we have done is valuable for faculty in reflecting upon their work and for external stakeholders in understanding the worth of the business major, we acknowledge any discussion of this sort is complex, nuanced, and ultimately contestable. This is especially true because of business's status not as a discrete discipline, but as a field of study illuminating a multifaceted practice. To begin with, the expectations of the roles individuals occupy are not uniform across the domains of business. The risk-taking we so readily admire in an entrepreneur might be inappropriate, indeed suspect, in a corporate accountant. Secondly, the academic disciplines—from finance to marketing to organizational behavior—within business programs draw on different models and frameworks, some of which are in tension with each other. The notion of self that undergirds a finance class often differs from the conception of self that emerges in an organizational behavior course. Thirdly, the larger purpose of business is itself contested terrain. In what ways should corporations serve their shareholders? In what ways should corporations serve the larger society in which they exist? Indeed, what is the role of the broad range of organizations, from nonprofits to government agencies to NGOs, which now more routinely draw upon business models and expertise? Nonetheless, such complexity and nuance should not deter but rather encourage us to engage students' and faculty's interaction with and reflection on these different perspectives, highlighting and probing their ethical choices.

Prior Efforts to Articulate Learning Outcomes for Business Undergraduates

We are certainly far from the first to have examined learning outcomes for business students, and we wish here to highlight some features of such previous efforts. Work by the Association to Advance Collegiate Schools of Business to establish curriculum content standards (AACSB 2013) and by the United Kingdom's Quality Assurance Agency for Higher Education to create the Subject Benchmark Statement for General Business and Management (QAA 2007) stands out for its comprehensive coverage of business learning outcomes. Here we provide a brief summary of that work, clustered into two categories: concepts and competencies.

Concepts: Business Contexts and the Core Disciplines of Business

Because roughly 20 percent of all undergraduate students major in business, and because business organizations are increasingly tapped to play an integral role in our society, preparing students to participate in business implies preparing them at some level to participate in society more broadly. Thus, there is a need to have them understand elements of the broader context in which they will work.

The AACSB standards succinctly suggest that business students should have knowledge of the "economic, political, regulatory, legal, technological, and social contexts of organizations in a global society," whereas the UK QAA (2007, 2) adds that the effects of these upon "strategy, behavior, management and sustainability of organizations" must be understood at the "local, national and international levels." In our discussion of essential concepts for 21st-century business education, we build on the notion of business context, suggesting that students be taught to be more thoughtful about the role of business in society, and about the

personal role they have in determining how and where business may have its most meaningful impact.

Within that broader business context, the AACSB and QAA documents highlight the centrality of the core disciplines that constitute a typical education in business. These core disciplines represent the critical activities in which all forms of business engage. Our work leverages what has already been identified in these documents (and others)[4] but pushes for more integration of the concepts across disciplinary boundaries and with consideration for the overarching development of the identified competencies.

Table 7.1 summarizes the key elements of business context and the core disciplines identified by the AACSB and UK QAA guidelines, and shows a relatively high level of agreement at this level of abstraction.

Competencies: Analytical and Personal Skills

As important, we believe, as the concepts business students learn are the underlying competencies they develop. We will broaden the existing work in this regard, and suggest the significant implications of doing so on our choice of ways to assess learning. In the prior work, there are two types of competencies highlighted: analytical and personal. One might readily argue that these underlying competencies are required in many fields other than business, and thus form a baseline body of skills, a topic to which we return later. Table 7.2 summarizes the analytical and personal competencies

[4] The 2009 Tuning Project report "Reference Points for the Design and Delivery of Degree Programmes in Business," supported by the European Commission through the Socrates and Tempus programmes (of the Directorate–General for Education and Culture) offers another thorough review of the learning outcomes for business that shows considerable agreement with much of the AASCB and QAA work as well as many of the arguments put forth here.

Table 7.1 High-level Concepts Identified by AACSB and UK QAA as Important to Business Students

		Included in AACSB	Included in UK QAA
Concept Area 1: Business Contexts	Economic	X	X
	Environmental	X	X
	Legal/Regulatory	X	X
	Political	X	X
	International/Global	X	X
	Social	X	X
	Technological	X	X
Concept Area 2: Core Disciplines	Accounting*		X
	Economics	X	
	Finance	X	X
	Information Systems	X	X
	Marketing	X	X
	Operations	X	X
	Organizations	X	X
	Strategy		X

*Accounting is not included in the AACSB's standards for business because AACSB has separate standards for business and accounting.

Table 7.2 Competencies Included in the AACSB and UK QAA guidelines

		Included in AACSB	Included in UK QAA
Analytical Competencies	Data analysis	X	X
	Statistics	X	
Personal Competencies	Communication	X	X
	Personal development	X	X
	Thinking	X	X

called out in the AACSB and UK QAA standards, again showing a great deal of agreement.

Although the strength of this prior work on learning outcomes is evident in its comprehensiveness, such comprehensiveness has a particular character. It is articulated within and remains strongly tied to established disciplinary silos (e.g., finance, marketing, strategy). Thus, it lacks the integration we see as crucial given the evolving nature of the contemporary business environment. There is also a need to clarify the distinction between concepts (what students need to know) and competencies (what they should be able to do). This is particularly important because some of the competencies we recommend, such as ethical judgment and cross-cultural management, involve not simply intellectual skills, but emotional and social development. Finally, the significant trends we have identified—from new business-and-society relationships, to globalization, to Big Data, to the integration of creative and critical thinking—will reframe and reconfigure some of the established functional areas in business. We attempt to capture this recalibration of business knowledge in the next section on essential concepts and competencies.

Essential Concepts and Competencies for the Business Major

We found in our discussions with the SSRC's assembled panel of business professors considerable overlap with earlier efforts, such as the AACSB curricular standards and the UK Quality Assurance Agency's Subject Benchmark Statement. In what follows, we draw heavily from such previous efforts, but reconceptualize and update them for the 21st century. In doing so, we strive to make more explicit our understanding of what it means to do business well in

practice and to highlight the emerging trends in business that must now be incorporated into learning outcomes for the major.

Within our general schema, essential concepts are the models and frameworks business professionals draw upon in their problem framing and solving work. Essential competencies are the skills and dispositions required by individuals in business in making their professional choices.

Essential Concepts

Consensus around broad themes in the area of essential concepts emerged fairly readily. These themes represent the deep conceptual understanding we would expect to see in graduates of a business program. There are more specific learning outcomes one might associate with each concept, but they provide a broad sense as to what businesspeople must understand. Many of these concepts span the traditional disciplines of business. This was an intentional decision, reflecting our expectation and aspiration for business education to be a more richly integrative experience. Further, we hope that this broader angle of vision will provide an opportunity to reframe some of the underlying concepts to better match the needs of today's organizations as they strive to transform and innovate in a more complex, uncertain, and volatile business world. Here, in broad terms, are the things we expect business students to understand when they leave our programs.

Concept 1: Business in Society

The conception of business implicated in much of our discussion was the notion of business as *nested* or *embedded* in society. Rather than viewing business as a segregated activity, one in which choices can be readily justified as "just business," this nested conception of business contemplates a professional commitment to the view that business finds its normative grounding in a broad conception of service to society. In a world in which the roles of business, government, and civil society are changing and intertwined, this

is becoming increasingly important. The notion of business as a world unto itself, subject only to its own disparate set of rules, is ill suited for the character of our increasingly dynamic and more interconnected lives.

The October 24, 2015, issue of *The Economist*, whose cover story is "Reinventing the Company," brings the discussion of business in society into the mainstream, opening with the assertion that "entrepreneurs are redesigning the basic building blocks of business" (9) and proceeding to describe the ways the entrepreneurial culture is not only changing the ways larger corporations think about how they do business but also the fundamental ways we structure, for example, consumption in our society. Business leaders today are designing a new world that promises to look radically different from the one in which we now live (Brynjolfsson and McAfee 2011). They need to understand their role in designing that world, the effects of their choices on others, and how their choices will play out through the variety of systems they are changing (Goleman 2013). One might simply look at the myriad issues surrounding the rollout of companies like Uber and Airbnb to see the need to appreciate what business leaders confront today.

Such a nested conception of business in society has significant import. For increasingly the relevant society in which business operates is an economically globalized environment embedded in a technologically integrated world. Thus, the commitment to a more richly nested conception of business entails three correlative notions. The first is a more robust and multidimensional understanding of globalization. The second is a more sophisticated and nuanced appreciation of business analytics in a new technological era. The third is the ability to see the various elements of business and their interactions with the broader society and the interactions among societal elements, as a system, and to understand the leverage points for change in that system (Meadows 2008). Thus, a more richly nested conception of business necessitates the mastery of two correlative concepts (globalization and

system dynamics) and a correlative competency (informational and technological literacy).

Without this broader understanding, large global issues such as climate change and disparities in distribution of wealth cannot be addressed. At an industry level, the massive changes that will be wrought by new technologies such as self-driving cars will require considerations that go well beyond the bounds of an individual company to redesigning cities and ultimately how we live. As students learn the basic concepts of business outlined in prior work, they must see how those concepts can be more broadly framed to grapple with such problems and opportunities, and how the business choices they are making will affect our broader society as they are implemented.

Concept 2: Globalization

Globalization is defined as the worldwide movement toward economic, financial, trade, and communications integration resulting in an interconnected and interdependent world with free transfer of capital, goods, and services across national frontiers. The process of globalization has accelerated in recent years as the result of improved telecommunications and the penetration of the Internet into previously unreachable regions. Business schools have responded in a variety of ways. Traditional study abroad programs provided students with some exposure to other cultures but have given way to deeper global experiences. The schools that have delivered powerful intellectual experiences in the study of the global economy are those that have built curricula on interdisciplinarity, such as Harvard Business School's core MBA course on business and government in the international economy.

Globalization requires rethinking the underlying concepts identified in prior work with a critical eye to seeing them through a global lens. There is no doubt, for example, that global companies have to approach marketing with an eye to balancing global positioning and messaging along with local customization efforts.

Accounting practices vary widely based on different regulatory standards globally, requiring different accounting strategies. Strategy is no longer bounded by national or industry lines as implied in many strategy models. Beyond the need to rethink the basic concepts of business is the need to increase cultural awareness and enhance the ability to leverage differences (e.g., those involved in designing for the bottom of the pyramid), allowing a company to both thrive in and take advantage of different world perspectives.

Concept 3: Strategy

Within the global and rapidly changing business context, business leaders must quickly design and redesign strategies and determine the best way to implement those strategies, improvising and adapting as the environment continues to change. Emergence of the triple bottom line and subsequently the integrated bottom line[5] approaches to measuring an organization's performance is changing how corporate leaders make strategic choices. No longer is achieving profits the only measure of a company's success: In the face of increased complexity and change, the more mechanistic models of organizations through which strategy is enacted are giving way to models such as complex adaptive systems (Spiegel 2014). Students thus need to understand both the larger dynamics of business and the systems through which strategy is executed.

Business students will have to learn how to operate in a world of increasingly difficult and complex trade-offs (e.g., How can I

[5] The integrated bottom line is a process for integrating financial, environmental, and social costs and benefits into a unified measure of business activity. Conventional objectives of profitability, competitive advantage, efficiency, and economic growth are judged successful by their compatibility with biodiversity, ecological sustainability, equity, community support, and maximized well-being for a variety of stakeholders. The integrated bottom line differs from the triple bottom line in that all measures are combined into one balance sheet and income statement rather than being accounted for separately.

keep costs low and people employed but not exploit them?) that require evaluation across traditional disciplinary boundaries. Business students will have to learn more dynamic models of strategy making, such as dynamic capabilities models (Teece and Pisano 1994) and transient advantage frameworks (McGrath 2013), and to select from among a growing array of alternative business models, such as shared economy and multisided platform. Business students will have to understand more deeply the dynamics, thus leveraging the correlative system dynamics concept, of their own businesses, starting with the basics of the business model canvas (Osterwalder and Pigneur 2010). Widespread adoption of the canvas in a variety of businesses speaks to the desire to see strategy making as an integrated whole, and to understand the interactions among its elements. They will also have to learn new models of organizational design (e.g., complex adaptive systems, networked organizations, communities of practice) to understand how to go about implementing strategy.

Concept 4: System Dynamics

We have highlighted in the three prior concepts—business in society, globalization, and strategy—both the need to view businesses themselves as systems and the need to understand the dynamics of the systems in which they operate. Achieving organizational goals entails understanding, operating, and monitoring the execution systems that efficiently turn organizational inputs, such as materials and labor, into the organization's desired outputs, ranging from goods or services to experiences or transformations. Making and executing strategy requires appreciation of the dynamics of the systems that sit around the organization, from the supply chain or value chain in which it resides to the broader business context in which it operates and that it influences.

MIT has a long history of teaching system dynamics in a very explicit way to its business students, engaging them in modeling the systems they are studying, creating, or affecting. These systems

modeling approaches have been widely used in, for example, assessing means of managing climate change and other such environmental impacts (Meadows 2008), understanding the dynamics of markets (e.g., modeling the ups and downs of the real estate market), and evaluating the effects of the implementation of governmental policies and regulations (e.g., health-care policy). They have also been used within organizations to diagnose a quality program (Repenning and Sterman 2001), to help improve the efficiency of the supply chain (Sterman 2000), or to evaluate the performance of the new product development process (Repenning, Gonçalves, and Black 2001). A set of archetypes for understanding system dynamics has made the field more tractable (Senge 1990).

Future business students need to be able to build dynamic models of the complex systems in which they are working, developing a better sense of how their actions will affect those systems and more readily identifying points of leverage for change in the system. Although the formal methods developed at MIT for understanding systems are extremely valuable, simpler approaches can help students as well. Simple visualizations of systems, such as flowcharts, customer journey maps, and information maps, help students grasp the complexities of the systems they are studying.

Concept 5: Consumer Engagement

Research at least as far back as the 1970s (e.g., Rothwell et al. 1974) has regularly shown that the primary failure mode of new products in the marketplace is lack of understanding of customer and user needs. Feigenbaum (1983) highlights:

> Quality is a customer determination, not an engineer's determination, not a marketing determination or a general management determination. It is based upon the customer's actual experience with the product or service, measured against his or her requirements—stated or unstated, conscious or merely sensed, technically

> objective or entirely subjective—always representing a moving target in a competitive market.

Today, as consumers increase their expectations not only for products and services but also for experiences and transformations (Pine and Gilmore 1998), companies increasingly seek to become what some call customer-driven organizations.

Becoming customer focused, however, is not trivial for organizations long driven by efficiency and profitability goals. Identifying desirable goods, services, and overall customer experiences involves discerning, analyzing, and engaging consumer needs and preferences; defining the value to be delivered; and then communicating the value of the organization's outputs to the customers. Kimbell (2014) argues that value emerges in use, meaning that companies must increasingly see themselves as co-creating value with customers. This requires not only developing close relationships with customers and users through a variety of means but also fostering and sharing a fully developed sense of the experience the organization wants to deliver at all levels of the organization. Delivering the customer experience requires well-orchestrated execution across the organization. This requires understanding the job to be done through the experience created, all of the different ways customers and users want to access the organization, how to deliver and price to value, and how to educate customers and users about the solutions provided (Ettenson, Conrado, and Knowles 2013).

The current design thinking movement, like the quality movement before it, puts deep understanding of customers front and center in its approach. The lean start-up movement similarly emphasizes regular interaction with customers to design to their needs. All of these approaches, old and new, cut across traditional disciplines, integrating them with a focus on serving, or co-creating value with, customers and users.

Concept 6: Transparency, Disclosure, and Metrics

Business organizations must identify, measure, and allocate financial resources. Increasingly, they must do so around the integrated bottom line, examining not only financial performance but also environmental and social performance. Niche schools such as the Presidio School of Management and the Bainbridge Graduate Institute at Pinchot have placed integrated bottom line thinking at the center of their business programs.

Moreover, business organizations in the 21st century are encountering heightened demands for accountability and disclosure, and facing, somewhat paradoxically, growing expectations and skepticism. There is thus a need to define, share, and communicate more effectively the value of the work they do to a wider group of stakeholders. As yet another feature of the business and society concept, business organizations must be prepared to engage disparate conceptions of value in communicating with their constituencies. An employee fearful of losing his job, a consumer seeking lower prices, and a local government official committed to protecting his community's water supply may understand *value* in different ways.

In articulating these conceptual themes, we have been intentional in richly contextualizing and broadly framing around the established disciplinary silos of business. Our approach is aimed at rooting more fully the business disciplines in the underlying conceptual understandings that are central to business. As emerging trends require a recalibration of business knowledge, the traditional functional areas must remain attuned and responsive to the evolving practices that inform them, integrating with other functional areas as needed.

Essential Competencies

Along with having knowledge of theoretical models, concepts, and principles, the best business practitioners possess a number

of practical competencies. Developing such competencies is thus a central part of the education a business major should provide. Our discussion of such practical competencies brought to the fore a range of intellectual, emotional, and social skills. The diversity of skills here arises from the complex and challenging nature of decision-making in today's dynamic business environment. In our discussion, we strove to articulate the combination of capacities and dispositions necessary for effective deliberation and wise judgment in the contemporary business world.

We offer the following four practical competencies not as generic skills, but as contextualized, field-specific capabilities needed and applicable to the distinctive character of business practices and their emerging environment. Particularly because of the way these four practical competencies overlap with transformative trends within the business environment, there is the need to integrate them fully into the essential concepts identified thematically in the previous section.

Competency 1: Select from and Deploy Diverse Thinking Skills

In the business world now emerging, business choices involve a complex mix of social, political, economic, and technological imperatives. The choices to be made in this dynamic and turbulent environment involve many actors and elements that interact with one another, and are non-linear, such that a minor change can have disproportionate effects (Kimbell 2014). Such a complex mix of disparate constraints and opportunities points to the need for greater cognitive diversity in business thinking.

More specifically, analytical thinking is by itself no longer adequate in a business environment in which the analytic schema to be employed is frequently up for grabs. In today's more complex and multifarious business world, business choices have multiple and even incommensurate framing possibilities: They are "wicked problems" (Rittel and Webber 1973, 155). Business students must thus become increasingly adept at working in and across multiple

thinking styles. They require *critical and analytical thinking* to probe assumptions in any given schema; *integrative thinking* to "assess and balance conflicting ideas" and to seek "a creative resolution of the tension in the form of new models" (Rotman School of Management, "Integrative Thinking"); *systemic thinking* to see "how the thing being studied interacts with other constituents of the system" (Aronson 1996, 1); and *design thinking* (previously known as creative problem solving), a form of thinking that effectively integrates empathy and creativity with a focus on rapid experimentation.

In aggregate, simply said, there is a thirst for better and clearer thinking in the framing and solving of problems. One might argue that the ability to frame and solve problems has always been important in education, and indeed that is true. We believe, however, that in a world of increasingly rapid change (e.g., in technology and consumer expectations), and with increasing access to the content provided in a business education online, being able to digest information and frame and reframe the problems to be solved will become a more and more important skill in and of itself. Further, more explicit understanding of different approaches to framing and solving problems is needed. Although critical and analytical thinking methods in particular are implicit in many business courses, rarely are general approaches to framing and solving problems made explicit. Thus, we highlight thinking as an important part of business education.

Critical and analytical thinking: Critical and analytical thinking has been defined as follows:

> It is a complex process of deliberation which involves a wide range of skills and attitudes. It includes identifying other people's positions, arguments and conclusions; evaluating the evidence for alternative points of view; weighing up opposing arguments and evidence fairly; being able to read between the lines . . .; recognizing

> techniques used to make certain positions more appealing than others . . .; reflecting on issues in a structured way . . .; drawing conclusions about whether arguments are valid and justifiable . . .; synthesizing information . . .; [and] presenting a point of view. (Cottrell 2011, 2)

Business schools, and our education system more broadly, have arguably focused a great deal of attention on the development of critical and analytical thinking capabilities, even if implicitly, through the means by which subjects are taught.

Integrative thinking: Integrative thinking underpins the development of the University of Toronto's Rotman School of Management's curriculum. Roger Martin, dean of the Rotman School from 1998 to 2013, defined integrative thinking as the ability "to assess and balance conflicting ideas, business models or strategies, and instead of choosing one at the expense of the other, generate a creative resolution of the tension in the form of new models, new decisions or new ways of doing things" (Rotman School of Management, "Integrative Thinking"; see also Martin 2007). The University of Virginia's McEntire School of Commerce teaches integrative thinking through its Integrated Core Experience, a seven-course sequence that has been "carefully constructed to give students a vantage into the world of business from multiple angles, integrating the analytic, strategic, and behavioral skills they'll need to tackle real-world problems, with projects from corporate sponsors" (McEntire School of Commerce, "Integrated Core").

Systems thinking: "The approach of systems thinking is fundamentally different from that of traditional forms of analysis. Traditional analysis focuses on separating the individual pieces of what is being studied . . . . Systems thinking, in contrast, focuses on how the thing being studied interacts with the other constituents of the system . . . of which it is a part" (Aronson 1996, 1). "Systems thinking . . . is practiced . . . in a wide variety of fields, [but] it is still a difficult subject to teach. This difficulty has in large part

been caused by the adoption of traditional teaching models that emphasize disciplinary analysis. These [traditional methods] are poorly suited to teaching the very different mindset that systems thinking entails" as they resist thinking across disciplinary boundaries (Kay and Foster 1999, 171). Systems thinking, particularly as embodied in system dynamics modeling (Sterman 2000), will require development of courses that integrate materials across the traditional business disciplines. MIT continues to lead in teaching system dynamics, including a variety of online courses in addition to those taught on campus (Sterman and Rahmandad 2013).

Design thinking (creative problem solving): Design thinking has come to be defined as combining empathy for the context of a problem, creativity in the generation of insights and solutions, and rationality in analyzing and fitting various solutions to the problem context (Visser 2006). According to Tim Brown, CEO and president of IDEO, the goal of design thinking is "matching people's needs with what is technologically feasible and viable as a business strategy" (Kelley and Kelley 2013, 19–20). Design thinking goes further than analytical thinking by acknowledging multiple points of view and different frames, by encouraging generative thought to explore multiple alternatives, and by focusing on learning through experimentation (Beckman and Barry 2007). As applied to business, design thinking implies being able to construct knowledge both within the organization (research) and about the users' world (data gathering and fieldwork) and at the same time generate alternative concepts both internal to the organization (in studio design work) as well as in co-creation with the customer (Kimbell 2014).

Business students in the future need to be explicitly taught how to think through framing and solving problems and how and when to select from the wide variety of approaches that are available to them.

Competency 2: Exercise Ethical Judgment

The same growing complexity of the contemporary business world that gives rise to the need for greater cognitive diversity

in business thinking also brings to the fore the need for fostering in business students a more developed and sophisticated sense of ethical judgment. As an increasingly important dimension of the business-in-society concept in which *society* is an economically globalized environment embedded in a technologically integrated world, ethical judgment needs to be more thoroughly and intimately integrated into business education. Global society is increasing its expectations of business, asking that business pursue its aims in ways that are fair, equitable, and sustainable. Thus, rather than a curricular add-on or an ancillary component of business studies, ethics should be central to the study of business and transformative of its basic character. This transformation involves integrating critical perspectives with the more traditional instrumental orientations of business education. It also involves helping students find their inner focus, developing self-awareness and self-control, and tuning them into their own thoughts and feelings, as "a failure to focus inward leaves you rudderless" (Goleman 2013, 4). If we wish students to discover a renewed sense of their own agency in shaping their business environments, we must deepen the ethical development they engage in throughout the multiple experiences of their business education.

While the cognitive skills necessary for ethical reasoning in business are clearly important, ethical judgment here is more than an intellectual exercise. It involves a critical self-awareness, empathy for and understanding of others, and a disposition toward positive change in the world. It also requires the capacity to deliberate not simply in an ideal or static context, but in fast moving, pressured environments, subject to shifting economic, political, social, and technological restraints. Combining such emotional and social development with enhanced ethical reasoning skills is central to preparing today's business students for the personal complexities and professional challenges they will encounter in their working lives. Such development and enhanced skills should foster not an indoctrination into an externally imposed ethic, but rather should

deepen the student's capacity for articulating and exercising independent ethical judgment.

Competency 3: Demonstrate Informational and Technological Literacy

The basic building blocks of technology have been improving in performance at an exponential rate for something like thirty years now (Brynjolfsson and McAfee 2011). This places us today at the knee of an exponential curve, at a tipping point where technology will facilitate unprecedented and in many ways unforeseeable changes. The evolution of technology will drive significant change in what businesses do, how they deliver it, and how they manage themselves, implying that business leaders will have to know enough about these evolving technologies to know in what ways they might be leveraged in their own businesses. Further, in an age of data and information, students will need the ability to understand, probe, interpret, and communicate business information using written, oral, visual, and quantitative means of doing so.

In response to these technological changes, business schools must make adjustments in how they educate their students. In particular, a substantive area that has significantly transformed business school curricula in the last two decades has been the rise of the field of business analytics, and it deserves special attention here. The field of decision sciences is certainly not new, but the ways it has reorganized around the analysis of Big Data has become a major substantive change for business education. Students will need to learn the fundamentals of working with data (e.g., from statistics and decision sciences) as well as what it means to conduct business in a Big Data environment (e.g., collecting data about consumers, using data to drive operational decisions).

Competency 4: Management, Teaming, and Cross-Cultural Competence

Achieving organizational goals entails engaging and coordinating the efforts of individuals within business enterprises. Teaming

will be core within these systems, involving the rapid creation and disbanding of teams around tasks or activities to be done in the moment (Edmonson 2012). Teaming in organizations is the "engine of organizational learning . . . a way of working that brings people together to generate new ideas, find answers and solve problems" (chap. 1).

But, as Edmonson points out, "people have to learn to team; it doesn't come naturally" (Edmonson 2012, 24). In particular, diverse teams have been shown to either significantly underperform or overperform more homogeneous teams (Ely and Thomas 2001). As globalization increasingly brings together individuals from a variety of backgrounds, experiences, and understandings in business settings, this dynamic will have greater impact. Diverse teams underperform when they are either blind to the diversity present, or when they treat the diversity with stereotypes. They outperform when they have a learning perspective that allows them to acknowledge and leverage the multiple bodies of knowledge that are present on the team. Thus, learning to effectively leverage the diversity, cultural or otherwise, present on a team will be critical to the success of businesses.

More broadly, in a global business environment, understanding of different cultures and how best to operate within them will be core to succeeding in global markets. Students will not only have to learn appreciation of other cultures, but also how to use that appreciation in making both strategic and tactical business decisions.

Although we often ask students to work in teams (or groups) while they are in school, we rarely provide them with the tools they need while working in those teams to improve the performance of the team itself, and to improve their performance as team members and ultimately team leaders. Development of this competency requires more closely embedding teaming curriculum into the courses in which students participate in team activities, which provides the opportunity to teach teaming over time, across multiple courses. Thus students can practice teaming and

leveraging diversity (cross-cultural competence) in the relatively safe confines of an educational environment, allowing them to grow those skills over time.

Essential Concepts and Competencies for the Introductory Course

Teaching essential concepts and competencies is, potentially at least, at stake at the introductory level of the business major. Our discussions with business faculty, however, took note of the way introductory business courses typically focus on economics, accounting, and math, thus giving primary emphasis to the teaching of a rather narrow set of concepts relative to the major as a whole. In our brainstorming about alternative possibilities, we turned to newer, more integrative approaches to an introductory-level course in business, such as incorporating start-up exercises or experiential learning opportunities into the introductory curriculum.

It is crucial to create, as Alfred North Whitehead (1929) put it, a state of romance in the beginning if we wish to engage students in learning business. Our desire to create a state of romance for the beginning business student dovetails nicely with the business-in-society framework as a core concept. A view of business that engages not only students' desires for professional advancement and financial gain but also their personal ideals and larger social aspirations will more powerfully motivate the kind of ethical leadership, creative and critical thinking, and perseverance that we wish to encourage.

Such a desire for an initial state of romance also favors a more richly contextualized approach to the introductory-level coursework for the business major. This is because such a deeper attraction arises out of not only being wholly engaged as a person, but also out of being engaged by the whole picture of business and importantly its connections to the broader societal agenda. A more richly contextual approach to introducing students to the study of

business allows students to appreciate more fully the value and significance of courses in economics, accounting, and math, exposing the linkages of these subjects to the full range of business topics. It also offers students critical opportunities to enter into and reflect upon the larger questions of business's nature, purpose, and value. Reflecting upon such larger questions will underscore the need for the greater cognitive diversity within business thinking that we have advocated.

Current and Future Assessments

Within our discussion of learning outcomes, questions of assessment frequently surfaced because of the intimate linkages between the two domains. For instance, assessment that occurs not only at the end of particular functional courses, but is woven throughout an experiential exercise is a form of assessment more fully attuned to the notion of business as an integrated practice serving its stakeholders. Thus, the emphasis on integration that characterized much of our discussion regarding learning outcomes has implications for our understanding of assessment. Advocating, for instance, systemic thinking as a learning outcome requires a correlative approach of assessment.

Linkages such as these also raise another issue regarding the relation of learning outcomes and assessment. Although the learning outcomes we desire should be the basis of the assessment forms we devise, the reverse is also possible. The metrics of our assessment forms in practice may also subtly influence our aspirations for learning. We must be mindful of conflating what is most easily measurable with what is pedagogically most desirable.

Current Assessments

As with earlier efforts to articulate the concepts that business students need to learn and the competencies they need to develop,

there is considerable previous work seeking to define appropriate assessment tools.

Some of the assessments aim to be comprehensive, evaluating students across most of the concepts and some of the competencies we earlier identified in our discussion of prior work to articulate learning outcomes. Such assessments include the Educational Testing Service (ETS) Major Field Test for business, the Business Assessment Test (BAT) developed by a consortium of California State University business schools in the early 2000s, and, for graduate students, the Graduate Management Admissions Test (GMAT). The ETS MFT and the BAT primarily employ multiple-choice style questions to assess student understanding of business contexts (legal and social environment, international issues), core disciplines (accounting, economics, information systems, marketing, and finance) and analytical competence (quantitative business analysis). The GMAT, although still primarily employing multiple-choice style questions, aims to assess competencies (analytical writing, integrated reasoning, quantitative skills, and verbal skills).

Other assessments are less comprehensive or in-depth in evaluating specific core concept knowledge but offer a better evaluation of the ability of students to integrate learning across the concept areas and to apply the competencies to their problem framing and solving work. Examples of these evaluation tools include the following:

- *Capstone Simulations* (capsim.com): Widely considered the gold standard for strategy simulations, Capsim provides multiple simulations for both "regular" business and international business. Along with the simulations, they offer embedded assessment and assurance of learning tools (http://www.capsim.com/comp-xm/). The Capstone simulation is appropriate for senior capstone students, but the organization also offers Foundations, a simplified version of Capstone focused on baseline knowledge (http://www.capsim.com/foundation/) through

which students can get an introduction and then build more specific and technical knowledge.

- *AAC&U VALUE Rubrics* (https://www.aacu.org/value-rubrics): This is a relatively new, wide-ranging effort to measure learning outcomes using faculty-designed grading rubrics. Some of the rubrics would be particularly well suited for measuring the kinds of learning outcomes we have emphasized in this white paper (e.g., cross-cultural competence and globalization).
- *Inbox exercises*: Inbox exercises have been used for many years as a competency assessment for assessing how potential candidates for a job might perform day-to-day. There are many of these types of exercises—some are openly available and some are proprietary, but all focus on evaluating competencies rather than concepts.

Prior assessment efforts also include tools that measure specific core knowledge deemed important not only for business students but also for college students at large. When major accreditors began including ethical reasoning and global orientation in their learning outcomes (e.g., as AACSB did in 2003), many business schools looked for validated instruments to use in these core areas, including the following examples:

- *Intercultural Development Inventory* (http://idiinventory.com/): This is a validated instrument that requires facilitators to be certified in administering it, much like the Myers Briggs Type Indicator (MBTI). Many schools use this to assess the global dimension of learning outcomes. There is research supporting its validation and usage.
- *Defining Issues Test (DIT)* (http://ethicaldevelopment.ua.edu/dit-and-dit-2/): The DIT, developed by psychologist James Rest in the 1970s, focuses on ethical learning. Though it is widely used, it has some significant limitations, namely, it makes significant assumptions about the cognitively heavy

nature of individual moral reasoning, limiting the inclusion of social psychology and other significant perspectives.

We highlight only a few of the many current approaches to assessing business learning outcomes here, but we can discern the general contours of the character of such approaches. The major and most comprehensive assessments focus largely on the concepts and analytic competencies, thus lacking a richer attention to key personal competencies, such as creative thinking, emerging as critical in contemporary business trends. Assessment tools that are focused on competencies tend to be more narrowly focused, thus missing the broader and more encompassing integration we are calling for in the 21st-century business environment. New initiatives, such as the AAC&U VALUE rubrics project, are starting to address more fully such contemporary needs, though AAC&U does so from the perspective of general education, rather than providing contextualized, business-specific approaches.

Future Assessments

As our aspirations for student learning in undergraduate business education grow and evolve, so must the assessments we have at our disposal to measure students' progress toward those goals. Looking ahead, we see the need for the development and refinement of assessment tools and processes in five key areas.

Increased Use of Integrated Approaches

Along with recommending a more contextualized introductory course to the business major, we see a correlative need for more integrated assessment frameworks from the start. It is important that from the beginning students see the whole if they are to meaningfully engage the parts. Integrated assessment approaches are also crucial as students progress through the required functional areas (e.g., strategy, marketing, finance) of the business curriculum. If students are to embrace the creative possibilities of

a dynamic business environment, they must transcend narrower siloed perspectives. The broader and more encompassing integration we envision should include both concepts and competencies and effectively incorporate personal competencies, such as ethical judgment and cross-cultural management that are at the core of emerging trends within the contemporary business environment.

More Continuous and Incremental Feedback During the Learning Process

As we are asking more of students' intellectual and personal development in the business major, we believe they deserve more real-time, individualized feedback to ensure the progressive mastery of content and skills during their engagement with course readings, exercises, and simulations. End-of-course assessment should complement, rather than substitute for, this ongoing assessment process. The growing popularity of badging systems such as that used by Khan Academy point to the interest in such incremental and real-time feedback.

Richer Infusion of Business and Society and Globalization Perspectives

In emphasizing the necessity to reframe and reconfigure established domains of business knowledge in light of contemporary trends, we see the need for integrating new perspectives into the content associated with the traditional functional business disciplines. Thus, there is a need for assessment tools to evaluate, for example, student competence in strategy within a business and society framework or marketing within a globalized economy.

Greater Incorporation of Technology-Enhanced Data Gathering Capabilities

Although we affirm the enduring value of personal mentoring, social learning environments, and face-to-face instruction, we urge the development of assessment tools that leverage technology's expanded data gathering capabilities to enhance instructors'

awareness of students' academic strengths, struggles, and progress. We ask the following: What are the reoccurring and distinctive blind spots in the learning process that are not readily apparent to the instructor via traditional classroom interaction? How can technology illuminate such areas? Might we, for example, evaluate a student's performance on a team using some form of video analysis, or might we evaluate their communication skills with some form of semantic analysis? The technological capabilities we might leverage are far beyond the scope of this paper, but we are certain there are approaches yet untapped that would allow us to more deeply understand student comprehension and application of concepts. As a significant related benefit, immersing business students within such a data-rich educational setting will help prepare them for the technologically sophisticated business environment in which they will work.

Greater Attention to the Diversity of Cognitive Styles

In reviewing current assessment approaches, we saw a focus on critical and analytical thinking, but not a developed and sustained attention to other forms of thinking that we see as crucial in the emerging contemporary environment of business. Thus, we would recommend the development of assessment tools designed to more explicitly and fully evaluate integrative thinking, systemic thinking, and design (creative) thinking along with traditional analytical thinking. These approaches will focus less on having students identify a single correct answer to a specified problem, but will instead test their abilities to frame a problem in the first place, to generate alternative solutions, and to formulate tests of those solutions.

Conclusion

In examining the learning outcomes and assessment tools for the undergraduate business major, we have drawn upon current

understandings and approaches, identifying what we see as key learning outcomes and salient needs for future assessment. Particularly in the current dynamics and trends we highlight, we see an underlying injunction, both for business students and the institutions that educate them: be at once more socially aspirational and self-aware. A critical corollary: use technology wisely to invent meaningful futures with a global perspective. With an integrated view of business and society and the recognition of our social arena as a globalized world, business students and their institutions must continue the process of expanding their horizons and engagements. In a wired world we will know more things, and if the promise of Big Data and business analytics holds true, know them more deeply and with greater certainty. Yet in an era of the customization and personalization of education, both students and business schools must also know themselves better. Self-knowledge in students is important because in an era with more educational choices, they must become more adept at reflecting upon and navigating their own learning and development. For the institutions that educate these students, self-knowledge is of equal importance. For unless they know what they are trying to do and can show they are doing it well, they will have missed the possibilities this new world will offer.

In contemplating this new world, it is prudent to look back as we go forward. The word *business* has its etymological roots in an Old English term meaning "busyness." There is wisdom here if we are willing to pause and discern it. For as Henry David Thoreau is sometimes misquoted, "It is not enough to be busy. So are the ants. The question is: What are we busy about?" In this new world we are entering, we in business education must ask anew: What are we busy about? We should be ready to be surprised by our answers.

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