Critical Thinking System

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Critical Thinking System: Definitions

Alternative Names for a Critical Thinking System
    Work systems
    Embedded performance elements

Critical Thinking Definition
Critical thinking is a process that involves the application of judgment. The goal of a critical thinking intervention is to help an organization behave more intelligently, adapting to reality quickly and effectively.

Critical Thinking *System* Definition
A critical thinking system consists of procedures that foster the proper application judgment to organizational issues. Such thinking needs to be made an expected and natural part of the organization's culture so that important issues can be identified and resolved. One way to embed such thinking in the organizational culture is to create systems that require it.

System Definition
System in this context means a mandated series of concrete, observable steps performed by people in the organization (as opposed to mental activities that cannot be observed and are at the discretion of an individual). When critical thinking is embedded in the organization, all people who share the same role adhere to the same system and behave similarly. The policies, procedures, and steps of the system are not subject to individual choice or motivation.

An Example of a Simple Critical Thinking System

Here is an example of a simple critical thinking system consisting of one question. As a child I sometimes asked my father for money beyond what I had "earned." His invariable response was "Why?" This question conveyed certain information to me and thereby channeled my thinking in a direction of his choosing. In effect, he conveyed to me:

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- It was his right to ask why I was requesting the money,
- He cared about what purpose the money was to accomplish,
- He cared about what thought I had given the issue.

A Critical Thinking System in an Organization
"Questions Guide Thought and Behavior"

What an organization asks employees in order to navigate its systems accomplishes these objectives.

- Directs their thinking,
- Focuses that thinking, and
- Communicates what is valued.

The right question stimulates thinking to search for relevant information to formulate an answer. The thinker is made more sensitive to what is known that may be relevant and more alert to what additional information is needed. The right question can also trigger the right type of analysis. For example, if you identify a problem and are then asked to name the cause of the problem, you will attempt to answer the question using the available information and what you know about cause and effect. Training might expand your ability to answer cause-and-effect questions, but it is the system that triggers and demands the effort.

Roles and Accountability for System Operation

Specific roles played by organizational members are what establish and keep a system in place. One person is given the authority to manage the system and is held accountable for the results that the system is intended to produce. After specific procedures are designed into a system, people should be given the responsibility of following those procedures. Lasting change will not occur unless authority and accountability are deliberately designed to support the use of the critical thinking system.

8 Signs That Your Organization Needs a Critical Thinking System

Any of the following conditions may indicate that a critical thinking system needs to be implemented to support and encourage clear thinking and intelligent action:

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1. Programs and organizational initiatives come and go, but the performance indicators show stagnation awaiting the next "Slogram" (slogan plus program).
2. Many employees have completed and responded very well to training that emphasizes clear, rational thinking, but the training has had very little impact upon job performance.
3. It is common for two or more projects to be initiated to address the same issue without mutual knowledge or coordination and with counterproductive results.
4. Corrective action is rarely taken; instead, quick, stopgap actions are used.
5. Many initiatives are dropped before completion.
6. Decisions are of poor quality not having intended effects.
7. Déjà vu -The organization repeats failed programs, Little or no use is made of historical information.
8. Meetings about the same issues drag on and on like a soap opera, with little change and no positive action.

Critical Thinking System Implementation-Case Study

This case study begins with a typical situation in an organization. That usually goes something like this:

- *A decision is made to train a population in a desired skill-set.*
- *A training company is selected, and the designated population trained.*
- *The results of the training are not assessed past participant reactions to the class.*

However, this case study was different. Some people noticed the job level results (Kirkpatrick Assessment Levels K-3 and K-4); liked them; and wanted more.

The Initial Critical Thinking Training Intervention

This is where it started. A West Coast factory of an international company employed eight hundred workers. A training project was created as part of the factory's response to a corporate mandate to use teams across the organization. The local factory's training included the in-house certification of six instructor-facilitators and their subsequent training of three hundred members of various

corrective action teams (CAT) in critical thinking. The purpose of the two-day workshop was to teach team members how to think collaboratively.

Impressive Intervention Results

What happened because of the training exceeded their expectations. It is typical in a **BPI** workshop to have participants work on real issues that pay for the training even before the class is over. But, some instructor/facilitators kept track of the use of the thinking processes not only during, but after the class as well. One instructor (of the six) documented cost savings and cost-avoidance results that totaled $3 million in about 2 years for just his trainees. The savings continued as time passed. By normal training standards this was a very successful intervention averaging a $10,000 savings for each person as measured in the time shortly after his training. But, this was only a fraction of what was now possible.

Opportunities to Expand the Results

Situations for the internal critical thinking experts varied. Some were given free reign by their manager, others, not so much. Though the impact of the training on the performance of the CATs was impressive it was just a drop in the bucket compared to what was possible. Some of the CATs performed better than others and other problems surrounding the use of the CATs were surfacing. The following comments were typical of employee reactions across the organization after the training was completed:

- CATs are only instigated for external problems, not internal ones. How can we focus on some of our internal problems?
- Members of CATs say they don't have control over which issue they work on. Their analysis says one thing but management says another.
- We are being directed to immediate action and almost never to develop corrective action.
- It's hard to find historical data when we're trying to determine the root causes of problems.

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- We don't have the necessary details to be able to respond to customer complaints that are forwarded to us.
- After-the-fact we find out that the same issues have been addressed simultaneously by several different units. We end up producing incompatible solutions and wasting time.
- Management push back "I need people to be working, not in meetings".
- We aren't allowed to solve problems-just adapt to them.
- The instructor/facilitators saw an opportunity to make some of what was working well, work even better.

Decision: "*Develop a Problem Resolution System*" (PRS)

Even with the impressive original results, it took several years of lobbying on the part of in-house facilitators before senior managers agreed that the plant could improve its response to problems. Using the thinking skills that the original CAT's had been trained in, the situation was analyzed. It was decided that an in-house problem resolution system (PRS) should be developed. A team was formed and given responsibility for designing a PRS for plant-wide adoption.

The task force's analysis established the requirements that were then used as design criteria for the new **PRS** (problem resolution system).

Design Criteria for The PRS

It was determined that their ideal system would have these characteristics:
- Early problem identification
- Easy stakeholder access to action status
- Encourage internal cooperation
- Obtain timely and appropriate response to problems
- Utilized by all organizational levels
- Accessible to all employees
- Minimum time required
- Ability to create high-quality historical information
- Document return on investment

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Problem Resolution System (PRS)

The system was composed of a problem identification method that captured and funneled problem descriptions to four different types of action units.

The four types of action units were
- Customer Action Unit,
- Departmental Action Unit,
- Inter-Department Action Unit, and
- ISO Action Unit.

These units were responsible for
- setting priority,
- deciding who should be involved,
- facilitating analysis,
- taking action, and
- documenting results.

These four types of units already existed in one form or another. All that needed to happen was the redefinition of roles and the adoption of specific procedures for dealing with problems in a plant wide system.

Strategy → Embed Critical Thinking & Questions:
Entering the System, Determining Authority, Describing the Problem

The strategy was based upon using embedded critical thinking elements within the plant's systems. The first step in the PRS was to enable anyone, anywhere, to immediately upon noticing a problem, register it in the system. For example, any employee could record a problem (a.k.a. a noncompliance) by entering answers to two questions on a data terminal; the answers would enable the system to determine which action unit had authority.

Next the same employee could use the same input terminal to answer another series of questions designed to describe the problem and document what actions had already been taken. The problem description questions were adapted from the original critical thinking training and were made part of the formal PRS in this way.

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Initiating Critical Thinking Analysis
Questions Guide the Flow
(from Priority Through Results Documentation)

Once the problem description arrived (electronically) at the appropriate action unit, priority-setting information would be added. The demand for this and other types of information was built into the system. For example, answers to questions such as, "What is the cause of this problem?" and, "How was this cause verified?" were made a permanent part of the record for each problem. A method of conducting cause analysis and how to verify the cause was not specified within the system. But the system asked that the cause be determined and verified and the results documented.

Training in Critical Thinking and How to Use the System

Training now teaches employees critical thinking AND how to function within a system that supports their daily use of the PRS using their thinking skills. While training does provide employees with the knowledge of how to conduct a proper analysis, it is left up to the individual or team (with the help of the action unit leaders) to determine what kind of analysis is needed. The action units select team members (including a representative from the training department) by matching experience and skills with the demands of the current problem. The team then works together to address the problem until a resolution is implemented and the results documented in the system.

The Flow

- Enter the problem in the system
- Send to appropriate unit for action
- Determine priority
- Staff a team with relevant personnel
- Team performs analysis
- Team makes a recommendation(s)
- Recommendation(s) approved or returned for further analysis
- When approved, implementation is planned and performed
- Results are documented
- Team is disbanded

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Benefits of the PRS (Problem Resolution System)

Going beyond mere training to the establishment of a system that calls for the use of the training has provided many benefits. Here are some of the ways that the PRS has benefited this organization.

- Problem identification, analysis, and resolution are now a formal part of the plant's systems.

- Problems have been elevated to job-duty status and consequently are resolved sooner.

- Formal record keeping reveals high-order problems. For example, in the pilot test of this system the Overuse of first-response action and the under-use of corrective action were made very visible.

- Making people responsible for tracking and resolving issues of noncompliance resulted in the evolution of all plant systems-both technical and human.

- Departments now have a clear way to initiate action on problems that they used to tolerate, and departments that create problems for other departments are under daily pressure to resolve them.

Summary

Asking employees to think systematically and supporting them to do so daily through the organization's systems, significantly enhances the results they produce. And, it makes sense. If your interest has been piqued, please **contact** us to discuss the prospects of a problem resolution system for your organization. For more information on our two-day systematic thinking courses go to **Critical Thinking**, or **Critical Thinking for Leaders**. Go to **Systematic Problem Solving** or **Systematic Decision Making** for information on these one-day critical thinking workshops.

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Resources and References

Fritz, R (1996)
Corporate tides: The inescapable laws of organizational structure San Francisco, CA: Berrett-Koehler.
See especially the discussion on the importance of a clear purpose.

Jacques, E., & Clement, S. (1994)
Executive leadership: A practical guide to managing complexity Arlington, VA: Carson Hall & Co.
See especially the discussion of authority and accountability about making a hierarchy work.

Larson, C. E., & LaFasto, F.M.J. (1989)
TeamWork: What must go right/what can go wrong.
Thousand Oaks, CA: Sage.
Note an important point made in this book: only two of eight factors found to be associated with successful teams can be directly affected by training.

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