



It is certainly reasonable that organization leaders be concerned about return on investment (ROI) related to the purchase and deployment of any training program. Throughout the past 25 years, Six Sigma deployments have been both successful and unsuccessful. This phenomenon has led to important research aimed at developing an understanding of what contributes to success and what does not.

The two scientific, validated studies below were both conducted with the purpose of better understanding the **return on investment of disciplined methodologies**. A **disciplined methodology** is one that contains proven practices, tools for deployment, skilled trainers, knowledge management, coaching and mentoring, access to resources, and more.

*The Great Discovery™* process readily qualifies as a disciplined methodology. Attachment "A" illustrates a sample of many of the competencies applied in a disciplined fashion and spelled out in *The Great Discovery™* training program. Additionally, *The Great Discovery™* process is designed to be delivered with knowledge management techniques including the use of tools, coaches, mentors and other features noted to be crucial in the success of attaining return on investment.

For further questions regarding research related to ROI and training, please contact Dr. Mike Vandermark, General Partner, *The Great Discovery™*, LLC at 480-614-4042.

**STUDY 1: The leveraging effects of knowledge management concepts in the deployment of Six Sigma in a health care company** by *Stevens, Dirk E.*, Ph.D., Walden University, 2006, 243 pages; AAT 3206980

## Overview

Health care costs and quality problems continue to emerge. These are significant problems that negatively impact the quality of life for thousands. In response, health care organizations have invested in disciplined methodologies, including Six Sigma; yet many of these deployments have failed. Failures may partially rest with the ineffective sharing of knowledge. Despite this critical link, there is almost no academic research coupling knowledge sharing with the deployment of disciplined methodologies.

Using a case study of a health care company, the research question addressed whether key knowledge management concepts had a positive or negative effect on Six Sigma deployment. The research included interviews with key participants, review of historical documents, and evaluation of selected Six Sigma projects representing high, medium, and low **returns-on-investments**.

The results showed high **return-on-investment** projects were more likely to effectively use knowledge management concepts including **mentoring, location of experts, communities of practice, and networking**, whereas low return **projects did not**. Information technology played a lesser role. Four general themes emerged: knowledge management can positively leverage the outcome of Six Sigma, individuals will develop their own methods for sharing knowledge in the absence of a structured system, disciplined knowledge management approaches yield improved results, and there are critical protocols that must be followed to ensure a successful Six Sigma deployment.

An additional outcome of the research was the development of a model for coupling Six Sigma and knowledge management. Based on three pillars, the model proposes organizations follow well-established Six Sigma protocols (e.g.

project contracts), use key processes (e.g. just-in-time training), and deploy a supportive knowledge management system.

From a social change perspective, the case study demonstrated the positive value of combining Six Sigma with knowledge management. The company experienced significant cost savings and improvements in product quality. Beyond these immediate benefits, the research offers a model that other organizations can use to facilitate higher quality products and lower costs. The positive impact to the health of thousands of patients is significant.

STUDY 2: Assessing training effectiveness: International deployment of Six Sigma methods and lean concepts supported by knowledge management by *Kornett, Barry A.*, Ph.D., Walden University, 2004, 204 pages; AAT 3151488

## Overview

The purpose of this study was to investigate the effectiveness of a company-sponsored training initiative deploying Six Sigma concepts, lean methods, and knowledge management techniques. The problem addressed was whether or not the simultaneous teaching of Six Sigma concepts, lean methods, and knowledge management techniques could be successfully deployed across an internationally dispersed customer service organization. Research was conducted using a quasi-experimental design embedded in a case study. Over the course of 18 months, customer service personnel throughout the United States, Asia, and Europe received training.

Findings indicated that the training initiative was effective and successful. One hundred percent of all projects started received customer sponsorship. **An overall project closure rate of 93.5% was realized across all three regions. More specifically, a 100% project closure rate was reached in the United States and European regions; only a 60% closure rate was realized in the Asian region. On average, completed projects delivered a 15:1 return on investment, derived using a gross dollar calculation of total project dollars saved divided by total program costs.** Teaching and course materials, highly ranked on student surveys, were perceived as effective when assessed by Kirkpatrick and Phillips training criteria.

Research was limited to a small percentage of the population (86 students representing 37.4%) of the customer service organization within a single company. These limitations, in addition to differences in research findings between the Asia region and the regions of Europe and the United States, represent research opportunities. Future research might investigate how a multicultural environment (where English is a second language for a significant

number of students) affects teaming dynamics, teaching material comprehension, and training effectiveness. Subsequent research could also assess whether training conducted during this study resulted in positive behavioral change as evidenced by students who, during normal work duties, continue to regularly employ the problem solving tools and techniques learned during training.

### STUDY 3: Training evaluation in the public sector

by *Phillips, Patricia Pulliam*, Ph.D., The University of Southern Mississippi, 2003, 215 pages; AAT 3103677

#### Overview

There is growing pressure on public sector organizations to show results of programs and processes including employer-sponsored training. Yet, there is only limited research describing the use of training evaluation models in public sector organizations.

This research describes current training evaluation practices in US public sector organizations including federal, state, and local agencies. It offers a framework for training evaluation in public sector organizations and prescribes a set of solutions to overcome barriers currently preventing the implementation of comprehensive evaluation including return on investment (ROI).

Survey research was employed to gather data on the use of training evaluation. The sample population was drawn from membership lists of the American Society for Training and Development (ASTD) and the International Public Management Association for Human Resources (IPMA-HR). Data from the survey show that training evaluation in public sector organizations occurs primarily at Level 1 (reaction) and Level 2 (learning) using the Phillips five-level framework. However, progress is being made at Level 3 (application), Level 4 (impact), and Level 5 (ROI). **Criteria for selecting programs to evaluate at Level 5 include the program's importance to strategic objectives, the linkage to operational goals and issues, and program cost. Criteria for selecting an ROI methodology require that the process be credible, simple, and appropriate for a variety of programs, as well as economical.**

Research findings are consistent with previous research conducted in healthcare and business and industry. They show there is slightly lower use of all levels of evaluation in the public sector than that in the private sector.

Barriers to training evaluation include evaluation costs, lack of training or experience, and the organizational perspective that evaluation is not required. Recommendations for practice include incorporating utility measures into Level 1 evaluation, developing an evaluation policy, taking cost-savings approaches, participating in learning forums, building competencies in ROI, and using evaluation data. Recommendations for future research include a study on stakeholder perspective of training evaluation, drivers for ROI in the federal government, and replication of the public sector study in non-profit and academic sector as well as in the international realm.

Attachment "A"



TGD Competencies	Do the Dreaming	Dream the Doing	Plan the Doing	Do the Plan
Vision/Dream Development	X			
Systematic Problem Solving			X	X
Project Management			X	X
Transformational Leadership	X	X		
Process Improvement			X	X
Brainstorming	X	X		
Force Field Analysis			X	X
Root-Cause Analysis			X	X
Intention Setting	X	X		
Priority Setting	X	X		
Values Clarification	X	X		
Team Chartering			X	X
Management Development	X	X	X	X
Team Building and Development	X	X	X	X
Knowledge Management	X	X	X	X
Rewards and Recognition			X	X

