The Integration of Action Research with Problem-Based Learning in Determining the Root Cause of Business-Related Problems

Dr. Robert DeYoung, Saint Thomas University, Miami, FL

ABSTRACT

This paper discusses the implications of integrating two concepts critical to problem solving and decision-making: Action Research and Problem-Based Learning. Action Research is the systematic and organized effort to explore a specific problem that requires a solution. Problem-Based Learning provides an experiential learning by means of reflection and action, through inquiry and conclusions based upon factually supported evidence. These concepts, used exclusively as a methodology, enhance the decision-making process.

Each concept, used in concert with one another, further strengthens managerial confidence in the proposed changes while minimizing time and cost constraints fundamental to organizational success in today's emergent global environment. This study first looks at the role of Action Research as a determinant in identifying the root cause of a business problem. The concept of Problem-Based Learning through the use of Action Learning Circles is then explored. The article concludes with specific commentary as to the increased effectiveness of integrating Action Research and Problem-Based Learning in addressing organizational problems.

INTRODUCTION

Today's organizations are faced with a never-ending struggle to effectively address issues that impact competitiveness and sustainability in an ever-emergent environment. Issues must be identified, prioritized and addressed. These three processes should occur chronologically. Of great importance is that the issue is properly identified. Misidentification of the issue can result in the loss of valuable time and revenue. All too often, the managerial response to problematic issues is a misdirected focus on the symptoms. A more appropriate focus would assess the root cause of the problem. Recognizing the root cause significantly enhances the viability of implementing a plan appropriate to eliminating the problem.

Small and mid-size organizations can best benefit from integrating Action Research with Problem-Based Learning as discussed in this article. The inherent constraints and limited availability of resources in small to mid-size organizations might exact a higher overall cost in misidentification of problematic issues. Whereas larger corporations have access to both internal and external sources in addressing difficult issues that arise, small and mid-size organizations must maximize efforts in arriving at a viable solution within time and cost limitations.

DISCUSSION

Action Research is a process leading to an appropriate and effective solution of business-related issues. Specific phases of examination ensure that the root cause of the deficiency is the focus of the inquiry, thereby leading the change effort toward the cause and not the symptom. Action Research is the systematic and organized effort to explore a specific problem that requires a solution. All too often managers, when faced with a problem, focus on the solution instead of the root cause. This managerial approach often leads to a miscalculation in the decision-making process. It is incumbent upon managers to predict, explain and control events that occur both internal and external to the organization. Decisions should be based upon clear, objective and factually substantiated principles and data.

There are five key steps to employ in conducting a problem analysis. First, one must assess target opportunities. Opportunities should be listed and prioritized. Once that is accomplished, the scope of the opportunity should be assessed. This step will enable management to determine to what extent administrative support will exist. Second, identify the symptoms, develop a problem statement, and validate the problem. Identifying the symptoms minimizes the chance that the root cause is overlooked. Third, determine the root cause. This step requires that possible causes are identified, defined, and verified. Fourth, define the boundaries. Identify affected stakeholders, classify inputs and outputs, and define processes related to the issue. Finally, develop an inventory of prospective

solutions. Evaluate the impact of each alternative for viability and influence. Clearly, it is preferable to judge the correlational effect between each of the listed key steps.

METHODS OF ANALYSIS IN ACTION RESEARCH FOR THE IDENTIFICATION OF THE ROOT CAUSE

Decision efforts should begin by clearly identifying the root cause. This is accomplished by conducting a root cause analysis. Failing to properly identify the root cause of the problem diminishes the effort to lead to an appropriate and effective solution consistent with organizational goals. Addressing the root cause, instead of addressing the symptoms of the problem, permit a timely and cost effective channel through which the manager can solve the problem. Three identifiable approaches are available for use in determining the root cause of a problem: The Problem Identification Worksheet, The Five Whys Approach and the Cause-and-Effect Diagram.

I. The Problem Identification Worksheet

The Problem Identification Worksheet (see Figure 1) provides problem clarification that leads the inquiry directly to the root cause through the use of a series of questions that assess the internal and external environment surrounding the issue. The process examines the impact on performance and productivity, stakeholder interests, and sources of information that might facilitate attaining an appropriate solution.

Figure 1. Root Cause Analysis – Problem Identification Worksheet (Synergistics Curriculum Center, 2001)

PROBLEM IDENTIFICATION WORKSHEET
What is the problem that is to be solved?
Why is the problem present?
Does the problem affect productivity or performance?
What are the boundaries and scope of the problem?
How would stakeholders describe the problem?
What information sources exist that would assist in addressing the problem?
What is the root cause of the problem?

A well-stated problem description enhances the corrective action process, eliminating bias and extraneous noise. Continuous improvement occurs when the problem's root cause is identified and eliminated (Raub, G., 2002).

II. The Five Whys Approach

The Five Whys Approach (see Figure 2) provides redundant inquiry as to why the problem has occurred. The repetitious inquiry leads the investigation through a series of responses that identify symptoms that are the result of the root cause. The Five Whys Approach leads the decision maker to the root cause (identified in number five). Responses one through four are merely symptoms of the problem. It would be simplistic to blame the delivery company or the order fulfillment process. Yet, addressing the problem from any other issue except the root cause would fail to solve the problem. Training of Warehouse Division personnel will clearly address the issue and solve the problem. An example is provided for clarification:

The Issue: The Sales Department is complaining that the Warehouse Division is failing to provide the timely delivery of products ordered by consumers.

Figure 2. Root Cause Analysis – The Five Whys Approach (Synergistics Curriculum Center, 2001)

| FIVE WHYS APPROACH	
1. Why?	Products are being delivered with a postmark 4-6 days after the promised delivery date.
2. Why?	The Warehouse Division is shipping the product 2-3 days after the promised delivery date.
3. Why?	The Warehouse Division is taking twice the normal time to process the orders.
4. Why?	The Warehouse Division is having problems with new computer software.
5. Why?	Warehouse Division employees have not been trained suing the new software.

III. The Cause-and-Effect Diagram

The Cause-and-Effect Diagram (see Figure 3) seeks to identify the root cause by assessing to what degree the problem is the created by variables intrinsic to the organization. Four unique variables are identified as (1) procedures; (2) policies; (3) equipment; and (4) personnel. The Cause-and-Effect Diagram narrows the focus of the issue as it relates to the problem, providing sufficient insight to differentiate between symptoms and the root cause. This methodology is more focused on the organization itself, examining internal implications leading the problem.

INTEGRATION OF PROBLEM-BASED LEARNING

As one accepts the importance of proper execution of Action Research in addressing problems within the corporate environment, then a second reasonable step is to enhance the process through the synthesis of Problem-Based Learning. Problem-Based Learning permits individuals to work collaboratively in small groups to search for viable solutions. Problem-Based Learning stimulates critical and analytical cognitive processes, facilitates the evaluation of problem-solving strategies, and provides a perspective of thoroughness in conducting the research. With assistance from a facilitator, self-directed teams become problem-centered. Problem-Based Learning creates accountability and direct involvement of individuals responsible for translating research into action (Costantino, T. E., 2002; Kolasa, K. & Sullivan, C. S., 2000).

Figure 3. Root Cause Analysis – The Cause-and-Effect Diagram (Synergistics Curriculum Center, 2001)
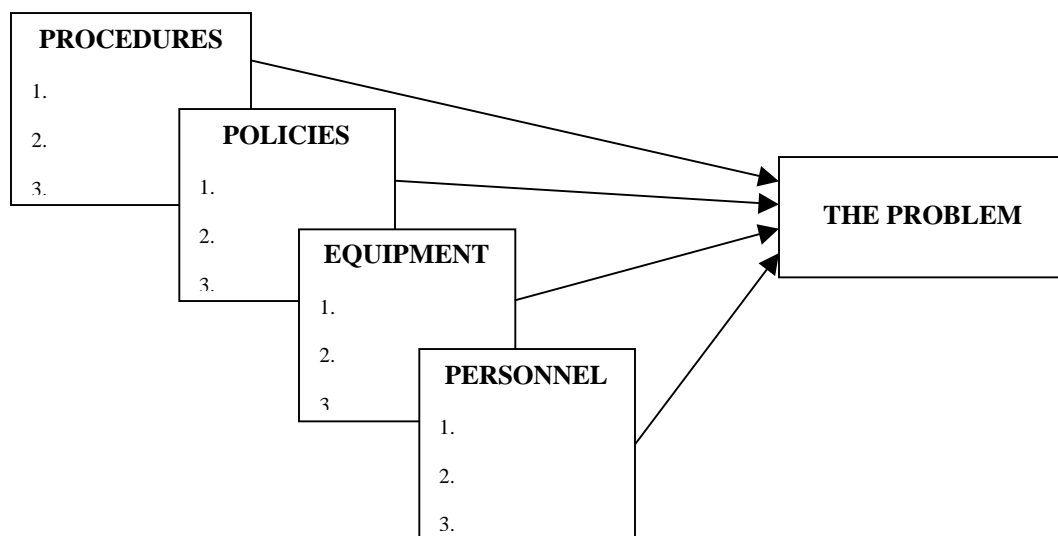
Problem-Based Learning is often accomplished through the use of Action Learning Circles. These circles allow for inquiry and reflection with the support of a group or team, whose composition remains constant. Action Learning Circles utilize their own knowledge, skills and abilities in conjunction with those of the colleagues. This depth and breadth of perspective and input improves the likelihood of attaining a desirable outcome. Again, the mere involvement in Action Learning Circles promotes an active participative effort, minimizing the tendency of personnel to take a more passive role in times of crisis. "Action circles allow individuals to focus their learning upon their own practice, and encourage their colleagues to act as critical co-investigators promoting dialogue and collaborative enquiry" (Wade, S. & Hammick, M., 1999).

Action Learning is described by Zuber-Skerritt (2000) as "a means of learning from action or concrete experience, as well as taking action as a result of the learning." The integration of Action Research with Problem-Based Learning produces a learning organization, based on the belief that adults learn best from other adults through inquiry and reflection (Garratt, 1999). Feedback is a critical component of the entire process. Basic assumptions and further inquiry lead to a more focused effort in identifying the root cause of a problem and the resultant solution. According to Kalliath (2002), to be successful, the process requires five phases of inquiry:

1. Collecting factual information as to what is actually occurring
2. Identifying causal relationships and testable hypotheses
3. Testing assumptions related to the causal relationships
4. Auditing activities where appropriate
5. Accepting or rejecting the changes made to previously defined relationships

CONCLUSION

In assessing problematic issues that organizations are forced to address, maximization of the allocation of resources (especially time and cost investments) will increase the organizations competitive standing and sustainability. When implementing a change to eliminate a problem, the investment of resources must be well spent. It is vital that the root cause of the problem is determined and that the best available resources to do away with the problem is exploited.

The integration of Action Research and Problem-Based Learning can facilitate the effort in properly identifying the root cause, prioritizing relevant alternatives and deciding on an appropriate solution to implement resultant change. Action Research is the systematic and organized effort to explore a specific problem that requires a solution. Problem-Based Learning, through the use of Action Learning Circles, can provide the stimulation necessary to develop critical and analytical cognitive processes and facilitate the evaluation of problem-solving strategies. Integration of these two approaches enhances issue-identification and decision-making.

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