Ethics – A Forgotten Ingredient in Measurement Interoperability?

Speaker/Author: Ralph E. Bertermann
Lighthouse Training Group
117 S. Albert Street
Mt. Prospect, IL 60056
Email: rberter@aol.com
www.lighthousetraining.com
Phone: (847) 392-9796; FAX (847) 392-9796

Abstract

International efforts, such as Mutual Recognition Agreements (MRA), Accreditation Procedures, Audit Procedures, Standard Intercomparisons, and Measurement Assurance Programs (MAP) are being put in place to ensure that measurements made in one location are equivalent to those made in others. This entire measurement process can be undermined by the simple act of individuals and companies that report the results incorrectly. Examples of unethical behavior have been with us since earliest recorded history and continue to surface today as reported the daily newspapers. This unethical behavior seems to be an inherent human characteristic with these deficiencies being reported on a worldwide basis. What can be done to help ensure that measurements are reported accurately, are meaningful, and have integrity and a pedigree? Programs, instituting a Code of Conduct within companies, must be developed and disseminated from top management throughout the entire organization. These internal programs within each company must be designed to face this issue head-on and to aggressively address all deficiencies that may be found. Consequences to companies that do not follow ethical behavior are listed, as well as what individuals can do when faced by possible unethical situations and what companies can to combat the spread of unethical behavior.

Introduction

All the elements that make up a metrology program including validated systems, procedures, documentation systems, traceability, training, audits, accreditation and certification, guidelines, and standards, have as a goal, the maintaining of a metrology program that meets current regulations and is of high quality. All of the time, effort, and money that is committed to the development of an outstanding metrology program can be undermined in an instant through the unethical behavior of staff, putting the entire program and company at risk.

A sobering finding from a survey conducted by the Ethics Officer Association and American Society of Chartered Life Underwriters and Chartered Financial Consultants stated that nearly half of workers acted unethically and it was reported that more than 40% stated that they would lie to keep their jobs. [1]

And in research done by Donald McCabe of Rutgers University, he found that 74% of high school students had cheated or plagiarized during the prior year. The future metrology leaders in the coming decades.

Lying, cheating, ethical slips, and stupidities seem to be an innate human characteristic with human nature following a Gaussian or bell shaped curve, as shown in Figure 1, with half-truths and white lies being the central tendency.

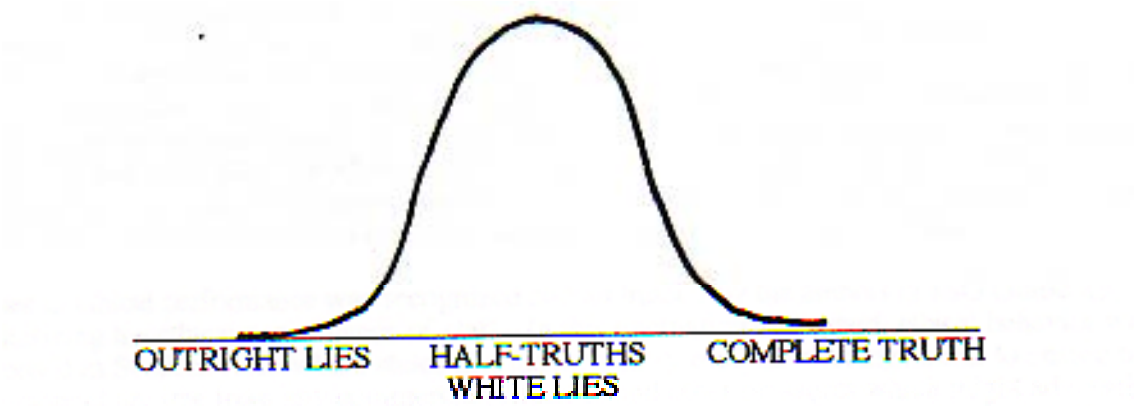

Figure 1. Innate human characteristics

This is illustrated by the story of two job applicants that were given a test. Each one had one answer wrong and it was to the same question. The first job applicant was given the job. When asked by the second applicant why the job was given to that person, since they both got identical scores, he was told that the first applicants answer to the wrong question was "I don't know" and the answer on the second test was "I don't know either". In this example, the choice on who to give the position to was simple. Unfortunately, in the real world, these decisions are not quite so easy.

Newspaper accounts are replete on a weekly basis and the evening news reports are full of descriptions of the latest in unethical behavior of our elected leaders, industry leaders, sports associations and celebrities, Fortune 500 companies, financial institutions, and the average employee. From the front page of the Wall Street Journal, it asked the question: "Is business ethics an oxymoron like jumbo shrimp? A contradiction in terms?" From the headlines, which include; "Vitamin makers pay $1 Billion to settle lawsuit", "Former XXXX executive admits to selling secrets", "Engineer accused of selling secrets", "XXXX Firm Convicted of Forging NAMAS Certificates", "Pentagon auditors caught cheating on its own reviews", "XXXX Labs to pay $325 million in fines", "$60-Million Consent Decree", "Drug companies face accusations about pricing", "More than 40 blamed in kickback scheme," "Plagiarism flap raises nationwide concerns", "Bank missing $750 Million", etc. Possibly, business ethics is an oxymoron.

As the moral backbone, which if the underpinning of our society deteriorates, special problems arise, especially for the profession of metrology. Unlike a process that produces a tangible product that you can touch and feel, the product of metrology is simply a number with a pedigree and integrity that is then used to make decisions that can have a direct impact on the lives of people through the release of a product that is safe and efficacious for its intended use. In other

words, it is not adulterated. With metrology, absolute truthfulness is the basic and essential ingredient to a program and a product that you can trust and rely on.

"Inaccurate science, sloppy science, fraudulent science-these are the greatest threats to the health and safety of the American people."

Senator Edward Kennedy

Quoting Gabor B. Levy, "Absolute truthfulness is a most basic and essential prerequisite in science." Roughly 90 percent of all that we know in biology, chemistry, and physics has been discovered over the past 30 years. Our ability to process and store data doubles every 18 months and that pace is increasing.

Isaac Newton was quoted as saying, "If I have seen further, it is by standing on the shoulders of giants." He could only have done this if the preceding information was truthful and could be trusted. As knowledge accelerates, truthfulness becomes more and more important.

The dictionary definition of integrity is: "Adherence to moral and ethical principles; Soundness of moral character. Honesty. The state of being whole." Ethical behavior is further defined as "conforming to accepted professional standards of conduct."

"If you have integrity, nothing else matters. If you don't have integrity, nothing else matters."

Senator Alan Simpson

The dilemma of ethical behavior is not new and has been with us throughout recorded history. In 2100 BC the "Code of Hammuribi" records that Mesopotamian rulers attempted to establish honest prices, with the penalty of death for infractions. Aristotle, in the 4th century BC, discussed the virtues and vices of merchants and tradesmen. And in various places in the Bible, honest measurements are mentioned: In Proverbs 11:1 it states, "A false balance is an abomination to the Lord, but a just weight is His delight." In Leviticus 19:35-36 it states, "You shall do no wrong in judgment, in measurement or weight, or capacity. You shall have just balances, just weights, a just ephah, and a just hin." In Micah 6:10 "……and a short measure is cursed. Can I justify wicked scales and a bag of deceptive weights?" And during the civil war the Lincoln Law came into being to reward whistle blowers in an attempt to stem the tide of war profiteers.

Lapses in ethical performance was recognized and addressed by the authors of ISO Guide 25, emphasizing the ethical performance of staff. In this international standard, ethical behavior was addressed in Sections 4.2b, which states that the laboratory shall have arrangements to ensure that its personnel are free from any commercial, financial and other pressures, which might adversely affect the quality of work. This thought was carried forward in ISO/IEC 17025 where policies and procedures are required to protect the confidentiality of clients and minimize the potential for conflicts of interest.

Other concerns on lapses in ethical performance was expressed by Lawrence Eicher, ISO secretary general, where he stated, "You need to police yourselves,….start doing a better job of monitoring your communities to weed out malpractice and dishonest operators."

Ethics was also addressed in ISO 10011-3, Guidelines For Auditing Quality Systems, Part 2, 5.0, where the standard recommends that audit program management should consider the need to include a code of ethics into the operation and management of audit programs.

The opportunities for ethical lapses abound in the metrology laboratory and can come from a variety of directions. A subcontractor may not be producing the honest results that are being paid for. Or, a subcontractor may be given pre-selected samples from a contracting company for analysis or measurement and use the subcontractor to legitimize a product. Internally, back dating calibration reports, recording data when the measurement wasn't actually performed, documenting someone else's work, write-overs, creative penmanship, the transfer of company or client secrets with the click of a mouse, and recording the incorrect value to 'make' the instrument appear to be in tolerance, are a few examples.

Not only should ethical performance be a requirement of a company, it also has to be a requirement that is imposed on companies that perform work on a subcontracted basis for the contracting company. Due vigilance is needed to ensure that the same guidelines are applied and safeguards are in place for the subcontractor, so that a calibration process and product is not compromised. Adherence to ethical practices can be reinforced during the audit process.

A recent experience illustrating ethical behavior and peer pressure involved a class of 10 metrology students. Each student was given a paper ruler and a piece of paper with a circle on it. The assignment was to measure the diameter of a circle three times, take an average, and report the result. Unknown to the students was the fact that two different rulers had been handed out. As each student was asked to verbally report the measured value, each one in turn reported almost the identical value for the diameter of the circle. This was not possible with the design of the exercise. An example like this raises real questions. Would you hire a person from this class? If this person is on your staff, could you trust the data that was being generated by this person, especially on weekends or late on a Friday afternoon? If the data was a digit or two out of tolerance, requiring the filling out of an out of tolerance notice, would the technician record the actual value or 'move' the data to an intolerance condition to avoid an extra paperwork assignment?

"It takes 20 years to build a reputation and five minutes to ruin it."

Warren Buffett

Several papers have been presented at recent conferences regarding instrument specifications. [2] [3] The resounding question always is, "Can these specifications be trusted?" Who wrote the specifications and do they accurately describe the operation of the device or are they written to compete with another product to gain a competitive advantage and really don't reflect the true capabilities of the instrument? Has key information been omitted such as over what time period

is the accuracy or uncertainty specification valid or relevant environmental requirements needed to achieve optimum performance?

There is an old saying about where a specification sheet is similar to an insurance policy. What the big words giveth the small words taketh away, if they are included at all.

Falsification of advertisements has also prompted the International Organization for Standardization (ISO) to publish guidelines on how to avoid making false or misleading claims in advertisements and other announcements regarding ISO 9000 certification statements.

In today's global competitive environment, ethics is a strategic key to survival and profitability. Ethical concerns vary in the global marketplace, primarily due to the lack of a consensus on what morality is. This issue is improving in Germany, France, and the United Kingdom as 50% of companies in those countries in 1990 had codes on conduct. This percentage is up from 20% in 1984. And an Ethics Conference in Hong Kong in 1994 attracted 2000 companies.

"Business should conform to legal and ethical 'rules of society'."

Milton Friedman 1970

"No victory is worth the sacrificing of ideals."

Unknown

Ethics is not about causing unjustifiable harm, but about doing only what you would be willing to have done to you.

The Golden Rule

"Maintaining a strong ethics and compliance program is essential in today's business environment-it gives you a competitive edge."

Michael Hoffman
Bentley College Center for Business Ethics

Being ethical requires doing more than you're required to do, and less than you're allowed to do.

Consequences to companies and individuals found guilty of unethical behavior:

- Lost job or career
- Lost sales
- Disruption to the normal operation
- Plant shutdowns

- Entire companies ceasing to exist
- Operation under consent decrees
- Lost credibility with shareholders, customers, employees, peers, and regulators
- Delayed or lost product approval
- Slowed product development
- Civil and criminal penalties
- Talented employees leave
- Government inquiries

What can a manager or supervisor do to recognize unethical operations?

- Remain vigilant – Keep your eyes open. No lab is immune.
- Get involved in the technical oversight of a department's operation.
- Review the actual calibration data.
- Look for trends.
- Schedule comparison measurements and compare results.

What can an individual do when confronted by possible unethical situations?

- Remain completely unbiased in decision-making.
- Maintain professionalism at all times.
- When in doubt, discuss the situation with an ethics officer.
- Report ethical lapses in performance to designated individuals.

If you can imagine yourself reading your obituary, would you like seeing in print, how you dealt with a problem?

And summed up by H. Norman Schwarzkopf, while stating what is needed to be a leader; "Take charge and do what's right, not what you think the high headquarters wants or what you think will make you look good."

What can companies do to combat the unethical behavior that has been surfacing?

- Develop a top down strategy of honest behavior with a strong set of positive beliefs to support it. Cultivate an attitude and climate for ethical behavior and incorporate these beliefs in the core mission statement for the department or corporation. Share that information with the employee so that they understand why things are done a certain way and why and what part their work plays in the overall scheme.
  As stated by Will Rogers, "I would rather be the man who bought the Brooklyn Bridge than the man who sold it." This is echoed by Thomas Phillips of Ratheon who stated, "It is important for everyone to know where the lines are drawn. If you (the employee) find a situation where you must make an ethical compromise to win, walk away. Our company only wants honest money." Management must back up the employee that walks away from any unethical situations, regardless of pressure from above or below.

- Lead or push by example. High values can guide all plans, decisions, and actions. Make it know that honesty is not the best policy, it is the only policy.

- Realize that in one survey, two thirds of noted unethical behavior was attributed to pressures to meet schedules or to meet unrealistic earnings goals.

- Put all employees on notice from the day they are hired and reinforced periodically, that lapses in ethical behavior will not be tolerated. Build these requirements into performance criteria for advancement.

- Set up an ethics hotline and encourage employees who observe unethical behavior to speak up and report it without the fear of recrimination.

- Develop a Code of Conduct, the Thou Shalts and Thou Shalt Nots of business, for all employees. Have it managed by an ethics officer. 95% of all mid to large size companies how have a written code of ethics. The best codes of conduct contain a clear and unequivocal statement of the values and ethical principles of the corporation. [4] Corporations that have implemented 'effective' ethics programs to prevent and detect violations can also reduce fines should employees be found guilty of ethical offenses.

- Review Codes of Conduct along with the same schedule of review for policies and procedures.

  A Code of Conduct is no guarantee of ethical behavior but it does sensitize everyone to the expected level of honest performance.

'Effective' programs have been defined as meeting 7 basic guidelines. These include:

1. Establish compliance standards and procedures to be followed by employees that are reasonable and capable of reducing the prospect of criminal conduct.
2. Assign specific, high level individual(s) responsibility for overseeing compliance.
3. Use due care not to delegate authority to individuals with a known propensity to violate the law.
2. Effectively communicate policies and procedures to all employees and agents.
3. Take reasonable steps to ensure compliance with its stated polices and procedures.
4. Consistently enforce compliance policies throughout the company by appropriate disciplinary measures. Ethical policies cannot be waived or stretched to fit a particular situation.
5. Respond appropriately to mis-conduct if it occurs and take all reasonable steps to prevent recurrence.

By building an ethical environment, corporations can and do influence individual decisions and actions and prescribe accepted ways of doing things.

These clearly stated principles give direction to a rudderless employee.

· Develop a training strategy to address and bring ethical deliberations and discussion out in to the open.

· Conduct ethics awareness workshops where employees develop an understanding of the implications of unethical behavior, what ethical values are, and how to apply them in real life situations.

"No public person [or metrology person for that matter] can be just a little bit crooked."

Herbert Hoover

A few anonymous quotes related to being an ethical and first-rate metrologist:

"Some people are so busy learning the tricks of the trade that they never learn the trade."
"Ability may get you to the top, but only character can keep you there."
"Too many professionals never stop to ponder what they are doing. They reject the need for self-discipline. They are satisfied to be clever when they need to be wise."

"Honesty is the first chapter in the book of wisdom."

Conclusion

In maters of ethics, we can never let down out guard. As stated by Tom Peters, "Good management is impossible without consistent ethical behavior. Ethical concerns surround us all the time, on parade whenever we deal with people in the course of an average day."

Developing corporate codes of conduct and conducting programs on ethics education can give employees a sense of direction and guidance in meeting the daily decisions that must be made correctly and consistently.

Effective and conscientiously applied ethics programs throughout the field of metrology, provide the foundation and confidence that programs such as Accreditation Procedures, Audit Processes, Standards Intercomparisons, and Measurement Assurance Programs can build on to fulfill the objectives of accepting measurements as equivalent from different locations.

These programs also offer companies a competitive advantage by avoiding fines, loss of credibility and sales, and the expeditious approval of new products. [5] Preventing problems in the first place is much cheaper than damage control after the fact.

Remember, the opposite of right is wrong, not smart, tricky, clever, unique, or other cover words. [6]

As we journey into the future, individuals, departments, and companies must exercise care that they think their way into ethical ways of acting rather than acting their way into unethical ways of thinking.

Do we need a Metrology Code of Conduct?

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