PDSA cycle evolution

More than 30 years after Deming first revised the Shewhart cycle, Deming again reintroduced it during four-day seminars he hosted in the 1980s.10 He said the latest version had come directly from the 1950 version.

"Any step may need the guidance of statistical methodology for economy, speed and protection from faulty conclusions from failure to test and measure the effects of interactions," Deming said.11 Figure 6 illustrates the procedure to follow for improvement.

Deming warned his audiences that the PDCA version is frequently inaccurate because the English word "check" means "to hold back."

Once again, Deming modified the Shewhart cycle in 1993 and called it the Shewhart Cycle for Learning and Improvement- the PDSA cycle, as shown in Figure 7. B Deming described it as a flow diagram for learning and improvement of a product or a process.

PDCA VS. PDSA

Over the years, Deming had strong beliefs about the PDCA cycle and clearly wanted to distinguish it from the PDSA cycle.

At a roundtable discussion on product quality at the U.S. Government Accounting Office, Deming was asked how the QC circle (referring to PDCA) and the Deming circle related.

"They bear no relation to each other," Deming said. "The Deming circle is a quality control program. It is a plan for management. Four steps: Design it, make it, sell it, then test it in service. Repeat the four steps, over and over, redesign it, make it, etc. Maybe you could say that the Deming circle is for management, and the QC circle is for a group of people that work on faults encountered at the local level."13

On Nov. 17, 1990, Deming wrote a letter to Ronald D. Moen to comment on the manuscript for Improving Quality Through Planned Experimentation, coauthored by Moen, Thomas R. Nolan and Lloyd P. Provost.'4 "Be sure to call it PDSA, not the corruption PDCA," Deming wrote in the letter.15

In response to a letter he received in 1991, Deming commented about a chart labeled plan-do-check-act. "What you propose is not the Deming cycle," he wrote in the letter. "I don't know the source of the cycle that you propose. How the PDCA ever came into existence I know not. "!a

Has the Deming PDSA cycle evolved?

In 1991, Moen, Nolan and Provost added to Deming's PDSA planning step of the improvement cycle and required the use of prediction and associated theory.17

The authors said the study step compared the observed data to the prediction as a basis for learning. This provided the deductive-inductive interplay necessary for learning as required in the scientific method.

It is not enough to determine that a change resulted in improvement during a particular test, according to Moen, Nolan and Provost. As you build your knowledge, you will need to be able to predict whether a change will result in improvement under the different conditions you will face in the future.

Three years later, Gerald Langley, Kevin Nolan and Thomas Nolan added three basic questions to supplement the PDSA cycle.18 Figure 8 (p. 27) shows the detailed cycle and the Model for Improvement.

This new approach provides a basic framework for developing, testing and implementing changes to the way things are done that will lead to improvement. lfrao The approach supports a full range of improvement efforts from the very informal to the most complex - for example, the introduction of a new product Une or service for a major organization.

Continuing evolution

As linai pointed out, Japanese executives recast the Deming wheel and developed the PDCA cycle, building from Deming's JUSE seminars of 1950. PDCA has not changed drastically in the last 40 years. It is clear, however, that Deming never fully embraced the PDCA cycle. PDCA and PDSA seem related only through the scientific method.

From 1986 to 1993, Deming was committed to evolving his PDSA cycle, and he always referred to it as the Shewhart cycle for learning and improvement. It's used for learning, testing and implementation.

Today, the PDSA cycle remains relevant and continues to evolve. QP