Getting to the Root of the Issue: Should it be “Continuous” or “Continual” Improvement?

The global quality community has several major branches: the ISO 9000 community is one of these branches; however, other branches focus on Japanese Total Quality Management (TQM), testing and reliability engineering, metrology and instrumentation, statistical engineering, and the quality principles contained in business excellence models. The most sophisticated quality systems in organizations integrate all of these concepts within the context of their unique organizational culture. This observation implies that if one quality community makes a proposition that affects the concepts of quality that apply to the entire global community that an academically appropriate approach would be to establish structures, models and definitions that serve all these communities equally well.

In the May edition of Quality Progress, Michael F. Reber wrote an interesting article titled “In No Uncertain Terms: Making a case to replace the term “continual improvement” with “continuous improvement” in the ISO 9000 series.”1 However, this controversy is not a new one, and it has been brewing before the origin of ISO 9000 in 1987.

I believe that Reber is correct in that this distinction should be put to rest; however, this must be done based on sound academic thinking. I remain unconvinced that his article has offered an appropriate solution. Indeed, he sidestepped the core of this issue by seeking to propose an improved definition for “continuous improvement” that would apply to all of the ISO standards, rather than dealing squarely with the rationale for the choice between these two adjectives. But, if no voice is raised to assure clarification of the core issue, then this poorly described proposal could become the de facto definition which is imposed upon the entire global quality community if it becomes enshrined within our quality standards mechanisms.

This article is a rejoinder to arguments which Reber presents in his article to substitute the term “continuous improvement” for “continual improvement” and it presents a counter proposal to address the need for a standard approach that not only suits the ISO 9000 community, but that also applies equally well to all elements of the global quality community for all applications of quality thinking.

The Argument Offered for Continuous Improvement

In his article, Reber begins by basing his case on the meaning of the words “continuous” and “continual” as defined in three modern dictionaries. However, these meanings are confounded as they are all drawn from the same period (post-1980s) whereas the terms were popularized when Japanese quality concepts migrated to the Western world in the early 1980s.2 So, Reber’s article did not revert to the etymology of these terms as found in their ancient beginnings. He noted that there is a difference in meaning between “continuous” and “continual” in that
continual allows for “breaks in time” while “continuous” does not. However, his argument ignored “continual” as a meaningful term. He stated that 900 out of 1,200 references in ISO standards have chosen “continuous” as the term of choice and, on this basis, he outrageously rejects further consideration of the use of “continual” improvement.

After making this point, Reber’s article offered three propositions to state a claim to support his choice of “continuous improvement” as the recommended way of describing the improvement mechanism. He stated these propositions as follows:

1. Continuous has philosophical antecedents.

2. Continuous improvement is more prevalent in the ISO community than continual.

3. A common definition of “continuous improvement” is needed for the ISO community.

His second and the third propositions are not logical arguments that describe the superiority of “continuous” as the second merely points out that “continuous” is more popularly used by the ISO community – a statement that avoids investigation of the differential meanings between these two words and, in particular, it totally avoids any elucidation of the reason for this curious “interval” that exists in “continual” but remains absent from the definition of “continuous” improvement. The meaning of words is important as this communicates how people should act. Such an issue should not be decided on the same basis as a person evaluates importance by the number of Facebook “likes” or Amazon “stars” assigned by the general population.

These terms became popularized in the 1980s as Japanese TQM became adapted for Western cultures and both terms were used interchangeably [the reason for this initial confusion raises an interesting linguistic point to which we will return later]. However, as the meanings became clear, the Japanese standards have focused on the use of “continual” over “continuous” in describing improvement. Speaking for the quality community of his time, W. Edwards Deming weighed in for “continual improvement” in Out of the Crisis – he declared the underlying imperative for his idea of constancy of purpose: “There will be continual reduction of waste and continual improvement of quality in every activity.”

Ralph Stauffer, an Internet reviewer of Reber’s article, commented as he reminisced about an early Deming seminar:

“a useful way to think about the difference is to compare a linear (say a 1-to-1, but really constantly rising) function to a step function. “Continual” implies the step function, where “continuous” refers to the constantly rising function. I’d be interested in knowing what manufacturing organizations are constantly improving their systems, 24/7. In my experience, it’s much closer to the step function. I don’t see any point in changing the term... while it may be true that 3 times as many people use “continuous improvement” [that] doesn’t make it correct.”

Since words have meaning, the underlying meaning must be the basis for making a choice as to
which word should be popularized for what context.

The third proposition that Reber presents is not really a reason for change, but it is a judgment stated as an imperative. It may well indeed be the fact that the ISO community needs to have a common definition of “continuous,” but this just begs the issue of whether “continuous” is the adjective that should be favored over “continual” improvement. Ever since Percy W. Bridgeman created the concept of operational definitions,\(^5\) it has been commonly agreed that the use of common definitions is a good idea to encourage development of scientifically-based operating systems; however, Reber’s argument supports the choice of any common definition, and it does not differentiate between “continuous” and “continual” as the adjective of choice.

Therefore, we conclude that the second and third arguments presented by Reber are spurious to the broader issue as to the choice of “continual” or “continuous” as the adjective of choice for the term improvement. Now we should turn to examining the validity of the “philosophical antecedent” which Reber proclaimed.

**Examining the Philosophical Case Based on Eudaimonia**

Aristotle wrote two treatises on the subject of ethical behavior, namely the *Eudemian Ethics*\(^6\) and the *Nichomachean Ethics*.\(^7\) In these two books Aristotle the addressed the question “What is eudaimonia?” which can be restated as: “What is the highest good for humans?” However, the way Aristotle answered this question is somewhat different in these two texts and is a matter of debate for philosophers. However, there are points of similarity that are important when this concept is applied to the discussion of “continuous” verses “continual” improvement.

To Aristotle eudaimonia is a philosophical or scientific contemplation activity in accordance with virtues of wisdom and understanding which may be moral, political or intellectual. To him the highest good comes from excellent performance of this characteristic function and consists of those traits or qualities that enable a person to perform that function well. For Aristotle the characteristic function of human beings is their ability to reason. Accordingly, “if the function of man is an activity of soul which follows or implies a rational principle,” and if the human good is the good performance of that function, then the “human good turns out to be [rational] activity of soul in accordance with virtue”\(^8\) – rational activity performed excellently.

According to both texts eudaimonia is an activity and not a state, and it necessarily involves the exercise of reason. Such intellectual excellence is not an innate talent or rapidly acquired form of knowledge but rather an activity that is produced by developing a habit of reflection and the understanding that comes from appropriate social experiences. Interpreting eudaimonia in this way aligns with the possession of an “interval” period for rational reflection as implied in the use of “continual” improvement. However, the Greek text does not cite “continual” but the concept of ethical development. Reber cites his own prior paper to support the argument that eudaimonia refers to a journey to achieve excellence, rather than returning to the text of Aristotle. Therefore, the philosophical foundation cited in Reber’s arguments are questionable.
and fail to make an infallible case that eliminates the concept of “continual” – in fact, none of his propositions justify rejection of “continual” in favor of “continuous” improvement.

**Making the Case for “Continual” Improvement**

Linguistic interpretation should not be based just on a “popularity vote” or on its “social use” application but should investigate the meaning conveyed through its referential context in the real world. Does the “interval” in “continual” matter? Is there a need for an “interval” in the process that would indicate that “continual” improvement could be superior to “continuous” improvement which does not possess this interval? What happens during this interval?

Consider some practical examples from farming, music, and speech. In farming, intervals are planned by leaving a field in a state of “fallow” so that the ground has an opportunity to regain the nutrients that are necessary for future plant growth. In music, the “interval” or “space between the notes” adds emotional meaning to the sequential flow of a melody, the series of musical notes and their timing, which creates musical satisfaction. Intervals can be very important also in speaking where a pause will often create a dramatic effect to make a point stronger. What is the importance of possessing an interval in the sense of improvement? The presence or absence of an interval may not be detectable to an observer of a process while it becomes an important aspect in the way a process performs. To external observers – such as an audience listening to the music – a process may appear continual; however, to the performers this interval is exceptionally important as its creation bestows meaning in a composition. Thus, meaning is also implied by the granularity of detail with which an activity is observed. The closer the observation, the more meaningful becomes the details involved.

There are two arguments which shall be put forth in favor of “continual” improvement: the first argument is linguistic and deals with the etymology of these two terms and their interpretation in cross-linguistic contexts. The second argument deals with the interpretation according to the principles of the scientific development of Japanese TQM.

**Linguistic Analysis – Doctrine of Originalism Applied to Etymology**

Many languages do not have a distinction between these words used to describe improvement. For example, there is only one word used to describe this concept in Scandinavian languages of Northern Europe (Finnish, Norwegian, Danish, and Swedish), Swahili (Africa), and the oriental languages in Asia (Chinese, Korean, and Japanese). People with these native tongues consider this argument as “much ado about nothing.” The distinction arose in central European origins (e.g., the so-called Proto-Indo-European (PIE) family of languages) which created a fundamental confusion about their meaning that has endured.⁹

Originalism is the doctrine of linguistic interpretation that may be defined as “the original intent of an author should be adhered to in later interpretations of a work.”¹⁰ Thus, understanding the original context in which these terms were first employed is essential for interpreting the way that they should be deployed today. The etymology of these terms reverts to French and Latin
derivations. Distinctions between the terms become obvious when considering the meaning offered by the “Online Etymology Dictionary.”  

The term “continual” originated in the 12th century French and it is derived from the Latin word “continuus” – “that which is continual is that which is either always occurring or recurs at short intervals and never comes to an end; that which is continuous is that in which there is no break between the beginning and the end.” In the 1640’s the need to distinguish this concept gave rise to the word continuous French “continuus” with the same Latin root in “continuus” but it is distinct in that it defines action that is “proceeding without interruption or cessation; often repeated, very frequent.” Thus, the initial development of the word emphasized the need for the interval while the subsequent evolution took away this interval. Perhaps this means that there are two different and distinct applications that require both words to be fully expressive of the linguistic meanings? What can we learn from the history that describes how an “interval” is applied in an improvement process?

**Western Influencers of Japanese Quality Thinking**

With respect to the application in quality, does this term make a real difference? The answer is yes. Joseph M. Juran (1904-2007) demurred in his choice of words as he described two types of improvement using the words “incremental” and “breakthrough.” He said that improvement happens through projects which are performed in intervals: “all breakthrough is achieved project by project and in no other way.” While Juran used neither of the terms (preferring “incremental”), W. Edwards Deming (1900-1993) had a clear position for using only “continual” as the appropriate way to talk about improvement. Peter F. Drucker (1909-2005) encouraged managers to “follow effective action with quiet reflection. From the quiet reflection will come even more effective action.” The bottom line is that “words matter” and they must be chosen to convey the meaning that is intended in the context with which they will be used. These three gurus all postulated that an “interval-like condition” should be included in an improvement process. The idea of an “interval” in a rationalized judgment process is just as important in the Western tradition as it is in the Eastern daily meditative process of seeking self-enlightenment through pursuit of the Buddhist eightfold path. Therefore one must seriously consider what are the benefits of using “continual” as an adjective to modify the concept of “improvement” in “Continual Improvement” and what happens during this interval that is created.

**Knowledge Gained from the Asian Context and Japanese Study**

The Japanese term “hansei” (反省) means “self-reflection” and it develops “insight into oneself as the first step to improvement.” The concept of hansei has its roots in the teachings of Confucius (551-479 BCE): “By three methods we may learn wisdom: First, by reflection, which is noblest; Second by imitation, which is easiest; and third by experience, which is the bitterest.” He also commented: “Study without reflection is a waste of time; reflection without study is dangerous.”
While knowledge about quality in the West has evolved like an “intellectual patchwork quilt” of ideas consolidated from independent thought leaders, in Japan the quality tradition has been to gain consensus about meaning through the use of research committees to study specific topics and their applications to understand generic meanings and its applications.22 This method of scientific inquiry is the foundation upon which Japanese TQM has been formulated and its body of knowledge has become codified in its standards.

Three particular Japanese standards help to clarify what happens in a “continual improvement” interval.23 The Japanese Industrial Standard (JIS) for performance improvement describes the mode of improvement as “continual improvement” in the English translation. The standards for daily management and policy deployment both refer to a model where the daily management system of SDCA (Standardize-Do-Check-Act) is merged with a PDCA (Plan-Do-Check-Act) policy management model sharing the common step of “Check.” The Japanese rejected the model proposed by Deming in 199224 – PDSA (Plan-Do-Study-Act) as Deming promoted this model in the context of transformation management and a learning cycle that was the responsibility of the executive function but avoided the requirement for standardization in a daily management system for workers. Resolution of these issues occurs when one considers what happens at the point of the interval: at the Check Step in SDCA/PDCA which is also where a “Study” step is applied by management (Figure 1 illustrates this model).

![Figure 1: Incorporation of the Deming Study Step in the Japanese SDCA and PDCA Model](image)

In each of these two “wheels” there is a constant revolving action that drives the mechanism of improvement. It is within the “check” step of both the SDCA and the PDCA cycle that there is an
“interval” for “continual Improvement” and a point of reflection that actually occurs. This ability to pause, reflect, and understand during this interval allows lessons to be learned which could be missed, if an improvement process moved forward continuously without the interval. Using a step-by-step approach to improvement permits those in the cycle of improvement to make much better decisions and to be more flexible about how to move forward from the point of a decision.

Consider how people invest their time in these two cycles: workers spend approximately 85% of their time in the SDCA “Do” step where they perform work on behalf of their customers. The other 15% is divided into steps for standardizing, checking, and adjusting operations that assure quality outcomes. Here the “check” function evaluates work output against the requirements for results and the standards for operation to assure compliance. Thus, activities to improve the process occur within the “Check” step as they are not a part of either the “Do” or “Act” steps. The “Act” step is where adjustments are made to the process or product which then become standardized. In other words, “Check” identifies the timing of the interval that occurs within the continual improvement process.

Likewise, in the PDCA cycle the majority of the time is spent in the “Plan” step while the “Do” step conducts a trial of the plan, “Check” evaluates the outcome of the experiment, and “Act” adjusts the improvement according to the discoveries from the “Check” step. The entire cycle creates “kaizen” (改善) or “improvement for the better” of the daily work activities. To achieve this result, an interval for reflection is required. This interval is necessary to assure that there is an adequate period for reflection which ensures that there are no unforeseen risks, negative interactions, or unintended consequences from a change activity that has been implemented with too great a haste. This is why periods of stability and standardization must occur regularly within cycles of innovation.

**Concluding the Argument**

I believe that one of the on-line respondents to Reber’s article has summarized this basic issue best. Cynthia Aylen stated: 25 “If continuous means without cessation, then it is not possible to execute one’s job. One would not be working on contract review, design, product/service realization, or the multiple other processes that must be executed within business. Continual improvement is the proper term. It’s the only feasible activity for businesses to embrace and for which auditors can find objective evidence.”

**An Opposing Modest Proposal**

This proposal is offered in the spirit of Henri Fayol (1841-1925), author of the first modern book on the theory of management, *General and Industrial Management* (1916 in French, 1941 in English). Fayol was the first to emphasize the need for continual improvement. He commented that managing requires “a constant search for improvements” that can be introduced into every sphere of activity.” He expanded this comment by saying: “The search for improvement should
be pursued unceasingly at all levels and throughout all parts of the business. *The executive in charge should have an active, unrelenting intention to effect improvement* [emphasis is added to both quotations].”

Based upon the analysis of this article, a definition of “Continual Improvement” may be offered:

*A structured approach to management that applies constant effort to improve performance through repetitive learning cycles using an integrated SDCA/PDCA process to achieve change applying both incremental and breakthrough projects.*

This proposed definition should be used by all elements of the global quality community (e.g., by both ASQ and ISO organizations) in the standard definitions that they publish so that there may be a more consistent promotion and dissemination of these terms. Also, future definitions for core quality terminology should be developed by more broadly considering the implications of these terms across multiple languages and cultures. Finally, a “more scientific” basis defining the semantic meanings of fundamental quality terms should be applied in the development of definitions for all terms that are applied across the entire spectrum of interests throughout the quality community.

**References:**


About the Author:

Gregory H. Watson is Past-Chair and Fellow of ASQ and Past-Chair and Honorary Member of the International Academy for Quality. In 2009 he became the first Westerner to receive a Deming Medal: The JUSE W. Edwards Deming Distinguished Service Award for Dissemination and Promotion. Dr. Watson may be reached at greg@excellence.fi.