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# Redefining education: the convergence of liberal arts and career school education

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## Keywords

Automation, AI Technology, Convergence, Education, Skill Demand

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## Abstract

*Progressive companies maneuvering in today's complex global market have adopted the entrepreneurial pivot-and-turn approach to be agile in the constant flux and change environment of disruptive AI advances. These businesses understand that current, and future, technology advances require a new workforce skill based on confluence, interconnectivity, cross-functionalism, channel integration and 21<sup>st</sup> century task specific expertise.*

*The case study of VMCAD College presents its Convergence Plan as a response to the changing 21<sup>st</sup> century business environment and the need for a cross-functional education experience. The 4 layers of VMCAD's Convergence Plan are: The Convergence of Business and Art, The Convergent Partnership between the Design Industry and VMCAD Academics, The Convergence of Sequential Learning with Holistic Learning, and The Convergence of General Education Requirements with Everything. Each layer is designed to be interactive with today's real world skill expectations which demand the drill-down focus of purpose and applicability found in career school learning with the big-picture, holistic, creative synthesis thinking of a liberal arts education.*

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## 1. Introduction

The ubiquitous use of technology in the 21<sup>st</sup> century has dramatically changed requisite job skills needed for the business and industry world. Technology, specifically AI, has accelerated the speed of change in business, escalated competitiveness in the global market, intensified business model complexities, and erased lines between workplace knowledge domains. Automation is changing the business environment as quickly as globalization.

## 2. Disruption and Transformation

Concerns about social and economic disturbances created by the newest wave of 21<sup>st</sup> century advances in technology are old as Brunelleschi's machines and the Luddite Movement. Today, the crude protest language of the 1811-16 Luddite riots has been replaced by the more eloquent, academic language found in the seminal 1999 treatise *The Division of Labor*, by Richard Murnane of Harvard University and Frank Levy of MIT.

For the past 18 years the premise, analysis, and predictions of *The Division of Labor* have influenced writings about automation's social, economic, and educational disruptions. Governmental and educational institutions have adopted Murnane's and Levy's cause and effect analysis of automation. There is the Bologna Process and European Higher Education summits from 2001 through 2009, The Center for Public Education's *Defining A 21<sup>st</sup> Century Education* by CD Jerald in 2009, Oxford University's 2013 *The Future of Employment: How Susceptible Are Jobs To Computerization?*, and *Harvard Business Review's* 2017 series of articles and webinars on the future of jobs and automation. The revolution of technology, automation, and computerization, and its economic and educational disruptions, has become institutional, conventional, and bureaucratic.

Progressive companies, like Sapien Razorfish (an international digital transformation agency), pay little attention to these bureaucratic codifications of a revolution. They understand that the institutional systemization of the ongoing revolution ignore last month's AI advances and

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tomorrow's AI innovations. Sapient Razorfish's *AI Value Pyramid* purposefully avoids the departmentalization of the Bologna Process' *Knowledge Triangle*. The entrepreneurial pivot-and-turn approach of Sapient Razorfish's *AI Value Pyramid* provides agility and perpetual movement in an environment of technology disruption and transformation (Lord and Velez, 2013).

Sapient Razorfish, and other progressive companies, understand today's technology no longer just serves business. It defines business. Most importantly, they understand current technology advances have created a new workforce skill need. It is the holistic, big picture, creative synthesis (the top tier of Bloom's Taxonomy), everything is connected, systems thinking skill set of the Solution Architect, Innovation Engineer, and Information Designer. Big picture, holistic thinking is needed to create, organize, and implement strategies which will pivot and turn around the seeming chaos of technology's disruptions.

Computer program algorithms used to create AI are decreasing the need for standard linear and sequential thinking careers. Almost any routine and predictable thinking task can be automated by code. ATMs, TurboTax, Divorce.com, Soundrop.com, and E-discover have automated routine data collection tasks into pattern recognition algorithms. The most recent, and startling, AI advances are in the medical field. AI is now capable of reading CAT scans and radiology reports with 50% greater accuracy than humans. A 2016 special edition report of *The Economist* on automation and future careers says AI is "blind to the color of your collar" (Morgenstein, 2016).

The current acceleration in social network platforms, mobile applications and devices, the Cloud, nanotechnology, biotechnology, Green/Sustainable technology, and data-mining are clear indicators of Kurzweil's Law of Accelerating Returns and the exponential spike of AI/digital technology. The new constant in business is the ever increasing acceleration of technology disruption.

There is a common saying in the business world, 'Every company is a technology company and, every industry is fundamentally changed by technology.' Today, the global marketplace is driven by technology's Holy Grail capacity to unlock revenue streams while improving efficiency. Business articles from *Harvard Business Review* to *Mashable.com* to *FastCompany.com* to *The Wall Street Journal* all provide similar heuristics and rules to handle the disruptive transformation of AI/digital technology on 21<sup>st</sup> century business. Growth and profit, they all write, is dependent on an agility to converge AI's extraordinary data-mining capabilities with innovative software coding.

### 3. Convergence

Digital technology and AI systems have exponentially-upon-the-exponential increased the amount of raw data available to business. However, all the raw data stored in the Cloud and, all the core mining techniques (decision trees, neural networks, collaborative filtering, association rules, pattern analysis, affinity analysis, and a host of others) to extract insight and create value from the data, go nowhere if coding algorithms don't create functional software to increase consumer interaction and product development (Linoff and Berry, 2011).

Amazon converges data-mining and coding better than most. This is most evident in the newly launched Amazon Go convenience/grocery stores. Cameras and sensors powered by AI allow customers to walk into a store, pick up items, walk out, and be automatically charged through an app on their smart phone. AI Sensors and digital communication converge to create a new source of information to track consumer behavior. Pattern analysis of consumer behavior converges with automated feedback mechanisms to create new business models. And the Internet of Things converges with everything.

In the past decade, thousands of books and millions of pages have been written to express the necessity of convergence in an age of AI/digital technology disruption. Yet, humans are so adept at departmentalizing, siloing, and isolating information into bits and pieces. The human tendency to separate information into categories is older than encyclopedias. It is, in fact, old as humanity itself. The taking of disparate items and separating them into categories is fundamentally easier than

converging them into something new. The focus on one thing is fundamentally easier than seeing many things converge into a big-picture.

The irony of this is human brains are wired to converge, not separate. Recent neuroscience studies (enabled by AI/digital technology) have proven it. The left brain, right brain, parietal lobes, temporal lobes, occipital lobes, frontal lobes, the limbic system and the brain stem all converge information. Separate and distinct areas of the brain do not stay as separate and distinct areas. The corpus callosum and 86 billion neurons produce a mega convergence fulfillment center neural network called the Connectome. Even more amazing is neural growth and neural synaptic interfacing expands with use (Seung, 2012).

The capacity of the human brain to converge bits and pieces of information to create new ideas has an exponential curve which can compete with Kurzweil's graph. Of course, the ability to acquire the capacity has to be taught.

#### 4. VMCAD Case Study

Fifty-two years ago, VMCAD College was established as a two year, associate degree career school. In 2015 a new president initiated plans to converge the drill-down career school mind-set with the drill-up liberal arts perspective. VMCAD's Convergence Plan began with procuring BFA and BS degrees for its Fashion Design, Fashion Merchandising, Graphic Design, and Interior Design programs. Additional BS degree granting programs in Art and Design Management and Fashion Marketing were added to the College's curricula.

The premise of VMCAD's Convergence Plan was audaciously simple. It looked outside of the educational arena to find a new pedagogical pattern. The College focused on two areas as strategic models for the "pathway" development of its Convergence Plan. The first was the transformation of 21<sup>st</sup> century business due to the continual disruption of AI/digital technology advances. The business operation reality of continuous innovation (due to today's accelerated technology advances), and the cross-functional exchange of ideas and information between a business organization's separate departments, became a strategic model for the College's curricula development. Advances in neuroscience became the College's second "pathway." Recent neuroscience research has proven the brain functions as a connective network rather than departmentalized, siloed regions. The 86 billion neurons and their estimated 700 trillion synaptic connections converge every region of the brain into an amazing web of interconnective entanglement (Feldman Barrett, 2018). These two models provided the College its Convergence Plan, which then redefined the content and context of its curricula development.

The 4 layers of VMCAD's Convergence Plan are: The Convergence of Business and Art, The Convergent Partnership between the Design Industry and VMCAD Academics, The Convergence of Sequential Learning with Holistic Learning, and The Convergence of General Education Requirements with Everything.

The first layer of VMCAD's Convergence Plan (The Convergence of Business and Art) forms the foundation of its mission: "We strive to create a learning environment where both the creative and business sides of the design and art industry converge. We provide aspiring artists and designers a strong foundation in business and enterprise which enables them to successfully establish their own business opportunities and launch their own enterprises. Likewise, we provide future managers of creative industries with a strong foundation in art and design so they can effectively inspire, motivate, and guide their creative teams and cultivate innovative thought."

The importance of VMCAD's second layer (The Convergent Partnership between the Design Industry and VMCAD Academics) is, curriculum development advice from the industry provides curriculum relevance for student internships and employment. The design industry becomes a shareholder in the pedagogical process and thereby a willing employer.

The third layer (The Convergence of Sequential Learning with Holistic Learning) pertains to each of the Academic Programs at VMCAD: Graphic Design, Fashion, Art and Design Management,

and Interior Design. This layer is an “omnichannel” inspired implementation of today’s business use of AI/digital technology, which expands beyond a single experience perception. The drill-down career school learning in each VMCAD Program is accompanied by the drill-up big-picture awareness of “omnichannel” purposing: the exploration of products/knowledge in one area should be transferable to another domain for universal relevance; and, the exchange of data/knowledge is to enable acquisition of other data/knowledge to expand its value.

The final layer ( The Convergence of General Education Requirements with Everything) is a Stephen Hawking approach. Math, science, social science, history, English, philosophy, and humanities actually do converge in the real world. Students need to see the convergence in the classroom. This has an epistemological purpose: seeing convergence brings about a knowledge of convergence and, an ability to implement convergence. This is best exemplified by lectures in VMCAD’s History of Art II course. For example, the lecture on Gothic cathedrals is expanded beyond than architectural structures of a time period. Through the process of convergence, and “omnichannel” purposing, the complexity of Gothic cathedrals is related to Systems Thinking which expands into immunotherapy cancer drugs and further expands into the Second Law of Thermodynamics.

## 5. Conclusion

The 21<sup>st</sup> century has shown there is no stand-alone of anything. In fact, today’s business practices, neuroscience, omnichannel purposing, and AI show the connectivity of everything. Education needs to implement, through practical application, the transformative and disruptive nature of convergence.

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