Knowledge Worker

Analyzing Performance Problems: A Control Theory View

(November 2020)

Overview

Kurt Lewin (1951) famously observed, "There is nothing quite so practical as a good theory." To that I would add Susan Meyer Markle's comment that, "Nothing is quite so useful as a good example[1]." In this month's column I am going to draw on "a good theory" and I will apply it to "a good example."

The theory is PCT (Perceptual Control Theory) and the example is an operational problem I resolved in my early days with Educational Testing Service (ETS). The theory and the example come together in a set of questions derived from the theory that guided my investigation and led to the resolution of the problem.

Let me begin with brief recap of the problem and its resolution. Then I'll examine how I arrived at the resolution.

Reject Rate: The Problem

Shortly after joining ETS, the division director of the Custom Operations Division (COD) asked me to look into a problem in one of his division's test registration processing operations. He said the reject rate was much too high and he wanted me to see what I could do to get it down. The "reject rate" referred to the ratio of (a) registration forms suspended from processing to (b) the total number of forms being processed in that batch. Forms were suspended owing to a variety of errors that prevented fully processing them. It was quickly determined that the reject rate was averaging 70 percent per batch. About half of the suspended forms (35 percent) could be corrected by staff, incurring significant rework costs, and the other half (35 percent) had to be returned to the registrants, leading to a high volume of complaints by registrants and their sponsors. It was clear all the rejects owed to errors made by the registrants when filling out the form. Their behavior and performance moved center stage.

Reject Rate: The Resolution

After looking into the problem, two basic corrective actions were taken: (1) the instructions for filling out the registration form were completely rewritten and greatly expanded, and (2) an alphabetically organized institutional code list was provided for registrant use. Shortly afterward, the reject rate plummeted from its average of 70 percent to less than nine percent. Rework costs, returned forms, and registrant and sponsor complaints were all significantly reduced.

Reject Rate: The Analysis

I was then and I am now a big fan of Perceptual Control Theory (PCT), the brainchild of William T. Powers (1973, 2005). I like it because it leads to questions that are extremely useful when analyzing problems of human behavior and performance. In this case, five questions derived from PCT led me to

[1] To the best of my recollection, this is something she said to me during a gathering at her Chicago apartment in the mid-1970s. For those of you who don't know who Susan Meyer Markle is (and I suspect there are many of you), she was a prominent figure in the early days of what is now the International Society for Performance Improvement (ISPI) when the society was NSPI and the PI stood for "programmed instruction." She is the author of a classic in that field titled *Good Frames and Bad: A Grammar of Frame Writing* (1964, 1969).

the resolution very quickly. The five questions and what I discovered as I searched for answers, are as follows.

1. Does the evidence suggest the performers *want* to do a good job?

   A review of several batches of rejected registration forms suggested that many of the errors owed to what I concluded was simple carelessness. The review also revealed a high percentage of errors related to code numbers the registrants were to provide that would identify (a) the institution where they had been trained and (b) the institution where they expected to be employed.

2. Why *should* they want to do a good job?

   The test in question was a certification test. The registrants had to take and pass the test to become certified. In turn, being certified was a condition of licensing, and licensing was a condition of employment. If their registration forms were returned to them, they would have to register for a later test. That meant a delay in their certification, licensing, employment, and income. The errors on returned registration forms were literally costing the registrants money. No way would they want that. At this point, I wondered if the registrants were aware of the consequences to them of doing such a poor job of filling out the form that it was returned to them.

3. How would they know they'd done a good job?

   The registrants filled out the form on their own, without any assistance, which meant they were the ones who had to be able to tell if they'd done an adequate job. This led me to review the instructions for filling out the form. Nowhere were the registrants informed of the importance to them of completely and correctly filling out the registration form, or of the consequences to them of the failure to do so. Equally important, the instructions provided no examples of correctly filled out fields.

4. Are they able to do what is required to do a good job?

   Filling out the form required little of the registrants except the ability to read and follow the instructions and fill out the fields as required. I did not see this as contributing to the problem.

5. Is there anything that prevents or interferes with them doing a good job?

   The high-volume of errors regarding institutional codes led me to ask the staff how the registrants obtained the codes. I was informed that the registrants were provided with the same code list the staff used. I requested a copy and immediately realized it was not organized properly. The staff were confronted with situations wherein they had a code and needed to look up the institution. Accordingly, the code list they used was numerically organized. The registrants had the name of the institution and needed to look up the code. They required a list of institutional codes that was alphabetically organized by institution name.

Recap and Review

As noted above, the instructions were greatly expanded, and an alphabetically organized code list was distributed. And, as noted above, the reject rate dropped from an average of 70 percent to less than nine percent, almost all of which was resolvable at ETS. Very few forms were returned to registrants. The division director said he had "bigger fish to fry" so no attempt was made to take the reject rate any lower.

The key to the quick and dramatic resolution of the reject rate problem owed to the questions that guided my analysis of the problem and those questions in turn derive from my understanding of Perceptual Control Theory (PCT).

The Theory

PCT asserts that people are "living control systems," that they act to make their perceptions of certain things around them line up with the way they want them to be. Because the rejected forms were so error-riddled, it seemed obvious that the registrants (a) probably didn't know how to tell if they had done a good job and (b) almost certainly didn't care about doing a good job of filling them out. But why? That, in turn, raised the issues of the registrants' knowledge of the importance to them of doing a good job, and if they could tell they had done so. Hence, the rewrite and expansion of the instructions.

PCT notes that control serves to offset or compensate for any factors that independently affect or disturb the result – unless those "disturbances" are overwhelming. The lack of an alphabetically organized code list posed just such an overwhelming disturbance to the registrants' ability to fill out the form correctly. PCT also argues that we should try to see performance problems from the performer's perspective, not our own. In the case of the code list, the staff was viewing the code list from their perspective, not the registrants'. Thus, the reorganized code list.

Finally, the example illustrates the kind of conflict that occurs when one person is controlling a variable and doing so interferes with the control of another variable by another person. The original instructions had been deliberately minimized as part of an effort to control printing costs. Unfortunately, reducing printing costs led to a much larger increase in registration rework costs and complaints from registrants and sponsors regarding the returned forms. The program manager in charge of printing was opposed to expanding the instructions owing to the increase in printing costs. The program manager in charge of operations very much wanted to expand the instructions and thereby reduce the costs of reworked form, returned forms, and registrant and sponsor complaints. The case was taken up a level to the program director who was responsible for both cost areas and the decision was quickly made to expand the instructions.

I hope this column makes clear the usefulness of the five questions above, how they tie to PCT, and the value of the example provided in making clear their usefulness.

Let me close by saying that Kurt Lewin and Susan Markle had it right, "Nothing is quite so practical as a good theory" and "Nothing is quite so useful as a good example."

References

1. Lewin, K. (1951). *Field Theory in Social Sciences*. Harper & Brothers
2. Powers, W.T. (1973, 2005). *Behavior: The Control of Perception*. Aldine De Gruyter

Recommended Reading

For those interested in learning more about PCT, I unabashedly recommend the Control Theory section of my website. I also recommend that, once there, you begin with "PCT 101: A Perceptual Control Theory Primer." And, of course, any of William Powers' books or papers. In that vein, I highly recommend that you begin with his 1998 book, *Making Sense of Behavior: The Meaning of Control*, published by Benchmark Publications, New Canaan, CT. It is a wonderful, plain language, non-technical explanation of PCT.

About the Author

Fred Nickols is a master problem solver, solution engineer, toolmaker, knowledge worker, writer, consultant, and former executive who spent 20 years in the U.S. Navy, retiring as a decorated Chief Petty Officer. In the private sector, he worked as a consultant and then held executive positions with two former clients. Currently, Fred is *Chief Toolmaker* and *Lead Solution Engineer* at Distance Consulting LLC. His web site is home to the award-winning Knowledge Workers' Tool Room and more than 200 free articles, book chapters and papers. Fred writes this column on a monthly basis. All previous Knowledge Worker columns are accessible by clicking here.