

Edward Barger

The Changing Role of a Formal Education

In the Industrial Gas Business

The recent trend of only hiring and promoting candidates with college degrees in the industrial gas business is causing some challenges, and would be better managed with a step-change approach.

“When asked how much educated men were superior to those uneducated, Aristotle answered, ‘As much as the living are to the dead.’ “

- Diogenes Laetius

The industrial gas business has been around for well over 100 years, and helped facilitate the Industrial Revolution through the strategic use of oxygen, acetylene, propane, carbon dioxide, helium, and argon to name a few. Although rooted in chemistry, physics, and engineering for discovery and application, the field itself for the everyday industry workers and end-users was hot, dirty, and dangerous – generally considered “blue collar”. Over time, the market refined itself for process improvements, and as a result of new technologies and application needs (Compressed Gas Association, 2013). Along with these changes came corollary refinements in the workforce – most notably skilled labor as the result of technical schools / training and apprenticeships through the labor unions. Despite these advancements, the industry as a whole was still considered “blue collar”; as well as still hot, dirty, and dangerous.

Over time, new applications and market demands have continuously added to the portfolio of products and market segments that were serviced by the industry. For the Food & Beverage segment, the use of carbon dioxide in soft drinks and beers and nitrogen and nitrogen mixes for modified atmospheric packaging. The Medical market uses USP grade oxygen,

nitrous oxide, and mixes to sustain life, assist in medical procedures, and aid physical recovery. Cryogenic forms of different elements are now used in laboratory and research applications, along with ultra high purity pure and mixed gases. Finally, there is the Oil, Gas, & Petrochemical segment that is using these products in different forms for blanketing, purging, testing, and fire suppression. Government influence and regulation has also impacted demand and application; the formation of the EPA and regulatory requirements for emissions testing created a market for gaseous baselines for emission monitoring (Almqvist, 2003).

This evolution of products, processes, applications, and end-users has shifted the skill sets, experience, and education expectations away from the traditional “blue collar” model that in the past could be effective. The need for a more sophisticated and educated approach to all elements of the business will increase in the future (Almqvist, 2003).

A second dynamic affecting the education demand that has happened over the last 30 years is rampant merger & acquisition activity. This has consolidated much of the industry into a few large, multi-national and publicly traded companies that dominate the industry, with some smaller regional or single location “Mom & Pop’s” still blanketing the competitive landscape. The expectations of these dominant players in the market is that its employees make savvy business and financial decisions meeting minimum ROI thresholds, can collaborate across business units, and are compliant with regulatory (SEC, SOX, SOP, etc..) requirements.

These two coinciding dynamics – volume and diversity of applications and customers, as well as the expectation of business acumen and ability to navigate the corporate world – has severely impacted the requirements of the work force throughout the hierarchy. A Sales Rep may trouble shoot a welding application in the morning, give training to an end-user on cryogenic nitrogen the afternoon, and then end the day with a cost-saving presentation to the CFO of a potential new customer. The Plant Manager may have to host a conference call with a group of PhD Chemists / Physicists asking questions on the filling and QA process. Drivers may be asked to review the SDS and dangers related to the products they are delivering. The requirements to be successful had changed.

“One of the things we often miss in succession planning is that it should be gradual and thoughtful, with lots of sharing of information and knowledge and perspective, so that it is almost a non-event when it happens “

- Anne M Mulcahy (former CEO of Xerox)

Succession planning is the process in which an organization consciously plans on how to backfill open positions. Open positions occur for many reasons; some are planned, such as retirements, transfers, promotions, and budgeted additions. However, many open positions that occur are unplanned, such as a resignations and terminations. Particularly at the highest levels of the hierarchy, filling the void with a competent and qualified person, and quickly, is vital for the success of the organization. There is relative dynamic in the lower levels of the organizational chart in that succession planning becomes less important, but for an organization consciously planning for the future, the recruitment and hiring process becomes an important consideration. Hiring competent and skilled individuals at entry points into the organization is vital, as they will eventually become proficient and knowledgeable, eligible for promotion, and eventually be part of the succession plan.

In a properly formed succession plan, key positions in the company are first identified, then under each position, current employees are listed that have the potential to fill that position at some point in the future. This forward look and listings should be broken out into three categories (assuming bench strength will support this number): ready to take over now, will be ready in 1 year, and will be ready in 1-2 years. By looking at succession in this manner, it identifies what training and experiences may be necessary to help develop potential successors to fill the gaps when the opportunity arises (Rothwell, 2010).

The industrial gas business, until the recent past, was largely made up of small independent family businesses – some having multiple locations and a regional presence, and some having one location. Being family businesses, succession planning was not a formalized business process, but more based on estate planning and passing the business from one generation to the next. The exercise was very subjective, and did not give a lot of consideration to pedigree and non-family members.

There was then a shift in the early 1980's, as merger and acquisition became prevalent in the industry, coupled with the rise of large public companies. As these companies grew in size, there was the need for a change in the organizational structure and the addition of layers in order to properly manage the companies' new scale.

Another dynamic that affects the labor supply has been an overall disinterest by young high school and trade school students in the industrial gas business. It is viewed as dirty, hot, and dangerous – considered an undesirable job and career path. Without a direct pipeline of candidates actively seeking opportunities in our industry, it had developed into an accidental career. Once someone found their way in, there was ample opportunity to work hard, achieve success, and advance in both title and compensation.

Combining these dynamics – the need to fill positions in a restructuring to accommodate growth, and with basically only the existing roster of personnel to choose from – created the org charts and hierarchy that up until recently had become the new normal. Former truck drivers were now Dispatchers or Fleet Managers. Former retail store workers became Sales Reps. Forklift operators became Asst Plant Managers. Former Sales Managers became P&L managers for a business unit. Due to a lack of any kind of forward thinking or succession planning, positions were filled with the best available candidates, with the expectation that there would be opportunity for both formal and informal training and mentoring along the way.

In last couple of years, however, this thinking and strategy has been rejected, and been replaced with a more formalized and forward thinking approach. Succession planning is now a priority for all but the most basic and entry-level positions in the company and industry. Along with this new dynamic, there is now the expectation (with very limited exception) that positions will be filled with candidates that have a four-year college degree at a minimum. The requirement is followed to the point that there are now opportunities to enter into our organization at the highest levels of the organizational chart in cases where there is not bench strength with a college degree to take the position.

There are both pros and cons of this new dynamic. The pros include the infusion of new blood into the business team, with ideas, and new ways of seeing things. Often people from outside of the industry have applicable skill sets that simply need to be adjusted to our specific

products and markets. For example, a good sales leader should be able to manage the sales process and help sales reps overcome obstacles in that process, regardless of their intimate familiarity with the products – which will come over time. When an outsider is hired, they often bring gravitas into the position based on their life experiences, as compared to the competing option of hiring an existing employee before they are ready and qualified to lead former peers and team mates. There are also cons to hiring from outside of the industry: first, is that you put their direct reports in a position to have more knowledge and understanding of the day to day business than the new manager. Second, there is hazard in that person persevering through the transition and performing outside of their comfort zone – there is an expense to recruiting, hiring, and training – tenure may be a challenge. Finally, there is the question of that person’s suitability to have a role in the succession plan – candidate opportunities are limited and should be a consideration in the hiring process.

“We won’t have a society if we destroy the environment”

- Margaret Mead

“Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever has”

- Margaret Mead

Like any other industry, the industrial gas business is impacted by the movement towards environmentally sustainable processes and practices that are considered eco-friendly – or “green”. Overall, this is a challenge due to the different elements of production, packaging, distribution, and characteristics of the various products and their inherently “dirty” nature.

First, production in the industrial gas business is primarily accomplished at an Air Separation Unit. At an ASU, atmosphere is drawn down a large column and super-cooled. As the air is super-cooled, the different elements separate into their liquid (cryogenic) forms at different temperatures. As examples, the temperatures at which elements separate from the air as

liquids is -297 degrees F for oxygen, -303 degrees F for argon, and -321 for nitrogen. At an ASU, the biggest expense is far and away power consumption, making the process and facility an environmental liability.

Second, is the packaging process. As the elements separate, they are pulled off and packaged with like products in cryogenic form. Eventually they are distributed in specific vessels for cryogenic products, or converted into their gaseous form and pumped into high pressure cylinders. This process is also heavily reliant on energy consumption for pumps and forklifts

Finally, there is the distribution component of the business. Company X, as an example and the largest distributor of packaged gases in the US, has approximately 5,000 commercial vehicles in its fleet making deliveries to end users and transporting raw materials between plants and depots. At this volume, they are one of the top 10 commercial fleets in the US, and have an impact on DOT, HAZCOM, and general impact on the environment.

In conjunction with the environmental impact of the industry on the environment, organizations within the market segment have made a clear and published commitment to mitigating these risks, and focusing on reducing environmental impact of both production and distribution at their own facilities through green house gas emissions and reducing energy consumption, as well as addressing what they can at customer sites.

There are several things being done at company locations to reduce the environmental impact. First, companies are actively monitoring power consumption at ASUs, using rechargeable battery operated ancillary support equipment, and converting the lighting systems over to new fluorescent light bulbs. For a company in the gas distribution business, high pressure cylinders are an abundant asset – sometimes numbering in the millions depending on the size of the company. Converting over to using water-based paints, although more expensive, is more environmentally friendly than the traditionally used oil based paints. Historically there has been a segment of this business that is serviced with disposable cylinders, which inevitably leads to waste management and safety concerns. This segment is being converted over to reusable cylinders mirroring that of the rest of the product lines. Finally, there is the re-using of pallets and robust cardboard recycling programs at the distribution centers.

There are also several initiatives being taken up at customer locations to promote a more eco-friendly working environment. First, there are new ways of utilizing and managing CO₂ going forward; as an alternative to harsh chemicals in dry cleaning, as an alternative to solvent and silicate medium in blast cleaning, and the reclamation of by-product from current use streams. For the utility customers, there is the management and regulatory compliance of using SF₆ (sulphurhexafluoride), a necessary testing agent but environmental threat. For emissions testing, EPA Protocol gases help monitor stack output allowing customer to confirm regulatory compliance and keep the air clean. Finally, there are programs for the reclamation of refrigerants – not only eliminating improper and potentially hazardous disposal but also recycling the products (R-12, R-22, etc..) for a more sustainable supply chain.

Finally, there is also the distribution end of the business, and their efforts at going Green. The most impactful things that can be done in relation to logistics are to reduce both fuel consumption and emissions. This can be accomplished in a couple of ways. First, tracking and modifying driver habits of idling, which directly produces a reduction in fuel consumption. Second is an automatic tire inflation system to maintain optimum tire pressure, which reduces fuel consumption. As fleet vehicles get replaced, new units are being ordered with aluminum wheels and fuel tanks, reducing weight and therefore fuel consumption. Finally, new units are more aerodynamic in design, and coupled with a reduced maximum speed (as measured and communicated to drivers via GPS) is yet another factor in reducing fuel consumption (Airgas, 2009).

As the industrial gas business looks to continue their focus on improving compliance and progress with the Green Movement, it will be important that their employees are up to the challenge. This means not only being knowledgeable within their industry, but also educated in scientific and mathematic disciplines, as well as being seasoned and savvy enough to navigate political waters and collaborative ventures. Although practical experience will be important, having the formal education will be just as imperative

“For the most part, *naturals* are myths. People who are especially good at something may have some innate inclination or some particular talent, but they have also spent about ten thousand hours practicing or doing that thing.”

- Meg Jay (author of *The Defining Decade: Why Your Twenties Matter – And How to Make The Most of Them*)

There is a real struggle in the current workforce in the industrial gas business between its two major demographics; older, seasoned (experienced) employees that are generally male, and younger, college educated millennial. The Millennial coming into the business are usually coming in with one to two years of experience, having one professional job experience between coming graduating from college and coming into our industry. For some, however, they are coming to us straight out of college – finding their way to us through career fairs and signing offer letters before they actually finish school.

Many of these new millennial hires will be put on one of two different and distinct paths. First, is that of a Sales Rep; they will go through a structured on-boarding class where they will learn the basics of the industry. From there they will be assigned a starter-territory, where they will usually cover a small geography and customer list. With no major customers (or revenue streams) to manage, they will spend most of their time performing new business development functions. There is generally little risk from the company perspective; salaries are not high and the commission plan is designed to be self-funded. They will have some specific targets and training sessions to achieve over the first year, and will be assigned a coach / mentor in the form of an existing sales person to get some on the job training.

The other path that is available is a pipeline to fill specific job functions at a later date in time according to formalized succession plans and specific needs. These pipeline programs have a defined curriculum and timeline, meant to provide both classroom and practical experience in different elements of both the business and the specific positions.

There are multiple challenges with the millennial workforce. First, there is the element of retention. Often, these new hires are not yet set in what their interests are, committed to living in

geography, or have not mentally committed to moving to this next stage in their lives. Second is the issue of training, as their desire for ongoing training is greater than the existing resources and programs that the industry currently has in place. Historically, the demand for this level of training did not exist for the existing and experienced workforce. Finally, there is also an issue with compensation. Traditionally starting salaries in the industry had standardized on relative scale with the qualifications of the existing workforce, making them lower than in many other industries. Today's college students are typically both in debt and looking to jump right into a certain lifestyle, requiring a certain minimum compensation. For all of these reasons, even though a millennial may start out in the industry, there are many reasons why they may leave.

From a management perspective, there are expenses associated with the hiring process, and a cost can be calculated for recruiting, hiring, and training a new hire. There is the expectation of a return on investment from these hiring evolutions, and there is now interest to take gather and consider data of additional risks associated with this change in the hiring processes. Business continuity, customer confidence, practical application, and even safety are concerns of having an inexperienced workforce at certain positions in the organization.

As the dynamics of the workforce are changing, often legacy employees are feeling left out and resentful. After years of learning the industry, working their way up, and "paying their dues", many are now being passed over for promotions or new positions in favor of a candidate with the formal education.

There are several ways in which a company can invest in their legacy employees, and many companies in the industry do offer some kind of benefit. Often there are tuition reimbursement plans and allowances for the time necessary for an employee to go to school and earn a secondary degree. From a company standpoint, the investment in a long time employee is statistically going to produce a return on investment, with retention and loyalty not being an issue. One of the missed opportunities here is that the benefit is available, but is rarely ever proactively used by HR as a tool with its own people.

The challenge has become which is the better solution – educating your existing, experienced workforce making them ready for advancement and filling new positions, versus

hiring educated new employees and everyone working through getting them experienced and proficient at their jobs.

“The choice of personnel, perhaps the most important choice (because ‘people are policy’), never proceeds according to plan, but there have been some successful transitions that upheld high standards.”

- Richard V Allen

One of the things that is impacted the most by the swing in the level of education is employee morale. Morale can be impacted both positively and negatively, produced by different experiences, results, and points of view of the individual.

First, increasing the focus on having a college degree will naturally capture a more knowledgeable employee in some basics of communication skills, business acumen, and a general seasoning. By raising the bar now and at the entry and middle management level, the bench strength of the company is solidifying and ensuring having qualified, experienced candidates to accommodate future advancement.

Second, let’s look at examples of the negative impact on morale. As compared to the positive elements being good for the longer term, there is pain in the shorter term. We can see from employee feedback from Glassdoor, that the movement towards a more educated workforce is being judged as not necessarily good for the business.

Comments from the Cons and Advice to Management sections include:

- “Management is hired from outside of (redacted), and often inexperienced managers are hired. Micro management became a problem when newbies were hired into management positions. Since they couldn’t contribute to sales they were forced to justify their position”

- “Keep getting the ones that have a paper trail in a degree that has nothing to do with the gas industry and (redacted) will have a new name. Need to start treating and paying the people that make (redacted) better”
- “Step aside and let the people who are more experienced and knowledgeable than you do their jobs”
- “The company will hire anyone with a degree. Nothing to do with the business as long as you have the degree they will give you a job. That’s difficult for people that have years of service and have to take orders from someone that doesn’t know what they are doing. You get killed in this business if you don’t know what you’re doing” (Glassdoor, retrieved from www.glassdoor.com/company name redacted)

As you can see from these samples of employee feedback, there is a lot of unrest from veteran employees (and not necessarily only those that don’t have a degree) at the new hiring practices. In focusing too much on having a college degree versus what you actually know and what skill sets you have, for both new hires and advancement, can put the team dynamic in jeopardy. Veteran employees report to younger inexperienced managers, and new managers are tasked to lead their team with little knowledge or experience with what the team’s function and processes are.

In looking at this dynamic as a whole, we can see the shift in the focus on education was necessary to adapt to changes in technology and customer demand. However, a complete paradigm shift all at once, has produced some elements of dysfunction as well. There can be a case made for a more step-changed approach; still getting to the same end goal, but over a longer period of time and with less disruption to the business and employees.

“Do not go gentle into that good night but rage, rage against the dying of the light”

- Dylan Thomas

What does growing old mean to a working professional? For the optimist, it may mean experience, rank, influence, stability, maximizing income, and looking forward to retirement. For the pessimist, it may mean irrelevance, trending down and out, being replaced, and *having to* retire. What affects an individual's point of view? How can there be such diverse views on the impact of aging on retirement, job satisfaction, and the day to day struggle?

The value, as claimed by Dylan Thomas, is that although aging is inevitable, we can directly take control over how it impacts our life – fight the good fight, and do not just meagerly accept what you believe destiny is handing you.

To explore ageism and the general relationship of age and this thesis, two interviews were conducted of industrial gas industry professionals with very different backgrounds and tenure in the workforce.. First, is a 24 year old Account Manager (John Doe #3) who has a bachelor's degree in communications. After spending nine months selling advertising in his first job out of school, he joined an industrial gas company and was part of the alpha class of new sales trainees for the new training pilot program.

When asking John Doe #3 to speak openly about his degree and its impact on his success, here is some of what he had to say: “the actual coursework in the communications program has had no impact on my current success” (J. Doe #3, personal interview, April 25, 2016). When pressed further to come up with a benefit of his college experience to his current achievements, he went into greater detail about his story. After graduating from a very prestigious high school (and being the son of a very successful pharmaceutical sales representative), John started his college career at a college far from home. However, after two years of poor academic performance and personal discipline (sounded remarkably like my personal story!), he went back home to enroll in a local university. Having mentally regrouped and committing to taking the academic achievement seriously, he decided that in order to be successful he had to master the skills of public speaking and communication. To achieve this, he sat in the front of the room for every class, actively participated in all of the classroom discussions, and went out of his way to become an expert at the art of conversation and winning the crowd. This was the value of the collegiate education: mastering the art of communication.

In his training class, John feels that 90%+ of all of his classmates from around the country had a college degree – a testament to the credentials hiring focus now prevalent in the company.

As for his current job performance, John #3 feels that the lessons of the initial failure away at school and subsequent refocusing and personal goal setting and dedication once he came back home has had a significant impact on this hiring and current success; not necessarily the actual academic content, but the real life experience, seasoning, and overcoming an obstacle.

John Doe #3 is looking to eventually utilize his company's tuition assistance program to complete a master's degree, in order to maximize both his qualifications for advancement and earning potential.

The second interview, John Doe #2, is currently a 59 years old senior manager in the industrial gas industry. JD#3 has been in the industry for 35 years and been elevated over time to positions of increased responsibility and compensation – but does not have a college degree.

As a general comment, JD#3 stated “if I had had a college degree, I would likely never have went into the industrial gas business. At the time of entry – I needed a job, and they would give me one” (J. Doe #2, personal interview, April 20, 2016). John is very highly thought of by both customers and co-workers alike; his credibility comes from his experience and “been there, done that” aura.

When pressed about how not having a college degree has affected his earning potential, JD#2 answered by stating that he had no regrets. “I am not entirely sure how to quantify the difference “(J. Doe #2, personal interview, April 20, 2016), but with pride then listed financial accomplishments of home ownership and putting kids through college, thanks to the income that the industrial gas industry had allowed him to earn. Having addressed the compensation issue, I then asked about title: “I went for an AVP position and did not get it because I did not have a degree. I was disappointed at the time, but have made peace with it and have moved on” (J. Doe #2, personal interview, April 20, 2016).

When asked about the possibility of using the tuition assistance program and going back to school now at this point in this life, JD#2 stated “I am past the point where that makes sense; I

would rather trade my time for whatever the upside in compensation may be (and this can't be guaranteed or clearly defined) for more time to go fishing and spending that time with my grandkids (J. Doe #2, personal interview, April 20, 2016).

When addressing age and its relation to the topic, I am drawing the following conclusions:

- Going to college makes a difference in overall earnings and title over time
- When you go to college matters (addresses ageism)
 - the earlier the better (simple math related to bullet point #1)
 - Lack of a return on investment later in your career
 - Prioritization of time later in life
 - Earlier is easier
- Curriculum may not matter as much as the overall college experience of critical thinking, strategic planning, and overcoming obstacles.

“The highest levels of performance come to people who are centered, intuitive, creative, and reflective – people who know to see a problem as an opportunity.”

- Deepak Chopra

If the highest levels of performance come to those that are centered, intuitive, creative, and reflective – how can an organization seek out candidates with those traits in order to improve the chances of successful hiring practices? Although there are people out there that are rare gems, and possess these elements naturally, the best way to ensure you are on the right path is to seek out job candidates that possess a college degree.

A process of earning a college degree not only includes the accumulation of knowledge and how to use it, but also allows for a seasoning and experience that the educational process can

provide. There are elements of time and task management, collaboration, teamwork, critical thinking, and problem solving that accompany the overall experience.

To explore this further, I met with a senior manager in the industrial gas business. He has been in the business for 25 years with two different companies, and holds both a BA and an MBA.

Our first topic was in regards to his opinion of the labor force today compared to what it was 20 years ago. In his opinion, we are experiencing a “changing of the guard” (J. Doe #1, personal interview, Feb 25, 2016); the elder statesman of our industry, many of them Baby Boomers, are either retiring or getting out due to the rigors of the job or the lack of desire to acquiesce to new expectations and technologies. For many of these outgoing employees, the gas industry was an accidental career; entry level opportunities existed that didn’t require a formal education, but at the same time provided good pay, benefits, and the opportunity to advance to at least some degree and have a career. All new hires into his business team, with the exception of CDL drivers, have come to him as candidates from a newly reorganized corporate HR department – and all having a college degree. In one instance there was an internal candidate without a degree, and due to policy had to be afforded the opportunity to interview. However, this associate truly did not measure up to the others in the interview process, despite his practical experience with the company.

Next, we discussed if there was a noticeable impact on the day to day running of the business. His answer was largely focused on training: “In the past, we used to just throw someone a set of keys and a customer list, and tell them to call me if you have any questions” (J. Doe #1, personal interview, Feb 25, 2016) – of which there were many. Now, the corporate hiring initiative now includes a much formalized training program, which takes place off-site and with no required participation by him as the senior manager. New hires report to his team with a baseline knowledge of process, products, and how to get things done in the company. Although the training period postpones the actual start date of a new hire being in place and functioning, when they do report for duty the learning curve is very steep – not only due to the formal training, but due to the quality of the individual.

We then discussed if there was an objective way to measure the difference between the two distinct time periods and strategies. After reiterating that 100% of his new hires in the last two years have had a college degree, he stated that it was difficult to know for sure as “metrics were non-existent in the Wild-West past” (J. Doe #1, personal interview, Feb 25, 2016). However, he was able to provide some insight specific to the sales team in his general geography. Of the 12 Account Managers reporting into the Area:

- 9 out of 12 has been hired in the last 18 months; 8 of the 9 have a college degree
- The top 6 financial performances for the month of January all had college degrees
- The #1 Account Manager YTD had a college degree
- The bottom performer YTD (who has been with the company 20+ years) does not have a college degree, and was struggling in general with their new computer system and organizational change in general

John Doe #1 also offered stock performance as a measure of the organization-wide shift in hiring strategy. Share price and EPS have been generally favorable, flat at worst, in the approximately four years since this paradigm shift. “Wall Street is watching, and the re-org of our management structure and focus on building bench strength was made public” (J. Doe #1, personal interview, Feb 25, 2016).

Finally, when asked about weaknesses in the shift or what, if anything he would have done differently, Mr. Doe spoke passionately about timing. To summarize, his company was late in putting together a succession plan that would make a transition like this seamless. There is a huge gap, in both age and experience, between the outgoing employees and the incoming employees. For years, the company counted on acquisitions and the personnel that came with them to fill in the needs. With M&A activity slowing over the recent years, this pool of candidates is no longer there. To overcome this gap, and stay true to the college degree requirement, they have been hiring from out of the industry into management positions. A better path to take would be “to allow some flexibility in the degree requirements, particularly at the management positions. Let’s make it a long term goal for all hires having a degree, but that may not be possible to do this right today” (J. Doe #1, personal interview, Feb 25, 2016).

“The strongest oak tree of the forest is not the one that is protected from the storm and hidden from the sun. It’s the one that stands in the open where it is compelled to struggle for its existence against the winds and rains and the scorching sun.”

- Napoleon Hill

In my 25 years in the industrial gas business, I have come to believe that the most valuable employees are those that have been seasoned by experience; having fought battles being an advocate for both customer and company, finding solutions to complicated problems, and leveraging product knowledge and previous experiences to be successful.

When the time comes to fill open positions in the company, this experience and seasoning should have an equal footing with the formal education that has become the major focus by Human Resources and Talent Management.

As an example, Ernst & Young traditionally has not only required college degrees for its new associates, but they also had a minimum standard of a B average to be considered. However, in a recent 18 month internal study of 400 new employees, they found little evidence that academic success correlated to on the job success for new employees. As a result, and starting next year, the company will no longer require a college degree for new hires, but will instead focus on pre-employment tests. (Lam, Bourree, *The Best Job Candidates Don’t Always Have College Degrees*, 2015). As colleges struggle to keep up with the changing demands of the job market, companies are becoming less reliant on credentials-based hiring, and more focused on critical thinking abilities. By hiring more based on traits and skills, and combining this with on the job training and education plans, companies are getting cheaper workers who stay longer and are more loyal (Lam, Bourree, *The Best Job Candidates Don’t Always Have College Degrees*, 2015).

Ernst and Young is a global financial and analytics company (and stereotypically white-collar) which is moving away from credentials-only based recruiting and moving towards a more blended approach inclusive of non-degreed candidates. The industrial gases industry, in contrast, is heavily dependent on blue collar elements and experience; if a financial institution is moving

away from credential based hiring, why would an industry that is heavily dependent on gritty experience be moving *towards* credential based hiring?

The ability to think critically is an important element for any employee to have, and is not necessarily tied to any specific college major, or even if that employee went to college or not. The strength of an employee is in weathering the storm; solving problems, gaining knowledge, and getting seasoned in your company and customer's products, processes, and nuances.

To build a strong stable of highly knowledgeable and performing employees, the best path is to not hire from a narrowly and incorrectly focused group of credentialed individuals, but from a wider sample of employees with the right mind-set and traits, and combine that with getting the formal education over time.

“The Voice

There is a voice inside of you

That whispers all day long,

“I feel this is right for me,

I know that this is wrong.”

No teacher, preacher, parent, friend

Or wise man can decide

What's right for you - - just listen to

The voice that speaks inside.”

- Shel Silverstein

My journey to today's status quo has been a long one, and certainly not the way anyone would have plotted it out for me, including myself. After 12 years of Catholic prep school, I went off to college just like all of my other friends; only, I wasn't necessarily happy about it. No one had ever asked me if I wanted to go to college; it was just assumed that I would go – so the only question that got asked was which college I would be going to. So off I went; after two

years of half-hearted effort and lack-luster grades, I was more than happy to have the excuse to drop out and go off and fight in the first Gulf War.

Being in the Navy was a fantastic experience, and I learned how to be a welder and repair nuclear submarines out in Pearl Harbor, HI. During this time, I used the tuition assistance program and took a couple of classes – but not as part of any macro plan, it just seemed like a prudent idea to take advantage of the benefit.

Upon being discharged, and after a couple of positions as a civilian welder, I had the opportunity to get into the industrial gas business as an inside sales representative. Although I did not have a college degree, my real-life experience and know-how was crucial to selling into certain market segments, and I was able to trade in the blue collar lifestyle for that of a white collar.

Over the years, while gaining more experience and industry knowledge, I have been able to continue to move up the ladder to positions of more responsibility and greater compensation. Although I have not have the college degree, my experience and track record of performance, and the fact that I was willing to relocate to take advantage of opportunity, has been enough (in conjunction with the military experience and the fact that I had *some* college).

During this time, I have had team members under my leadership with 4 year and advanced degrees; but because of my tenure and experience it did not matter – to them or to the company. I can look back now, shamefully so, and recollect that I became proud of the fact that I had achieved so much without a degree, and outwardly questioned why I (or anyone) would bother to go back and get one since it had no impact on upward mobility.

Reality struck four years ago, when I went for another promotion onto the executive team – a position that by all accounts was a sure-thing for me. After several rounds of leadership and personality testing, combined with multiple interviews, I was informed that I did not get the position – which was the first time in 20 years that I had went after a position and did not get it. After all of my bravado, the day had finally arrived where not having a college degree had put a halt to my career. In the aftermath, it came out that there were both formal business elements (theories and strategies), as well as subjective seasoning (collaboration, critical thinking) that I needed to be strengthened – all byproducts of the formal education.

Although I was not necessarily humble and contrite at first, I was accepted into NYU with sponsorship from company, and began the process of completing my degree. Over time, I have grown to understand just how much I did not know, and am almost embarrassed by the cavalier attitude I had thinking I did not need to go back to school because there would not be any value for me. I realize now how wrong I was, and that not getting that promotion and coming to NYU, was the best possible thing that could have happened to me.

Now, relating my personal experiences to my thesis is easy – not getting that promotion was a direct result of the new paradigm shift towards hiring and promoting specifically those with college degrees. Although I feel my story is going to have a happy ending for both my company and me, there are many employees like me out there in the organization that should be sought after to do the same thing. There is a wealth of existing employees, with years of product knowledge and experience that could go to school to get the formal seasoning.

When considering all of the research, the conclusion is that the best path forward, for both short term and long term results, is to combine both credentialed hiring with experience hiring. Utilizing these tactics together will create a balance of both an educated and experienced workforce for the future, as well as continuing to perform in the short term. This step-change approach will not only produce better results, but will be better for morale and in the best interest of the existing employees.

Bibliography

Almqvist, Ebbe. *History of Industrial Gases*. Springer 2003

Applewhite, Ashton. *This Chair Rocks: A Manifesto Against Ageism*. Newworked Books, 2016

Asher, Donald. *How to Get Any Job with Any Major: Career Launch and Re-Launch for Everyone Under 30*, Ten Speed Press, 2004

Barnes, Patricia G. *Betrayed: The Legalization of Age Discrimination in the Workplace*, Patricia G Barnes (self published), 2014

Berntzen, Katherine. *A Degree Is Not Enough!: 8 Smart Things You Need To Do In College To Jump Start Your Career and Finances*; Katherine Berntzen (self published), 2012

Bollist, Richard. *What Color is Your Parachute*, 2016, Ten Speed Press, 2015

Capelli, Peter. *Will College Pay Off?: A Guide to the Most Important Financial Decision You'll Ever Make*, Public Affairs, 2015

Chatman, Derek S, *Don't Be a Fool Go To School: Why College is For You*, Derek Chatman (self published), 2013

Cohen, David S. *The Talent Edge: A Behavior Approach to Hiring, Developing, and Keeping Top Performers*, Wiley, 2001

Connel, Joanie. *Flying Without a Helicopter; How to Prepare Young People for Work and Life*

Doe #1, John (2016, February 25) personal interview

Doe #2, John (2016, April 20) personal interview

Doe #3, John (2016, April 25) personal interview

Glassdoor, retrieved from www.glassdoor.com/company name redacted

Haring, Heinz-Wolfgang. *Industrial Gas Processing*, Wiley – VCH, 2008

Herrenkohl, Eric. *How to Hire A-Players*, John Wiley & Sons, 2010

Hill, Napoleon. *Outwitting the Devil*, Sterling Publishing, 2011

Hill, Napoleon. *The Law of Success: The Master Wealth-Builder's Complete and Original Lesson Plan for Achieving Your Dreams*, Penguin 2008

Jay, Meg. *The Defining Decade; Why Your Twenties Matter and How To Make The Most Of Them Now*, Twelve Publishing, 2013

King, W.J. *The Unwritten Laws of Business*. BN Publishing, 2008

Kramon, Jame. *What They Don't Teach You in College: A Graduate's Guide to Life on Your Own*, Sphinx Publishing, 2006

Laetius, Diogenes. (circa ?) *Lives and -Opinions of Eminent Philosophers*

Lam, Bourree. *The Best Job Candidates Don't Always Have College Degrees*, The Atlantic September 24, 2015

Levit, Alexandria. *They Don't Teach Corporate in College*, Career Press, 2009

Lowe, Ben, *Green Revolution*, IVP Books 2009

Murphy, Mark. *Hiring for Attitude: A Revolutionary Approach to Recruiting and Selecting People with Both Tremendous Skills and Superb Attitude*. McGraw-Hill Education, 2011

Nelson, Todd D. *Ageism: Stereotyping and Prejudice Against Older Persons*, MIT Press, 2004

Rothwell, William J, *Effective Succession Planning (Fourth Edition)*, Amacom 2010

Sale, Kirkpatrick, *The Green Revolution: The American Environmental Movement, 1962-1992 (A Critical Issue)*, Hill & Wang 1993

Schwarzenegger, Katherine, *I Just Graduated...Now What?: Honest Answers from Those Who Have Been There*, Crown Archetype, 2014

Stokes, Raymond G. *Building on Air: The International Industrial Gases Industry, 1886 – 2006*, Cambridge University Press, 2015

Silverstein, Shel. *Falling Up*, Harper-Collins, 1996

Celebrating 100 Years as the Standard for Safety; The Compressed Gas Association, Inc 1913 – 2013; Sept 11 2013

Yate, Martin. *Hiring the Best: Manager's Guide to Effective Interviewing and Recruiting*, Adams Media, 2005

Protecting Our Environment, Improving Our World. Airgas, 2009.