Rady Business Journal Leadership Team

G. Bryan Cornwall, PhD, PEng, MBA (FW18)
President, Editor
bryan.cornwall@rady.ucsd.edu

Tra Calisch, MBA (FW19)
Incoming President, Co-Editor
louis.calisch@rady.ucsd.edu

Austin M. Henderson (Rady PhD student)
Vice President, Co-Editor
austin.henderson@rady.ucsd.edu

Juliana Brasil, MBA (FW18)
Marketing, Co-Editor
juliana.jbrasil@rady.ucsd.edu

Andrew Albert, MBA (FT18)
Treasurer, Co-Editor
andrew.albert@rady.ucsd.edu

Alumni Advisory Board & Co-Editors

Christopher Rodriguez, MBA (FE17)
christopher.rodriguez@rady.ucsd.edu

Brett Blazys, MBA (FW14)
b.blazys@alumni.ucsd.edu

Jason Scharf, MBA (FT08)
jscharf@rady.ucsd.edu

Please feel free to reach out to any member of the RBJ team or the general email:
rbj@rady.ucsd.edu
IN THIS ISSUE

03 Editorial

05 Letter From the Dean
by Robert Sullivan

07 Protector Brewery: A Lesson in Following Passion to Unleash Innovation
by Tra Calisch

11 California is Fertile Ground for Music Instrument Innovation
by G. Bryan Cornwall

17 A Study of Illumina’s Success
by Francisco J. Uribe

22 Social Media Addiction
by Brett Blazys

27 Lying Because We Care
by Matthew J. Lupoli

A NOTE TO READERS:
The views expressed in articles are the author’s and not necessarily of the Rady Business Journal, the Rady School of Management, or UC San Diego. Authors may have consulting or other business relationships with companies they discuss.

REPRODUCTION:
Copyright © 2018 Rady School of Management, UC San Diego. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording or any information storage and retrieval system, without written permission.
Dear Rady Family & Friends:

2018 promises to be a great year for the Rady Business Journal (RBj). We are looking forward to completing the first issue of the journal since 2014. For students new to the UCSD Rady School of Management, the RBj is a student-directed business journal; the RBj seeks to provide business leaders with insights to assist in the development of innovations in the marketplace.

The primary goal of each issue of the Rady Business Journal is to promote the entrepreneurial focus of the Rady community, with secondary and tertiary aims of showing off the innovation that is occurring at UC San Diego and in San Diego at large, respectively. To that end, our preference is to publish articles that reflect this mix; we give priority to articles authored in whole or in part by Rady students, faculty, staff, and alumni, followed by articles authored by individuals who are members of the larger UC San Diego family.

To all Rady students, faculty, and alumni: We are looking for Articles and feedback on what would be of interest to you in your Rady Business Journal.

Excelsior!

The RBj Editors
Reborn. Reboot. RBJ 2.0

As the cohort started in 2016, there were copies of the Rady Business Journal (RBJ) around campus, not widely available, but on the occasional coffee table and display. The RBJ was a student directed initiative to cover innovation and innovative thinking at the Rady School of Management, UCSD campus, and the from the broader San Diego ecosystem.

This was the kind of entrepreneurial venture that students had clamored to be involved with; however, the most recent publications were from 2013/2014. A call came to restart the Rady Business Journal and core group of zealots emerged.

Early on, the team meet with the school staff to garner support to get the RBJ up and running again. “That’s nice”, they smiled. It was that sort of smile that an adult gives a child when they say something cute. “You don’t think we can do this?”, we asked. “We’ve heard this before”, they told us and continued to smile politely. “GAME ON” then the Journal is Reborn!

Not only did we want to create one journal, we wanted to regrow something that lasted beyond just one issue. To ensure that the RBJ would continue when we completed our goal in 2018. We initiated a four-part strategy to rebuild the RBJ into a next generation and sustainable publication:

1) we aggressively pursued new content,

2) we recruited interested MBA students from the incoming class for energy and vitality,

3) we recruited PhD students who bring a rich perspective of research and longer tenure at the school, and

4) we formed an alumni advisory board recruiting interested friends and family of the Rady School.

We reached back to the founders of the journal and reignited the fire to create a sustainable student run business media entity that is nationally respected and locally impactful.

As we started to generate interest and articles for the RBJ, we attracted more content than we could publish in a single issue. We were generating positive momentum and Rady 2.0 was taking form... the Reboot is complete on a stronger, more sustainable foundation.
I am simply amazed! It’s been 15 years since the launch of the School of Management at UC San Diego; 14 years since the milestone naming of the School by Ernest Rady; 12 years since the first class of weekend MBAs graduated; and 11 years since the first Full-Time MBA students graduated.

Now fast-forward, the first Master of Finance students graduated three years ago in 2015, while the first Masters of Science in Business Analytics students graduated two years ago. Today, we boast more than 1,500 Rady Alumni who are innovators, founders, leaders, change-makers making a difference around the globe.

I recall in 2008 writing a piece for the Rady Business Journal that reaffirmed the core founding principles of the Rady School. Innovation was the centerpiece, as it is today. That year, business schools were being challenged in the media for their irresponsibility – for being proponents of profit above ethics and integrity. Note that from our School’s launch, innovation, integrity, and positive impact have been engraved in our core values.

In 2009, as the great recession flamed and the Dow Jones dropped by nearly 50%, I wrote another introduction to the Rady Business Journal – the theme, of course, was that innovation and reinvention were the paths forward; that most net
new jobs would be created by newly founded, innovative companies. Despite the horrific economy at that time, our core values were exactly what were required at that time.

Fast-forward again to 2013, with a new Chancellor at UC San Diego, and a McKinsey strategic planning process for the campus in full throttle. Rady School faculty, students, staff, alumni – indeed the entire Rady School community – were engaged and collectively reaffirmed our core values. Enshrined in full view in our School's courtyard:

The Rady School of Management develops ethical and entrepreneurial leaders who make a positive impact in the world through innovation, collaboration and knowledge.

This strategic planning exercise additionally helped to define the growth path for the School. We set our sights on launching new graduate degree programs, consistent with the technology and innovation themes of the School; programs that would be cutting-edge and would address the most pressing issues of organizations, economies; and societies; and new initiatives at which the Rady School and its faculty could excel. Quantitative finance and business analytics areas surfaced, and are now an integral part of the fabric of the School.

So where are we in 2018? Our School has grown in students beyond anyone's expectations. Our new programs are experiencing phenomenal interest from students around the world. So it's tempting to grow! It's in fact easy to grow in student numbers without scaling our capacity to deliver world class excellence in every dimension. To some extent we have taken the easy path of growing beyond our capacity. This, of course, while easy, is unacceptable to all of our community of stakeholders.

So this year, 2018, we are reconnecting our School to a basic foundational principal; a principal that has been expressed to every Rady School class beginning in 2006. Our Rady School is absolutely committed to being among the very best in the world. In every dimension, Rady students should have a world-class experience. In fact, our goal is to exceed even the highest expectations. We are absolutely recommitted to excellence and we are recommitted to being recognized for what we achieve!

Again, I'm amazed at 15 years. I'm amazed at how far our community has come and the enormous successes and impact our alumni continue to have. I believe that reaffirmation and recommitment to our founding principles will propel our School to extraordinary heights. The future will also be amazing.
Innovation is a key factor in developing a successful startup, but it is often times elusive. Many believe that inspiration comes randomly, defined by the “Aha!” moment. However, a critical observation by Peter Drucker in the 1985 Harvard Business Review insists that innovation more commonly derives from methodically analyzing your environment for opportunity.[2] Beyond this process is a factor critical to entrepreneurs. Innovation requires passion. One need only look to their local craft brewery to see why.

Craft brewing was an innovation in the beer industry that really matured in the wake of the Great Recession. The number of craft breweries in the U.S. hovered around 1,500 from 1997 to 2008 then took off circa 2009. From 2014 to 2017 more than 800 brew pubs and micro breweries per year opened for business bringing the total to 6,266.[3] Ironically, Americans consumed 1% less beer last year compared to 2016, but the large producers – e.g., Anheuser-Busch InBev and MillerCoors – lost market share[4] while craft brew drinking increased 5%.[5] Craft brewing shows staying power, but this segment could also be reaching its apex.
How does Protector distinguish itself in a segment that is collectively defined as unique?

That could have dire consequences for a startup like Protector Brewery. Founded by Sean Haggerty, graduate of the Rady School of Management class of 2017, one of San Diego’s newest suds shops has been off to a good start since its opening last summer. In its first 8 months of business, Protector sold more than 80 US barrels or approximately 20,000 pints of beer.

In comparison, 6 San Diego based microbreweries that started since 2010 only recently broke the 200 barrel threshold. Protector meanwhile is on pace to sell more than 120 in its first year. That said, Protector is in one of the most competitive regions in the country for artisan alcohol. There were 148 craft breweries in San Diego County at last count, including legacies like Stone and Coronado Brewing. Differentiation is the key to success, but how does Protector distinguish itself in a segment that collectively defines itself as unique?

Drucker argued that innovators typically explore seven areas of opportunity to find inspiration. In the case of Sean Haggerty, it was a “change in social perception” that offered Protector the chance to separate from the field. The organic foods industry came into the mainstream in 2002 when the FDA announced its national standards for organic products. Stores like Whole Foods helped advance it rapidly, achieving double digit growth in the first half of the decade.

In 2017 organic products boasted nearly $50 billion in revenue and could be found in 82% of American households. U.S. organic farms and businesses also grew by 13% last year.

If everyone lived the same way he did, it would take 3.5 Earths to sustain the human race.

The prevalent value of organic foods in San Diego grocery stores and restaurants was not lost on Protector’s founder, but a deeper look into his life reveals the source of his inspiration. For starters, Sean is a former Navy SEAL, so he is more
Conscious than most about how he fuels and cares for his body. His connection to the Earth and its inhabitants is more profound, though.

One of his undergraduate assignments required that he measure his own carbon footprint through a computer program that calculated where he lived, what kind of car he drove, and how often he bought locally sourced foods, among other things. The results shocked him. If everyone lived the same way he did, it would take 3.5 Earths to sustain the human race.[14]

Sean Haggerty – Protector Brewery Founder, Rady MBA class of 2017

“Organic products have shifted from being a lifestyle choice for a small share of consumers to being consumed at least occasionally by a majority of Americans”

Leading a more natural, sustainable lifestyle is now a passion of Sean’s as it is for millions of other Americans. The FDA concurs. Survey results current as April 2017 reveal that “organic products have shifted from being a lifestyle choice for a small share of consumers to being consumed at least occasionally by a majority of Americans,” citing reasons such as health, the environment, animal welfare, and (music to the organic entrepreneur’s ears) willingness to pay.[15] Sean’s instincts about this trend led him to research the market.

A Likert Survey identified key attributes that his target customers valued which were alcohol by volume, price, style of beer, local, and, most importantly, organic. Data from choice-based conjoint surveys showed the highest attribute ratings were in local craft, brand, & low bitterness (the desire for low bitterness being a welcome discovery for this author). More importantly, for a startup trying to turn a profit, the surveys revealed that San Diegans are willing to pay $1.63 higher for Organic Local Craft Beer.

Surprisingly, large craft brew companies do not seem to recognize the market potential. In fact, Stone Brewing Company’s co-founder Greg Koch told Sean that his idea for an all-organic brewery would never work. There are probably some very logical assumptions behind that position, especially for an established producer like Stone that has entrenched relationships with its suppliers. However, Koch’s adamant dis-acknowledgment of the organic movement evinces itself as a case of marketing myopia.[16]

Ironically this scenario has played out before in a different market. Sears used to be on the cutting edge of innovation; it revolutionized retail when it premiered the mail-order catalog. However, it failed to acknowledge the next great innovation in retail – the digital mail-order catalog, if you will – the internet. Meanwhile, a startup called Amazon, with a highly motivated founder, capitalized on the opportunity. The outcome needs no elaboration.

What he knew is that he had a passion for beer, health, and preserving our planet for future generations.

Protector opened its doors in June of 2017 as the first and only all-organic brewery in San Diego, a distinction it still holds today. Given the recent growth of the organic industry and its potential, this start-up is poised to capitalize on the next great innovation in beer making. Sean did not know that he was using Drucker’s process of methodically analyzing his environment for opportunities. What he knew is that he had a passion for beer, health, and preserving our planet for future generations. His story tells us that getting deep into a problem is no problem if you have the drive to do it. That is how passion inspires innovation.
Louis H. “Tra” Calisch, III is a member of the Flex Weekend Class of 2019. He is Lieutenant Commander and pilot in the U.S. Navy currently on assignment at Naval Base Coronado. He graduated from the U.S. Naval Academy in 2000 with a B.S. in English Literature and has a master’s degree in National Security Studies from the Naval War College in Newport, R.I. His service includes five deployments to the Middle East and Western Pacific regions and a tour of duty living in Japan. Being a naval aviator Tra also has a passion for beer and has enjoyed different kinds all around the world. He plans to retire from military service in 2020 and start his own business, maybe even a brewery.
CALIFORNIA IS FERTILE GROUND FOR MUSIC INSTRUMENT INNOVATION

By G. Bryan Cornwall
PhD, PEng (MBA 2018)

Some of our most profound memories are linked with music: whether it is your first drive, first date, first kiss, or first anything, there is almost always a song that goes with it. Dick Clark is credited with the claim that “Music is the soundtrack of your life.” Music is art, music is emotion, music is life, and as noted by David Byrne, the former front-man of the band “Talking Heads” in his book: “How Music Works”, music is business [1].

For most of human history music was enjoyed in social venues or at home and necessarily played by live musicians. The invention of recording technology by Thomas Edison in the 19th century has allowed music to grow into a massive industry. The two main multi-billion-dollar verticals are the recording industry and the music instrument industry.

The music recording industry generated $16.3 billion dollars in global revenue in 2015, still below their pre-recession height of $17.2 billion in 2007. This industry is comprised of contracting artists, recording, publishing music, and more. Notably, music recording is dominated by the “Big Three” of Universal, Sony, and Warner who comprise 85% of the total industry [2].

The music instrument industry, although smaller,
is still large generating $7.4 billion dollars in the United States alone in 2017. This market has some notable leaders including Fender, Gibson, and Yamaha, but has a much more diverse assembly of small businesses. An improving US economy, a steady stream of new products, and some price hikes have contributed to the highest annual US sales in 2017 since the low in 2009 [3], as shown in Figure 1. While some members of the musical instrument industry are notable for their historic, conservative, and traditional approach, the industry has expanded with innovation.

![Music Instrument Industry Total Sales (US$ Billions)](image)

**Figure 1 – Music instrument industry US sales totals 1997-2017 [3].**

**Innovation & Music Instrument Patents**

So, what constitutes innovation? Peter Drucker defined innovation as “... the disciplined effort to improve the business’s potential” [4]. While this definition is broad with respect to generating potential for a business, one useful indicator of innovation in a space such as musical instruments is an issued patent. Musical instrument patent classification codes are organized into instrument segments such as wind-actuated (organs and harmoniums), pianos or key-related, stringed, percussion, electrophonic, etc. There is a broad diversity in the types of technologies innovated upon, from innovations in speech processing to guitar strings, as shown in Figure 2 [5].

To gauge the changing dynamics of innovation in music instruments, we assessed the number of US patents issued by decade in the 20th and 21st centuries (see Figure 3) and every year in the 21st century (see Figure 4).

Measurable interest in music instrument innovation continues to increase as evidenced by both the rise in the raw number of issued patents and the growing share or proportion of music instrument patents relative to the total number of US patents. The percentage of music instruments patents surpassed 1% of the total patents in 2016 & 2017. There was a notable dip in 2009, after the US economic meltdown, which mirrors the music instrument Industry US sales totals reported by “Music Trades” (see Figure 1) [3].

**California’s History of Innovation in Music Instruments**

California has a rich history of innovation in musical instruments. In the late 1920’s the Dopyera brothers developed the resonator guitar, and two companies were formed to commercialize the designs: National Stringed Instruments in 1927 and Dobro Manufacturing in 1928. Guitarist George Beauchamp wanted to increase the volume of his guitar, to move from being poorly heard in the back of the band to the front of the stage. Musician Beauchamp and Engineer Adolph Rickenbacker left National to start their own company and pursue an invention that National Steel did not want to pursue: the electric guitar [6]. Rickenbacker guitars started 15 years before Fender guitars. Leo Fender was a prolific inventor and advanced the business of electric guitars with his designs and focus on manufacturing. Although not located in California, another important innovator in the 1950’s and 60’s was musician Les Paul and his famous guitar manufactured by Gibson. Locally in San Diego, Taylor Guitars and Deering Banjos are leaders in their respective fields. Taylor continues to innovate being one of the first companies to incorporate robotics in the manufacturing. Luthier Andy Powers and Taylor Guitars were recognized for innovation at the 2018 NAMM show with a best of
show award for the new V-brace technology in their acoustic guitars. Music instruments are a massive business and growth in that business is driven in large part by distribution and popular culture. The business also grows and evolves with innovation, which is on the rise as measured by patents. A large fraction of that innovation happens in California, which has a rich history in the space.

**National Association of Music Merchants (NAMM)**

The National Association Music Merchants (NAMM) is a 117-year-old trade organization originating in 1901 [7]. NAMM moved their headquarters from Chicago, IL to Carlsbad, CA in 1984 – the same year that MIDI was introduced at the NAMM show. MIDI, or Musical Instrument Digital Interface, is the digital music standard that describes communication protocols, digital interfaces, and electrical connectors that facilitate communication between electronic musical instruments, computers, and more [8].

In short, MIDI has revolutionized electronic music artistry and business by bringing powerful music production to computers. It has democratized the ability to make music and reduced costs in production and delivery. Although there have been technological advances and innovation in the instruments themselves, NAMM has witnessed an evolution of innovation in the business side of the music instrument industry. With digital music, online commerce, and streaming, the landscape has rapidly evolved.

Figure 3 – Musical instrument US patents through the decades compared with number of issued patents.
several large players in the music instrument industry is less about the decline of brick-and-mortar retail and the rise of online commerce.

The cautionary tale is more about excessive growth and too much leverage with an accumulation of debt that became untenable [8] and demonstrated recently by the bankruptcy (Chapter 11) announcement of Gibson. While new products and innovation are important drivers of growth in the market, a decent balance sheet can help navigate the uncertainty in the market place of increasing competition, improving quality, more technology options, and evolving online commerce.

**Line 6**

One of the pioneers in combining analog and digital technology is Marcus Ryle, a co-founder of Line 6, a southern California based musical instrument company leading the analog to digital transition for guitars and gear. Marcus and his future business partner were working at Oberheim Electronics in the early 1980's and lived through that pivotal period of collaboration between industry and academics that led to the digital music interface standard finalized in 1983 and introduced to the industry at the NAMM show in 1984.

As the industry continued to evolve, this was regarded as a tectonic shift in the music instrument industry. Marcus left Oberheim in 1985 to start a product design and development consulting company. He consulted for many companies developing innovative new products. Immersed in numerous development efforts and launches for other companies, he started to see a whole new blue ocean strategy for the traditional music industry. In 1996, they founded “Line 6” to commercialize their own products starting with the world's first digital modeling amplifier.

They continued to launch innovative products including the Variax® guitar. As we discussed the nuances of design that elegantly solve problems, it was evident that he was an engaged inventor and
designer. He also spoke with the respect of a wise sage as we discussed the relatively recent history of MIDI development. With an impressive track-record of developing, launching, and successfully commercializing music instruments, Line 6 was acquired by Yamaha Corporation in 2014. As one studies the strategic investments made by Yamaha in digital music and in academic programs such as Stanford University [9], the acquisition of Line 6 was a strategic and a commercial success.

Yamaha through Line 6 has demonstrated a continued commitment to the guitarist market and uses internal metrics and social media analytics to assess improvements in customer satisfaction and enthusiasm for the brand [10].

**Ciari Guitars**

Another example of innovation in the guitar segment of the musical instrument space is IP attorney, Jonathan Spangler. Spangler's innovation started by following his own advice that he had given to Engineers and clients for decades: “If you experience a pain and see a need in the market, create the solution you want and patent it.”

Spangler, a busy in-house legal executive who loved playing guitar and leading the company band, he experienced first-hand the pain points of traveling with his guitar: added hassle and cost of checking as baggage, risk of damage if checked, and (last, but not least) getting the “stink eye” from other travelers when taking up overhead bin space.

He wanted a good looking, premium guitar that could be easily transported [11]. Unsatisfied with the commercially available travel guitar options, he invented a novel folding guitar that fits in a backpack or carry-on bag. The challenge was that accomplishing this goal, required addressing the sanctity of the guitar neck. Working with an award-winning creative Engineer (and fellow band-mate), James Lee, the pair patented a guitar that achieved the design goals by including three concepts: 1) a hinged neck, 2) a translating truss rod which selectively locks and unlocks the hinge in the neck, and 3) a floating bridge that selectively detensions the strings so they can “follow the fold” for elegant string management not found in other solutions. Spangler founded Ciari Guitars in 2016 and has been a member of NAMM since 2017.
Like any other industry, music instrument companies need to innovate to survive in this constantly changing world. Fortunately, the music industry is replete with passionate people that will continue to collaborate and evolve to enrich the lives of people who love music.

There are so many people around the world who derive inspiration or love or healing with music. It’s a rewarding place to be contributing to the making of magic and inspiring others to make the world better – through music and innovation.

About the author:

G. Bryan Cornwall, PhD, PEng:

G. Bryan Cornwall, PhD, PEng (FW 2018) is a Rady Fellow and will complete his MBA at the UCSD Rady School of Management in 2018. He is currently an Associate Professor of Mechanical Engineering at the Shiley-Marcos School of Engineering at University of San Diego (USD) with research interests in biomechanics, biomaterials and musical instrument innovation. He is a co-founder of Ciari Guitars (https://ciariguitars.com/) with a financial investment in the start-up and has been a member of NAMM since 2017. Ciari Guitars went through the UCSD Rady School “StartR” accelerator from October 2016 thru April 2017. Ciari Guitars has recently been accepted in the “Project Music” accelerator with the Nashville Entrepreneur Center from April 2018 through January 2019.

References:


OPINION:
A STUDY OF ILLUMINA’S SUCCESS
By Francisco J. Uribe

Illumina is a San Diego based, publicly traded company (ILMN) that develops, manufactures, and markets its proprietary line of integrated systems to sequence DNA.[2] Illumina has spearheaded the development of third-generation DNA sequencing systems, which allow for massive and fast sequencing of complete genomes, enabling the study of population genomics. In turn, this has opened the door to endless healthcare applications. Incorporated in 1998, Illumina’s first products were in the area of Single Nucleotide Polymorphism (SNP) profiling. The company’s IPO occurred in 2000, while launching its first product. Illumina not only builds systems, it also markets all the consumables it requires. Illumina continues to identify and develop new applications for its sequencing systems.

“Fortune favors the prepared mind.”
(Louis Pasteur)

After the turn of the twenty-first century, several companies were developing competing technologies for third-generation sequencing systems. In 2007, Illumina took the lead in the industry through the acquisition of its competitor, Solexa.[3] The acquired company had developed what now constitutes the core technology used in Illumina’s sequencers. This acquisition was a studied tactical move that required the recognition of the competitor’s strengths and, more importantly, Illumina’s own weaknesses.

Illumina likely understood how this new technology had the best balance between cost and quality for the de novo production of genomic sequencing.
data. They also perceived the potential this pipeline had for improvement and optimization and, more importantly, how this potential could be achieved.

At Illumina, the push for further development was spearheaded by its own R&D teams. If in 2009 it cost Illumina forty-eight thousand dollars to sequence one human genome,[4] this price tag had fallen almost fifty times by 2014. It was in January of that year that Illumina announced it had broken the barrier of the “one thousand dollar genome” with the introduction of the HiSeq X Ten System. Illumina had lowered the machine cost to about eight-hundred dollars per sequenced genome, taking only five years to do so. [5] To put things in perspective, the first sequenced human genome cost $2.7 billion (in FY 1991 dollars) and took more than 10 years to complete. [6]

“Every seaman knows the command at such moment: ‘steady as she goes.’” (James Callaghan)

Illumina has experienced rapid growth and was named to Forbes's fastest growing technology company list in 2007,[7] 2009,[8] and 2010.[9] Illumina's stock price was valued at under two dollars per share at its low point in 2003.[10] The company's sustained growth and solid technological development led to a hostile takeover bid by Roche in 2012.[11] This pushed the stock price to over $50 per share and the overall company valuation to over $6 billion. After Illumina's management fended off Roche's takeover, they continued the development of the long-term corporate strategy. Illumina worked to place products in ever-increasing numbers and ranges of institutions worldwide. These include academic and government settings, as well as pharmaceutical, diagnostics, and biotech companies.

As much as 80 percent of Illumina's revenue comes from genotyping. Depending on the year and analyst, Illumina's market share has been considered to be in the range of 60 to 90 percent.[12] As a reflection of market dominance, in 2014, over 90 percent of all DNA-generated information was produced by existing Illumina systems.[13]

The reward for following its long-term vision and strategy was close at hand. The market prized Illumina stock with a historical peak of over $240 in July 2015, pushing company valuation over $35 billion. 10

Jay Flatley, who was Illumina's CEO from 1999 until July 2016, grew the company from $1.3 million in sales in 2000, to over $2.2 billion in sales in 2015.[14] The new president and CEO, Francis deSouza, is an insider who has worked at Illumina since he joined as president in 2013.[15] Flatley has stayed on as the executive chairman of the Board of Directors, “focusing on strategy and on expanding the use of DNA sequencing in medicine.”[16] Illumina's R&D and technical teams also have remained extremely stable assuring the continuation of coherent strategic planning and implementation.

“Audaces fortuna iuvat / Fortune favors the bold” (Roman adage)

Illumina's technology was initially used and developed for basic and applied research environments. With the advent of the personalized medicine era, the company is creating routes into the clinical diagnostic and medical care markets. It is not that Illumina's systems and technologies were repurposed from its original research applications. According to interviews with current and former employees, it had always been part of an audacious long-term strategy to reach human health markets.

Illumina has become the major engine powering the human genomics diagnostics industry.[17] While smaller systems are used for basic diagnostic purposes, its bigger systems have attracted the attention of “digital medicine” companies that seek to unleash the power of comparative population genomics to build databases. In this area, according to personal interviews, Illumina's clients for HiSeq X Ten sequencers include Human Longevity, Inc.; WuXi PharmaTech (Cayman) Inc.;
Macrogen Corp.; Novogene Bioinformatics Technology Co. Ltd.; HudsonAlpha Institute for Biotechnology; Foundation Medicine, Inc.; and about 20 other companies. These databases will create value by mining useful information for highly coveted areas such as preventive and personalized medicine or new drug development and repurposing.

As the powerhouse of this revolution, Illumina has taken an active role in fostering the development and implementation of next generation sequencing (NGS) diagnostics technologies. Illumina has chosen not to remain idle at the top of the value chain as a simple monopolistic developer and purveyor of technology. Instead, it has taken initiative and participates in the development of new markets rather than waiting for the markets to develop by themselves.

Illumina has created specific business units using a market-based approach. As a technology and healthcare solutions company, Illumina has taken the lead to organize other companies in market-wide efforts to ensure proper flow of genomics products through the value chain, to patients and physicians.

“To boldly go where no one has gone before...” (Gene Roddenberry Phrase popularized by Star Trek)

FDA approval is a critical component to reach diagnostics markets. Illumina has tactically chosen to focus in areas where FDA approval can be more easily gained (e.g., due to strong patient need in oncology) or is not required (e.g., forensics).

Therefore, Illumina has established a strong push into the oncology arena, where its gene panel products are used to diagnose and direct the medication of patients based upon each unique individual's genetic profile. It has built strong relationships with its customers, not only to develop its products, but also to coordinate communication of its benefits to regulatory agencies and insurance companies. Reimbursement is a critical component in the value chain, as without it few patients could afford the benefits of genomics-based medicine. These efforts are starting to bear fruit. On November 23, 2015, Cigna became the first payer issuing new guidelines on the reimbursement of whole exome sequencing for clinical patients.[18]

Illumina diversifies its own value chain by investing in companies that will monetize NGS applications. For example, Illumina’s technology has supported the development of “personal genomics” products, such as 23andMe. These are genomics-based products that are not covered by insurance, but have varying costs, sometimes low enough to entice the average consumer to pay from his or her own pocket. This has created a myriad of companies offering genomics reports with slight to very significant clinical applications. Representing the lower-end, we find companies like 23andMe and Pathway Genomics providing average consumers with reports on ancestry; health risk and management; genetic disease carrier; and potential response to exercise, to diet, to certain drugs, etc. These reports, typically ordered through a physician, can be used to support general health management using a patient’s genomic information, to guide the selection among a few common drugs (to which he might respond better or have adverse reactions), or to gauge his

Illumina iSeq™ 100 Sequencing System
Photo: Courtesy of Illumina Inc.
response to very general types of diets (weight management) and overall body reaction to types of exercise. On the higher-end of the spectrum we find companies like Human Longevity, Inc. (HLI). This company offers a concierge medicine service that integrates medical records, genome, metabolome, biome, and body imaging information. HLI intends to establish correlations between health conditions and NGS information, which will identify a patient’s health risks and other specific health issues, enabling personalized medicine.

Efforts such as these, using genetic information to inform health care decisions can be deemed proof of concept—to demonstrate health care cost savings compared to current standard of care through the use of genomic-based personalized and preventive medicine.

Illumina has used its considerable weight to break ground for untapped or newly developed markets. In the area of oncology, Illumina spun off GRAIL, Inc., a company devoted to early cancer detection through blood-based screening, in January 2016.[19] According to Illumina’s own estimation, the cancer diagnostics market is estimated to grow to over $13 billion by 2020.[20] Through GRAIL, Illumina has created a new product category in the cancer diagnostics market, one poised to disrupt current standards of cancer care.

Finally, Illumina has shown itself to be mindful of events and developments down its own value chain. The most telling example may be in non-invasive prenatal testing (NIPT). In this arena, NGS is used to determine autosomal abnormalities in the fetus with virtually no risk for the expectant mother. A few years ago, an intellectual property (IP) battle was brewing in the NIPT market that would have derailed its development.[21] Illumina stepped in, buying the company Verinata Health, Inc., in January 2013 for $450 million.[22] By pooling IP, Illumina quelled the disputes between Verinata and Sequenom, Inc., enabling cross-licensing and granting other concessions.[23] In turn, this prepared the field for the rapid growth of the NIPT market. In turn, this prepared the field for the rapid growth of the NIPT market. This market has great potential, with around 4 million pregnancies each year[24] and the possibility to grow from $560 million in 2014 to $1.5 billion by 2020.[25] By intervening to disentangle its own value chain, Illumina promoted the smooth development of this particular diagnostic market.

“To the person who does not know where he wants to go, there is no favorable wind.” (Attributed to Seneca)

This version of the old quote from Seneca speaks to Illumina’s meteoric ascent. There is much to learn from what Illumina has done over the past decade and a half. There has been a grand vision, but for its realization there has been a carefully planned long-term strategy. Discipline was used in the actions employed to achieve this vision.

Its approach does not seem to be driven by immediate gain, but by a carefully crafted long-term vision. Nonetheless, there has been flexibility to adapt and incorporate other businesses, as adjustments have been necessary. As in the case of a few other companies, the appearance of effortless success is deceiving, and absolutely merits careful study and understanding.

Illumina’s push forward does not appear to be slowing. Though competitors continue to pursue innovation of their own, Illumina does not rest. Specifically, Illumina does not seem to focus on being a crowd-pleasing company, constantly looking at the price of its own stock or taking short-term actions to raise its price. Each of Illumina’s movements looks as if it is cautiously thought out and evaluated for the long term. Illumina does not rest at the top of its value chain; it acts as a restless enabler for those companies and entities downstream, helping those companies to produce the currency they need to spend in turn. Illumina has taken an active role in the development of the industry and markets that depend on the goods Illumina itself produces. It is clearly making a push to foster environments that will demand its products for a long time in the future.
Francisco Uribe graduated from the Rady School of Management with an MBA in June 2016. He also holds a MS in Biochemistry and Molecular Biology from Universidad Católica de Chile and a PhD in Biochemistry and Molecular Biology from Michigan State University. Early in Francisco’s career as a research scientist, he fell in love with the potential of applied science to make the world a better place. Biotechnological, pharmaceutical and therapeutic applications are close to his heart. His ultimate desire is to see the fruits of scientific research successfully come out from the laboratory into the world. With over 15 years of active life science research and 6 years working in start-up companies, Francisco has been an active participant in entrepreneurial community of San Diego in companies such as Human Longevity and Tismo. Lately, through LowTown Consulting, Francisco is involved in the area of Genomics, personalized health and precision medicine, helping companies to bring new products to markets and opening market in Latin America.”

References:


Addiction is defined as “compulsive behavior that leads to undesired and negative consequences.” While there are plenty of compulsive behaviors that do not lead to negative consequences, I focus on compulsive Social Media use and the problems that arise from it. We have all seen people in a group setting that could be observing and listening to the life around them, but instead they are looking into their phone, the ‘Black Mirror.’

Netflix has, as mentioned, an entire series based on technology taking over our minds and personal interests; looking into the depths of that in which we are tuning sadly and unrelenting to, leaving life situations that we characterize as ‘mundane’ behind. There is a true epidemic of ‘Social Media Stature’, where ‘my life is better than yours’, ‘Likes’ take over, and always being happy is seemingly the norm. A growing body of research indicates that social media use may not only be harmful, but it is also common that people underestimate their own usage.[1]

We each forget that it is perfectly acceptable to feel terrible once in a while! The feelings of anger, despair, and resentment are reptilian cues for each for us to push and challenge ourselves, working harder for a better tomorrow – not creating angst and helplessness. Life is supposed to suck.
sometimes, and it seems that Social Media is creating an environment of envy, jealousy, and loathing of the ‘better’ life that someone else supposedly has.[2]

One reason for explaining the massive success of social media is that this technology is extremely effective at stimulating our fundamental neurological processes. Engaging with social media can produce a dopamine response, which is part of the pleasure-seeking behavior involved online.[3]

These small dopamine boosts create a pleasure-seeking loop, similar to the way humans continually pursue drugs, food, and sex. These dopamine hits train individuals to crave interaction with a screen, rather than people; even at the potential risk of losing productivity, time, and relationships. While we experience this loss, the act of receiving ‘likes’ and ‘comments’ on Facebook posts, activates the pleasure center of the brain and creates users to comeback for more.[4]

From recording a concert you will never watch back again to taking pictures that we will never look at, everyone feels the need to record life around us and we do not know why. We have all seen people record life changing moments around us but there has been very little time spent on researching how digitizing these moments, keeping them forever in your digital memory while missing the moment in real life, will impact us in the future.

This system of stimulation is, unsurprisingly, purposefully designed. Psychologist Larry Rosen shows the machine code that ‘Snapchat, in all of its little content, knows exactly what you’re looking at and exactly how many seconds you looked, when you clicked away, and they’re meticulously recording every behavior you’re performing.’[5] This information is then aggregated to show users the information that will be most appealing to them, thus optimizing the small dopamine boosts for a pleasure-seeking loop. The algorithms used for placing content in front of the user have been programmed with Pavlovian cues and seeming unpredictability, two factors which support the development of addictive behaviors.[6]

These dopamine increases train individuals to create social interaction with a screen, rather than real people, creating a loss of productivity, time, and relationships.[7] Even while we experience this loss, the act of receiving ‘likes’ and ‘comments’ on Facebook posts activates the pleasure center of the brain and creates users to come back for more. A very simple yet very effective system to create the stimulation that we crave.

While there are many Cons of Social Media, clearly there are a lot of positive aspects as well. One of the biggest Pros of social media is the ability to keep in contact with a wide network of individuals much more easily than ever before.[8] Research shows that people can get support from peers more easily, 24/7 potential availability of your friends, no geographical limitations (except for China & North Korea), and social media boosts real-time news outreach.[9]

The good of social media is undeniable and used by people every day. Social Media is also responsible for worldwide change because sites like Facebook and Twitter have been the catalyst for people to congregate and make socially different political decisions, effecting Nations on a World level.[10] Regimes have been toppled and new leaders have risen, all of which would not have
been possible without the creation of Social Media on the other side of the planet.

Many individuals in popular culture and mass media effectively articulate the freedoms that we have as Americans, and how a simple gathering of people with similar ideas is not allowed in many countries around the world. Balancing these positive ideas with the negative is crucial to maintaining a positive online presence; thus, creating helpful interactions online rather than detrimental conversations with online Trolls.

Growing research describes both the extent of social media use, as well as the particular harms that come with it. In a recent study conducted on millennials by UC Berkley, social media interaction was the number one activity that young teens are engaging in each day.[11] Millennials report checking social media more than an average of ten times per day, and mistakenly believing that if something goes wrong in their own life, they will get help from their online community, even if that community consists of relative strangers.[12] In another recent study conducted by Facebook themselves, the increased amount of time spent each day on social media was correlated with an increase of perceived social isolation.[13] Disturbingly this is paradoxical because we go online to be a part of other people's networks, while it creates deeper isolation. Other studies at UC Berkley shows a correlation of jealousy and social media use.[14] By creating a vicious circle that Facebook analysts admit to, users end up in an endless cycle of trying to one-up each other.[15]

Recent research by UC San Diego's Professors Holly Shakya and Nicholas Christakis, indicates that the more time people spend using Facebook or other forms of Social Media, increases susceptibility of diminished well-being, such as reduced physical or mental health and life satisfaction.[16] As suggested in this research, this presumption makes logical sense because more time spent on social media takes time away from interactions in real life. ‘Dunbar's number’ is 150 – this is the theoretical maximum number of people that someone can remember in one person's life or ‘tribe’.

So how can each of us possibly have that many friends on Facebook? Can we even remember all of their names?

While there were limitations of the study, just as there are in any Social Media response studies, the fact that individuals responded negatively in the same manner suggests the impact is significant.[17] Individuals’ self-perceptions and feelings were significantly impacted in a negative manner affecting their diet, mood, sleep schedule, class, and friendships. It is also believed that ‘the associations between Facebook use and compromised well-being may be more likely to seek solace or attempt to alleviate loneliness by excessively using Facebook in the first place.’[18] Additionally, ‘prior research has concluded that social media may detract the amount of face-to-face relationships, decrease the amount of time individuals choose to take part in meaningful activities, lead to internet addiction and a diminished self-esteem by comparing one's own life to others on social media.’[19]

Why do we allow Social Media to affect us in this manner? UC San Diego's research suggests that people believe they are getting more positive benefits from social media than they are in actuality, based off of the small Pavlovian cues that our brains receive from cell phones. Therefore, it
becomes obvious why each of us spends more time on Social Media than we want to; billion-dollar companies have begun creating apps that hijack our auditory and visual response systems creating an endless feedback loop of looking for new posts, comments, or ‘likes’ - for that one more shot of dopamine received.

Additional UCSD research conducted at the Rady School of Management by Ayelet Gneezy and Kristen Duke was published by the University of Chicago Press[20] and summarized by the Harvard Business Review[21] explains the Public’s addiction to smartphones. While the use of social media was not specifically quantified, a significant portion of the screen time was related to the connection of ‘Family & Co-Workers’ inferring the overuse of social media. The conclusions of Gneezy’s and Duke’s research is that in order to maximize productivity in cognitively demanding situations, we might need to ‘Turn Off’ and put these devices away.

In Winter Quarter of 2017 during Finals Week, I conducted a sample research survey at UC San Diego on the undergraduate population in front of Geisel Library. Students were asked to document how many hours per day they used Social Media for a monetary incentive, and all participants asked willing included themselves in my data. The Simple Random Sample revealed that 22% of college students logged onto their social media account more than 10 times per day for a total of more than 1.5 hours; while the entire sample was using Social Media more than double the amount than originally thought; from a ‘Believed’ average of 20 minutes, to an ‘Actual’ average of 41 minutes.[22]

Because of the virtual zero ability for self-regulation and susceptibility to peer pressure from friends, all of us are at an increased risk of cyber bullying, privacy issues, sexting, jealousy, rage, and depression.[23]

Much of this digital technology is too difficult for adolescent brains to comprehend as privacy becomes a relic that was given away, whether it was the Patriot Act after 9/11 or Amazon Alexa tracking you inside your home incentivizing ‘Free 2 Day Shipping’. As responsible civilians, parents, and citizens of the World, we owe it to ourselves and our children to understand the susceptibility of social media to take over our emotions and begin to train ourselves to be more focused on life, love, family, happiness, health, and hobbies – the things that truly matter in Life. Data from the website www.99DaysofFreedom.com, which encourages people to stop using Facebook for 99 days, revealed the difficulty people have with getting rid of social media, with under 20% of people who signed up being able to complete the challenge.[24] Sean Parker, early Facebook investor and billionaire, said that Facebook was designed early on to ‘consume as much time and consciousness as possible.’[25] Personal education to ourselves about the power of these devices in our lives and having the dedicated desire for betterment will prevent social media from controlling our minds. Despite this all, we must as a society learn how to use this new technology in a positive, self-benefitting manner rather than having overuse lead to envy, anger, and jealousy. The choice is ours.
About the Author:
Brett Blazys, MBA, Founder

Brett Blazys, Brett is the founder, motivator and visionary behind Econ Evidence. He started his consulting career as a peer-to-peer consultant and his outstanding, global success within the biotech area launched him into corporate consulting. Prior to starting Econ Evidence, Brett was a Senior Portfolio Analyst & Operations Consultant for a Fortune 500 Clinical Research Organization and later received his MBA from the Rady School of Management. With years of international clinical consulting experience, in various countries across Europe and Asia, performing complex financial planning and optimization, he is the ideal leader for Econ Evidence. Contact Us today for Brett Blazys' CV.

References:
[1] Study Conducted by Brett Blazys - SRS of UCSD undergraduate population in Geisel Library
[20] https://www.journals.uchicago.edu/cgi/full/10.1086/691462
[22] Study Conducted by Brett Blazys - SRS of UCSD undergraduate population in Geisel Library
Imagine that you have a colleague who will soon be giving a presentation in front of several managers in your organization. A week before she is scheduled to present, this colleague practices her talk with you, and asks for your opinion on her performance. In truth, you thought that the presentation could use significant improvement. However, you are given pause by knowledge that this colleague is dealing with the recent death of a close family member. You can tell that she is in a fragile emotional state, and you feel concerned that giving her negative feedback will only worsen her suffering. In this situation, would you tell your colleague exactly what you thought of her performance?

According to our research, compassion felt towards the colleague could lead individuals to give more dishonest feedback (Lupoli, Jampol, and Oveis,
2017). This work highlights how compassion—that is, the concern for those who suffer and the motivation to enhance the welfare of others—increases prosocial lying, or lying that is intended to benefit others.

**When well-intended lies can backfire**

We all have experience giving and receiving white (that is, harmless) lies; a familiar example is telling a partner or close friend that they look fantastic in those jeans when you believe otherwise. White lies play an important role in smoothing social interactions—after all, if everyone said exactly what was on their mind 100% of the time, the world would probably be more a frightening place than it already is.

However, not all prosocial, well-intentioned lies are entirely harmless. For example, managers might give subordinates inflated feedback to make them feel good about their performance, at the expense of not giving them constructive criticism which could improve the quality of their work.

Given that prosocial lies can profoundly affect individuals and organizations, and sometimes for the worse, we thought that it is important to ask: What drives people to tell these lies, especially when there are clear benefits of honesty?

**Compassion and prosocial lying**

As emotion researchers, we naturally turned to our own knowledge base in considering when and why people tell prosocial lies. One particular emotion that we thought would be involved in prosocial lying is compassion. Compassion, or sympathy, drives behavior that is aimed to alleviate suffering and promote the welfare of others, such as giving to charity (Saslow et al., 2013), caring for young (Goetz, Keltner, & Simon-Thomas, 2010), and
be a social scientist to aware of the harmful effects of lying—most people are unfortunately quite experienced with this. So it’s possible, then, that a lifetime of exposure to the harmful consequences of lying could have spillover effects toward perceptions of prosocial lying, thus making compassionate people averse to lying in general.

On the other hand, we had reason to believe that compassion would increase prosocial lying.

Because compassion involves a heightened sensitivity to the suffering of others, this emotion could focus individuals on the harm inherent in a painful truth. Thus, if lying is seen as a means to prevent or decrease suffering, then compassion might increase this type of lying.

A second reason why compassion might increase prosocial lying is because compassion biases our decision making. One well-known example that illustrates this is the story of Baby Jessica. Jessica McClure was an 18-month-old who captivated media attention nationally after she fell down a well and was trapped for nearly 3 days before being rescued. In the aftermath of this event, Jessica and her family received approximately $1.2 million dollars in donations from around the country. Elsewhere in the world at this time, events such as the Kurdish genocide in Iraq were occurring, which resulted in over 50,000 deaths, but received comparatively little attention and charitable donations (Black, 1993). Mismatches like these between levels of need and levels of aid are not uncommon; you can probably think of other examples where a single, identifiable victim received a seemingly inordinate amount of aid in part because of the compassion this particular person evoked.

The take home message of this story is that compassion’s effects on behavior intended to help others are not necessarily calibrated toward promoting the most welfare-enhancing action. Thus, compassion could cause individuals to tell lies in order to prevent perceived harm to others, even when there are benefits of honesty.
To test these competing hypotheses and to determine whether and in what direction compassion influences prosocial lying, we first investigated prosocial lying in a context with direct relevance to organizations: providing feedback.

**Study 1: The effect of experimentally induced compassion on feedback**

In a first experiment, 396 undergraduate participants in the Rady Behavioral Lab were told that they would be paired with another student who had previously written an essay about why they should be admitted to graduate school. Participants then learned that their task would be to evaluate this other student’s essay on several criteria.

What they were not told was that in actuality there was no other student, and that all participants would be evaluating the same essay. (The irony of deceiving participants in an experiment about lying isn’t lost upon us. We absolve ourselves with Institutional Review Board approval and by viewing it as prosocial lying in the name of science.)

After participants read the essay and provided their ratings, we informed them that they would also view a message that was written by the essay writer about a recent event which occurred in his or her life. Half of participants were randomly assigned to receive a message that detailed the essay writer’s experience with the recent death of a loved one.

This was an emotionally evocative statement that we had previously found to reliably elicit compassion. The other half of participants—those in the neutral condition—read a statement that described this person’s recent trip to the grocery store, which was ordinary if not boring.

Following this experimental induction of either compassion or neutral feelings, we surprised participants by telling them that they would have the opportunity to evaluate the essay again on the same criteria, except this time with the knowledge that the writer would view these evaluations. We explained to participants that each writer could rewrite their essay and submit it to a contest where they could win a prize. To ensure that there were perceived benefits of honesty, we also explicitly said that the information they would provide will help the writer improve his/her essay. Prosocial lying was then defined as the extent to which participants inflated their evaluations upon learning they would be shared with the writer (i.e., shared evaluations minus private evaluations).

What we found fascinated us. First off, the majority of participants (54%) lied to the alleged essay writer. That is, fifty-four percent of participants gave the essay a higher evaluation when they knew that their ratings would be shared with the writer compared to their initial, private evaluations.

But what we cared about most was the effect of the compassion manipulation — that is, would individuals experiencing compassion lie more than those who were feeling neutral?

As it turns out, they did. 64% of participants in the compassion condition provided a higher essay rating when giving the writer feedback, compared to only 45% in the neutral condition—a statistically significant difference. Not only did compassion increase the probability of prosocial lying, but also the magnitude of those lies: those in the compassion condition inflated their quantitative essay ratings to a greater degree than those in the neutral condition. Follow-up questions revealed that these effects were driven by a heightened importance placed on emotional harm in those participants who received the compassion manipulation. This suggests that participants really did lie because they were concerned for the emotional welfare of the fictional essay writer.

**Study 2: Trait compassion and feedback**

This first study provided evidence that compassion felt towards an individual can increase prosocial lying towards that person. But there are other ways in which this relationship between compassion and prosocial lying might play out in the real world. For instance, it’s possible that just being compassionate in general makes people more likely to tell prosocial lies, regardless of whether
compassion is being actively experienced in the moment.

In a second study, we tested this notion. The study used an essay evaluation procedure that closely resembled that of the first experiment. This time, however, we did not elicit a state of compassion amongst participants. Instead, we measured participants’ trait compassion, or how compassionate they are on a daily basis, and examined whether their trait compassion was predictive of prosocial lying to the essay writer.

139 online participants first filled out previously validated questionnaires to assess trait compassion, which asked them to indicate their agreement with statements such as, “I often have tender, concerned feelings for people less fortunate than me,” and “I am a compassionate person.” Then, they engaged in the essay evaluation procedure as before, except there was no message from the essay writer to evoke either compassionate or neutral feelings.

The results of this second study were strikingly similar to those of the first. The degree to which participants inflated their evaluations of the essay when giving feedback to the writer was significantly correlated with their scores on the compassion scales—the more compassionate participants reported that they were, the more they exaggerated their essay ratings. Moreover, those who did give the essay a better rating when giving feedback (i.e., those who lied) had higher levels of trait compassion than those who did not inflate their ratings. Thus, people who were more compassionate in general were more likely to tell prosocial lies.

**Study 3: Spillover effects of compassion on prosocial lying**

These two studies offered compelling evidence for the positive relationship between compassion and prosocial lying. However, we wanted to go a step further. In life, emotions often have spillover effects on behaviors that are not directed at the source of the emotion.

For example, a manager who just endured a stressful traffic jam may bark at employees if his road rage has not subsided, and watching a scary movie might make a person jump at the sound of tree branches tapping on a window. Similarly, in a third study, we examined whether spillover effects of compassion would increase prosocial lying towards a beneficiary that was not the original source of compassion.

Again at the Rady Behavioral Lab, 432 undergraduate students were told that they’d be participating in a study that investigates how visual stimuli influences memory. Specifically, participants learned that would be viewing photos and a video clip, which they would later be asked to recall. Unbeknownst to participants, the photos and video would serve as our manipulation of either compassionate or neutral feelings. Those randomly assigned to the compassion condition viewed a series of slides depicting helplessness, suffering, and vulnerability, followed by a video clip about child malnutrition and starvation. Meanwhile, those in the neutral condition viewed slides of household items and patterns, followed by a video of two men talking in a courtroom.

Next, participants engaged in a task where they were shown arrays of dots dispersed within a square that had a diagonal line dividing it. After a one-second exposure to each square, all participants had to do was indicate whether there were more dots to the left or to the right of the diagonal. Participants were told that for each response of more-on-the-left or more-on-the-right, a small donation would be made on their behalf to a real charity, the Against Malaria Foundation (which was actually true).

Crucially, however, we also informed participants that because most people can more easily identify the number of dots on the left side, the charity would be paid ten times more when they reported that there were more dots on the right. Thus, they were incentivized to report that there were more dots on the right (i.e., the response that yielded the higher donation) for the benefit of the charity, even when this was not in fact the case.
The results again pointed to a positive effect of compassion on prosocial lying. On trials in which there were clearly fewer dots on the right of the diagonal (less than 40% of the dots on the right), participants in the compassion condition reported that there were more dots on the right (again, the charity payment-maximizing response) more often than those in the neutral condition.

In other words, when there was a conflict between providing an honest response and lying to increase the gains for the charity, those experiencing compassion were more dishonest. When this conflict between honesty and lying for the benefit of the charity was removed—that is, in trials in which there clearly were more dots on the right—participants in both the compassion and neutral condition behaved similarly. These results suggest that compassion for one can indeed lead to prosocial lying for the benefit of another.

**Implications for organizations**

These findings may be interesting to the casual observer, but why should organizations care? We think that our findings in the context of providing feedback have profound implications for organizations. Giving and receiving feedback is an essential component of nearly all organizations. While it’s not always easy to give, the value of negative feedback is easy to recognize. Without receiving negative feedback, it can be difficult for people to discern what needs improvement, and this could be detrimental to both individual and organizational goals. Our work suggests that compassion, an emotion that is typically considered beneficial to organizations, could result in well-intended but inaccurate feedback.

So should managers then work to get compassion out of organizations? In short, no. We do not doubt that compassion can have positive effects in the workplace, including increased teamwork, extra-role behaviors (i.e., those that help the organization or fellow employees but are outside of one’s job description), and organizational commitment (Barsade & O’Neill, 2014; Grant, Dutton, & Rosso, 2008; Lilius et al., 2008). But given our results, managers may want to think carefully about the organizational contexts in which compassion should be promoted.

One possibility is that we should encourage compassion when colleagues ask for help on tasks where they lack expertise or when they’re feeling overwhelmed, but that we should de-emphasize or at least qualify the role of compassion when giving feedback or providing performance reviews. As a personal anecdote, at Rady I have heard several practice talks for high-stakes presentations begin with the speaker requesting of the audience “please don’t be nice.”

We also do not think that being compassionate and giving negative feedback need to be mutually exclusive. One way to productively bring compassion into feedback is to focus on behavior, not the individual him or herself, as criticizing the individual is a sure way to hurt feelings and morale. Employees must also know that the process of arriving at the feedback is fair and just—if you’re going to criticize a person’s performance, make sure that it is clear how or why they’re not meeting the standard, and what they can do to change that. Employees are more likely to express commitment to the organization when they feel that they are cared for in the organization and that their colleagues have good intentions towards them (Grant et al., 2008). In the workplace, part of this means receiving accurate feedback about where one needs improvement.
Limitations and future directions

Our research is not without caveats. For one, we do not claim that compassion increases prosocial lying for all people in all contexts. There may be situations in which compassion has no effect on prosocial lying, or perhaps even decreases prosocial lying. In contexts where most people agree that lying is better than honesty, we would expect most people to lie, regardless of how compassionate they are.

For example, it would take a special kind of person to tell a bride that she looks hideous on her wedding day even if that is what’s truly believed. Similarly, if the temporary emotional effects of receiving bad news pale in comparison to what can be gained from the truth, we would not expect the same results. Think of the doctor who diagnoses a patient with a potentially life-threatening disease when life-saving treatments readily available; it is very unlikely that a compassionate doctor (or any doctor for that matter) would lie about the diagnosis. Furthermore, our studies only involved people in the US who did not know each other personally. More research is necessary to determine whether these effects hold cross-culturally and in closer relationships, such as those between friends and family members.

According to the Dalai Lama XIV, “When we are motivated by compassion and wisdom, the results of our actions benefit everyone, not just our individual selves or some immediate convenience.” (Dalai Lama, 1991) While this may be a bit of an oversimplification, we think that the Dalai Lama gets it right when he refers to both compassion and wisdom. Neither compassion nor wisdom alone are sufficient for benefiting others, because we need compassion to be motivated to help others, but we also need wisdom to know how to best help others. And it is through this process of learning about how to balance compassion and wisdom, or emotion and reason, that we will make better decisions for others as well as ourselves.

About the Author: Matthew J. Lupoli, PhD

Matthew J. Lupoli earned his doctorate in Management at University of California, San Diego Rady School of Management. Most broadly, he studies prosocial behavior—that is, the factors that drive us to do good (or what we perceive to be good) for others, and how individuals respond to these behaviors. Within this domain, Matt investigates the antecedents and consequences of prosocial lies, or lies that are intended to benefit others. In another line of work, he explores methods to foster prosocial behavior in the field, with an emphasis on charitable giving. He has published research in journals such as Organizational Behavior and Human Decision Processes and Journal of Experimental Psychology: General. He has also received media coverage in outlets including the New York Times and the Wall Street Journal. Prior to beginning his career in academia, Matt worked in sales for wholesale beverage distributors, where he learned first-hand about how to grapple with organizational issues, and made many friends with a car trunk full of beer.
References:


