

## **Instability, Innovation and Accounting Education**

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*Financial prosperity and technological advances in the U.S. have resulted in long periods of stability for accounting education. Accelerating globalization, technology, and weak ethical foundations have built fingers of instability in existing educational models enabling disruptive innovations and ethical lapses similar to historical cycles of periods of stability followed by instability. The financial scandals have led to erosion of public trust, the foundation for the “social contract”. Accounting educators must play a significant role in sustaining the profession’s social contract through practice related research and innovative student education involving cognition, knowledge acquisition, and accounting skills along with ethical standards.*

### **INTRODUCTION**

In his book entitled “Ubiquity: why catastrophes happen?” Buchanan (2001) uses chaos theory, complexity theory and critical states to explain triggers, fault lines and fingers of instability associated with the occurrence of catastrophes. Buchanan (2001) begins his explanation with a sand pile formed on a table and points out that similar to the way that the pile is formed by dropping one grain of sand after another onto a table, one grain of sand can start an avalanche in which an entire side of the pile is lost as it slides to the bottom. Buchanan’s work is based on research on sand piles and non-equilibrium systems conducted by Bak, Tang and Weisenfeld at Brookhaven National Laboratory. Bak, Tang & Wiesenfeld, (1987) found that the piles were completely chaotic in their unpredictability described as follows “.... after the pile evolves into a critical state, many grains rest just on the verge of tumbling, and these grains link up into fingers of instability of all possible lengths. While many are short, others slice through the pile from one end to the other. So the chain reaction triggered by a single grain might lead to an avalanche of any size, depending on whether that grain fell on a short, intermediate or long finger of instability. What makes one avalanche much larger than another has nothing to do with its original cause ...with the perpetually unstable organization of the critical state which makes it possible for the next grain to trigger an avalanche of any size”? In the simplified setting of the sand pile, there is no special cause leading to a large or small avalanche. They start out the same way, but a single grain falls and makes the pile just slightly too steep at one point leading to an avalanche of different magnitudes.

Buchanan’s theory can be applied to the state of today’s accounting education where technology, globalization, and public disenchantment with markets have created the perfect breeding ground for “disruptive innovation”. Innovation typically occurs when consumers want a better way of doing

something and create makeshift, creative fixes. Such efforts accelerate during economic downturns and chaotic market conditions when consumers attempt to do more with less out of necessity. Some notable examples of such fixes are: the much acclaimed education model of Khan Academy grew out of Mr. Khan's efforts to help his niece understand quantitative topics using YouTube; Mr. Ray Kroc founded McDonald's based on a California restaurant's workaround to make hamburgers; Nike introduced the athletic shoe sole using advances in material and production technologies; Online tutors from around the world are coaching students in U.S. schools on the STEM disciplines using advances in communication technology. New markets are created continuously by reinvention of existing products by user innovators. Business schools are facing many new disruptive innovations in educational delivery and content, with future success depending on their ability to adapt to the changing user needs. America's amateur educational elite including the Gates Foundation and companies like Google understand the potential impact of these innovative offerings on future economic growth by solving the severe shortage of math and science skills among students, and actively support them.

During the past few decades, financial prosperity and technological advances in the U.S. have resulted in long periods of stability for business schools and accounting education. However, globalization of markets and products, advances in technology and weak ethical foundations have built fingers of instability in existing educational models and enabled disruptive innovations. This follows a historical trend where continuous cycles of periods of stability followed by periods of instability (Minsky, 1992). As Minsky explains, the greatest danger lies in the extent of correction required when the trend fails, which is directly proportional to the comfort level and the length of time the trend exists, i.e., the longer the period of stability, the greater the emergence of fingers of instability leading to a violent avalanche. An example of such instability is the implosion in the global financial markets started by the U.S. credit problems in the subprime market where the contagion spread quickly to world markets and caused major financial institutions to crumble. These events on the periphery or small fingers of instability created fault lines in the major world economies leading to events that were unprecedented and unexpected. The fingers of instability reached into storied institutions such as Lehman Brothers, Bear Stearns and Long Term Capital Management and almost brought the financial world to its knees. The weakness in the global economies is still continuing. Similarly the fingers of instability building up in the world of education in the U.S. have the potential to create large disruptive changes in the accounting education arena in the future. But just where are the fingers of instability? Where are the fault lines that could trigger a crisis? Are there any early warning signs that can be detected and innovations made to avert major disruptions?

The late Hunt Taylor (2006) noted, "These markets look nothing like anything I've ever encountered before. Their stunning complexity, the staggering number of tradable instruments and their interconnectedness, the light-speed at which information moves, the degree to which the movement of one instrument triggers nonlinear reactions along chains of related derivatives, and the requisite level of mathematics necessary to price them speak to the reality that we are now sailing in uncharted waters ...technology and telecommunications will not do away with human greed and ignorance. I think we will drive the car faster and faster until something bad happens. And I think it will come like a comet from that part of the night sky where we least expect it." His words have proved prophetic. Today's hedge fund firms are comprised of employees with PhD's in quantitative and technical disciplines who ironically are proud of their limited knowledge of accounting, financial reporting and analysis. The hedge fund industry and Wall Street in general have become a game of ever-increasing speed in computer programs with complex algorithms.

The pursuits of enhancing shareholder value and social responsibility have been replaced by gambling with robotic pursuit of miniscule profits. The end result is the new business environment where securities markets are dominated by large investment firms reliant on technology and computer models for the sole purpose of profits, with no regard for millions of individual shareholders who depend on dividends for income. Scott Patterson's book "The Quants" (2010) describes how traders and financial engineers used high powered mathematical models to cause unprecedented losses in global financial markets. Instead of looking at individual companies' performance, the "quants" used mathematical formulas to make bets

with dizzying speed that caused significant value deterioration in individual investor's pension funds and investment portfolios. What are the implications of these developments for students being trained in conventional disciplines by business schools? How do we as educators innovate to promote technical competence along with social and ethical responsibility among our students?

## **THE FUTURE OF ACCOUNTING EDUCATION**

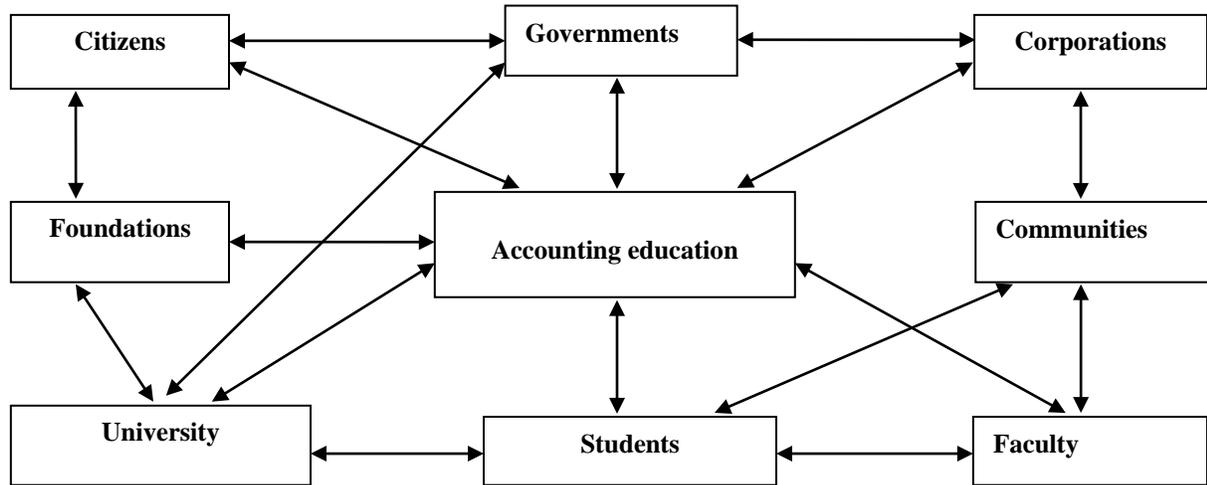
Research indicates that periods of stability lead to instability and that periods of stability could create a feeling of comfort perhaps complacency about stability. Comfort levels increase to such an extent that when instability occurs extensive and dramatic corrective action is required. The concept can be applied to macroeconomics in which long-term stability tends to produce unstable financial arrangements where consumers become more willing to add debt or postpone savings in favor of current consumption and finally to avalanches like the credit crises of 2008-2009. The longer the period of stability persists the higher the potential risk for even greater instability when market participants must change their behavior. Stated differently, the longer it takes for a critical state to build up in society more fingers of instability are allowed to develop a link to other fingers of instability to increase the potential for a catastrophe.

The failings of business leadership which contributed significantly to the worst recession in six decades have resulted in a lot of soul searching at business schools around the world with old certainties being challenged. With businesses all over the globe facing new economic trials, only organizations that understand the rapid economic changes will be able to successfully navigate through these dangerous waters. There is an urgent demand for thought leadership in the business community and business executives are looking for new insights and ideas on positioning their organizations for the future. In such an environment the established business schools should have been regarded as the saviors or producers of the new global thought leaders. Instead citizens regard business schools as a cause of the recent crisis by fostering self-interested, unethical, and even illegal behavior in their graduates.

Main street residents across the world have lost confidence in the self-regulation model, and are calling for government oversight on executive compensation and corporate financial reporting practices. Debates revolve around the emphasis on quantitative skills with total disregard for qualitative skills such as ethical and philosophical reasoning by business schools as the contributing factor to the moral failure.

In our current economic situation the average citizen has lost confidence in institutions such as investment banks, credit-rating agencies and central banks. Incidents such as a single trade created by a high frequency trading algorithm of a mutual fund company erasing \$862 billion in market value in twenty minutes and effectively paralyzing the securities markets on May 6, 2010 have caused the investing public to question the roles of the markets and business schools who trained the participants. The financial engineers felt that producing profits by using ever-faster computers to execute complex algorithms and high speed trading platforms is normal business practice, yet their actions nearly wiped out the market liquidity for small investors. The inattention to ethics and values-based leadership in business schools has resulted in a single minded devotion to personal wealth accumulation. The attitude of "the end justifies the means" seems prevalent in business schools and community. There is urgent need for business schools to look beyond the disciplinary silos through which future managers are being developed. Business schools and accounting education must restore that confidence by taking corrective action to avert the coming disruptions. Complacency with long periods of stability has resulted in established business schools continuing to pursue sustainable innovation, while upstart organizations have gained ground with disruptive innovation by offering cheaper and simpler educational products that target low-end customers. Evaluation of inter-relationships between accounting education and all stakeholders is critical to enable business schools to address any weaknesses in their curricula, and maintain strong relationships.

**FIGURE 1  
INTER-RELATIONSHIPS BETWEEN ACCOUNTING  
EDUCATION AND STAKEHOLDERS**



Colby and Sullivan (2008) argued that professional schools such as medicine, engineering, law, and accounting have the potential to serve as “trustee institutions” for the integrity of their field, “buffering it from the effects of market forces, which, if left unchecked, can be destructive to its standards, mission, and ultimately its standing as a profession at all”. Accounting educators can play a significant role in sustaining the accounting profession’s social contract in two important ways- through practice related research, and by student education. Preparing the accounting students for the profession would involve a framework including cognition and knowledge acquisition, mastering basic technical accounting skills, and exposure to profession’s ethical standards and practices.

Business leaders and thinkers are advocating that business schools need to re-invent themselves to provide an education that extends beyond traditional business disciplines (Doh, 2011; Frigga, Bettis & Sullivan, 2003; Kolb, 1984; Pfeffer & Tong, 2002). They recommend integrating disciplines in such a way that future managers are able to understand and successfully work with the broader legal, social, political, economic, and ethical drivers needed to achieve business growth in rapidly changing markets. The George Lucas Educational Foundation (<http://www.edutopia.org>) catalogs the best practices in education in edutopia.org, and tries to apply Lucas’ storytelling and technical prowess to engage students and turn out sharper thinkers who can thrive in an age of information overload. Lucas believes that future success will depend on centuries-old learning forms that are important in shaping how people think and act. The first form is the philosophical-intellectual side in the Aristotle/Plato mold where a teacher engages and encourages a small group of students with questions and discussions. The second form is the hands-on artisan school of learning in which the teacher treats students like apprentices and shows them how to make decisions.

Lucas believes that the transition into the Industrial Revolution brought new forms of learning where “.... education became an exercise in pumping as much information as possible into kids ... It’s like an assembly line, at the end of the assembly line, the students spit back the information and get a diploma.” Lucas advocates interdisciplinary and project-based learning programs because he believes that working in groups would teach students civility and emotional intelligence (ability to perceive, control and evaluate emotions), replicate real world experiences and make them into independent, critical thinkers better equipped for a world suffering from information overload. Many charter schools and innovative regular public schools have embraced Lucas’ ideas. Can business schools and accounting education embrace these ideas at a time when change is needed to avert the pending disruption?

Change is particularly needed in this era where information becomes obsolete faster and faster. Accounting education needs to produce managers who can combine the technical knowledge with intellectual sophistication to make creative and ethical decisions. When asked to develop a new project or experiment today's college graduates are inclined to look for an instruction manual instead of designing the instruction manual for the project or experiment. College graduates need to be able to think on their own, solve issues and write the manual themselves. Saloner (2011) of Stanford thinks that innovation is the key because it involves design thinking - an approach to problem solving that combines insights, ideas, and tools from the fields of engineering, design, arts, and social sciences. He lists the 3 elements of the design thinking process-(1) empathy for users of products and services, (2) collaboration across disciplines to work towards a common goal, and (3) iteration- developing prototypes, testing, soliciting feedback at each trial. He highlights benefits of this approach as promoting critical, analytical and innovative thinking along with developing personal leadership skills. Some examples of projects applying design thinking to solve problems at Sanford include entrepreneurial design for extreme affordability, and bio-design innovation.

The hands-on artisan school of learning is primarily focused on application and how to do it. It provides learners with the opportunities needed to develop and enhance their knowledge through development of essential hard skills; on-the-spot, time-focused decision making skills which include research and development in traditional and virtual environments. In accounting education, it will support a learning environment in which learners are provided with opportunities to work within real world environments which can be in two forms; 1) case studies and simulations, and 2) actual, business environments (service-learning; cooperative learning; internships). In the case studies, students are provided with a feel for the issues arising on a day-to-day basis in the work environment, and are required to provide solutions. In actual business environments, students are placed in real-work situations usually through partnerships with career and placement offices or with professor(s) from business schools. Students will need to analyze the individual situation and come up with the strategy specific to the situation. In many cases, students will work in teams and draw upon the collective skills. A combination of both learning forms would enable students to develop the skills they need to successfully perform in the world of work.

The world is changing at an astonishing and increasing pace with new technologies disrupting established industries and business models to create unforeseen opportunities in various areas of the globe. Ever increasing speed of data transmissions disrupt established business models. McKinsey Global Institute report argues that data form a key factor in production similar to financial, technological, and human capital. Businesses and professionals who can harness data to produce value can out-perform those who lag behind. Increasing number of people are being connected using smarter and cheaper computers, phones and net books daily across the globe. The sand pile is growing; each person connected is like a grain of sand on the growing sand pile. Farmers in the Far East can figure out the bid prices for their products, and fishermen in Indonesia can call around to find the best price for their day's catch. As demand for internet access and use increases, productivity surges in attempts to meet the increasing demand, and information becomes obsolete faster. The growing connectivity and associated changes impacting the way humans organize their personal and business lives requires careful analysis and implementation of relevant adjustments to the way accounting education is presented. Professional organizations in business education such as the Pathways commission, IIRC, and AACSB are cognizant of the urgent need for changes in the accounting education, and have issued recommendations and standards summarized below.

### **Pathways Commission**

The recent report by the Pathways Commission on Accounting Higher Education sponsored by the American Accounting Association and American Institute of CPAs put forth 7 recommendations along the same approach. Some of their recommendations include:

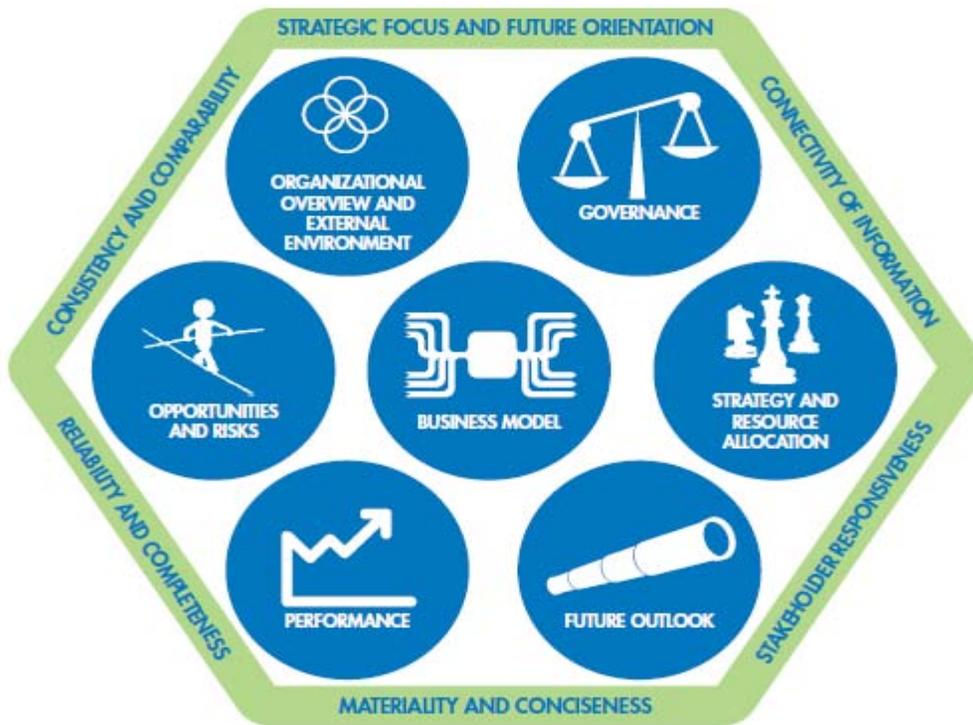
- 1) Build a learned profession for the future by purposeful integration of accounting research, education, and practice for students, accounting practitioners and educators.

- 2) Create mechanisms for collecting, analyzing, and disseminating information about current and future markets for accounting professionals and faculty.

**International Integrated Reporting Council (IIRC)**

The IIRC has issued a consultation draft of an integrated reporting framework for comment based on the work done by groups from Chartered Institute of Management Accountants and American Institute of CPAs. The IIRC is a global coalition of accounting and finance professionals, regulators, investors, NGO’s, regulatory standard setters, investors and companies. The proposed integrated reporting framework tries to bring together material information about the organization’s business model, strategy, governance, performance and prospects in the context of its social and business environments. It reflects the intellectual, human, natural and social capital along with the management of financial assets. Figure 2 shows the integrated reporting guiding principles and content elements.

**FIGURE 2  
INTEGRATED REPORTING GUIDING PRINCIPLES AND CONTENT ELEMENTS  
(SOURCE: IIRC)**



**The Association to Advance Collegiate Schools of Business (AACSB)**

The AACSB issued revised eligibility procedures and accreditation standards for accounting accreditation in April 2013 to validate quality accounting education and impactful research, as well as to provide leadership, encouragement and support for change in accounting academic units. Of particular interest are standards A2 on accounting intellectual contributions’ impact and alignment with theory, practice and/or teaching of accounting, and A6 on curriculum content.

## CONCLUSION

Accounting education is being shaped by multiple external forces such as massive open online courses (MOOC's) and students' learning styles shaped by technology and media. Globalization and outsourcing play a significant role in determining changing priorities for educational content and delivery. Accounting educators must take advantage of the available resources by regrouping and rethinking strategies for delivering value-added products and services in the future. We have to embrace and re-shape emerging delivery platforms such as MOOC's and adapt technology to suit student learning styles such as flipped classrooms, hybrid, and experiential learning. Our programs and projects have to mirror the evolving inter-disciplinary nature of accounting profession- for example, management accountants as integral to product design, auditors as risk managers.

Business graduates will need to combine ethical leadership, critical thinking processes, creativity and strategic management in a global environment. Research, teaching and service functions of the business schools must be balanced with stakeholders' needs and preserving the mission and integrity of accounting education. The evidence clearly indicates that appreciation for and understanding of the contributions of other fields of study in decision-making in the workplace is an aspect of student learning that must be addressed. Business school programs must be modified to suit what is needed in the workplace by encouraging programs with increased interdisciplinary learning. Educators should design interdisciplinary projects where students would work together on projects - real or simulated. These projects would allow students to learn design skills, expose them to diverse approaches to project-based work, and allow for development of team-based skills like communication and change management skills. The latter is essential to help students to develop skills to adjust to constant changes in the workplace. Business schools need to create an environment that supports intra and inter disciplinary foundations for accounting education.

Future business strategy will be built on collaborative networks and build knowledge bases around disciplines such as biotechnology, computational modeling, lean thinking, and systems. Students will need to be able to influence and communicate with people, understand, meet and exceed stakeholders' needs. Universities that want to promote innovative thinking in students need to create the right culture, develop the right processes, and offer stakeholder-valued incentives. The future leaders of business will have to learn to innovate with less of all resources- time, money, and people - to survive and succeed. Complex business transactions, globalization and technological developments continue to change the business environment. Fraud control, risk management, technological and managerial skills are increasingly needed for future accountants along with lifelong learning. Integration of knowledge, skills, and ethical action will form the competency and professional responsibility of accountants.

As expressed by the Pathways Commission report, a vibrant and strong accounting "profession" operates with a social contract encompassing a set of promises and commitments centering on the preparation of reliable accounting information. In exchange for its commitment to public interest, the profession is granted a degree of latitude in managing its affairs. The traditional description of a profession's characteristics include bodies of specialized knowledge and skills, procedures for oversight and monitoring of the quality of work and entrants, capacity to render judgments with integrity even when faced with uncertain circumstances, and uphold the public trust. During last few years, the violation of this public trust by accounting professionals has led to the public outrage and disenchantment. We, the accounting educators have to act as trustees or guardians for the future of the profession. Our educational responsibility encompasses developing the students' cognitive and technical skills along with a deep understanding of accounting profession's societal purpose.

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