A Large-Scale Model for Working with Subject Matter Experts

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INTRODUCTION

The evolution of complex and distributed commerce requires the implementation of training design and development models that capture and mold the expertise of subject matter experts (SMEs). A SME is defined as "that individual who exhibits the highest level of expertise in performing a specialized job, task, or skill within the organization". SMEs possess in-depth knowledge of the subject you are attempting to document (http://www.isixsigma.com/dictionary/Subject_Matter_Expert_-_SME-396.htm). This chapter describes a unique issue, and potential risk, along with a solution to work with a large number of geographically dispersed SMEs (separated from one another due to their respective locations), whose efforts are standardized and synchronized. This solution is based on a collaboration model implemented and led by an integration team whose role and responsibility is to allow the SMEs to achieve consensus, efficiency, and standard of quality in both products and processes.

The model is exemplified using a current large-scale military eight-year initiative to design training support packages to prepare soldiers to use advanced technologies and employment concepts in a blended delivery format of live, virtual, and constructive. The Live-Virtual-Constructive environment combines any of these three approaches to create a common battlefield, on which live units can be represented along with virtual and constructive. These units can interact with one another and conduct a coordinated fight as though they were physically together on the same ground (United States Army Combined Arms Center, http://usacac.army.mil/CAC/functions/constructive.asp). This initiative will be used throughout the chapter as our illustrative example as we describe the rising challenges and opportunities.

Therefore, this chapter will provide a detailed examination of the existing education and training development fundamentals that provided the framework to meet the requirements of this training design and development challenge. The first step in the process was to identify potential problems, issues, and/or potential risks of this training initiative. Two obvious issues were identified: 1) working with three different companies, each with their own internal structure and philosophy on training and development thus, resulting in a need for standardization; and 2) having a large number of individuals geographically dispersed, responsible for contributing to or creating the initiative's policies, processes, and products resulting in a need to find a means to work collaboratively from a distance.

Adding to the complexity of the initiative was acknowledging the nature of the training design and development team; the fact that it consists of forty (40) SMEs, analysts in the initiative, representing three leading defense contractor companies, known as the One Team Partners (OTP). To resolve the issue of standardization, a three-member integration team (IT) was assigned to facilitate the design and implementation of policies, procedures, and processes to accomplish the expected project goals and objectives of their primary customers by synchronizing, integrating and standardizing the SMEs' work.

The end-product (instructional/training product) was designed to support the instructional and training efforts for soldiers deployed, awaiting deployment, or conducting combat operations. The authors of this chapter are two members of the three-member IT, serving as the lead instructional designer and lead content SME. During the first three years of an eight-year initiative, this joint effort, using the collaboration model, has completed or is nearly completed with the initial planning and analysis phases (i.e., mission, job, and task

analyses) in preparation for the next phase, the design and development of training support packages.

Typically when managing an educational or training initiative, instructional designers (IDers) depend on the SME for their expertise in curriculum content. The IDers' involvement is critical during the analysis and design phases of a systematic instructional design approach.

However, in our illustrative example, the content SMEs were the lead component and instrumental in actively participating in the planning phase (the design and development of the policies, procedures, and processes) and were primarily responsible for writing the analyses results/findings. The content of the results were then reviewed by OTP IDers for writing convention format (e.g., use of acronyms, punctuation, spacing and numbering) and instructional design format (e.g., sequencing of steps, alignment of performance steps and sub-steps with performance measures). To meet this ID review requirement, each OTP has a SME IDer whose responsibility was to guide analysts (OTP SMEs) and to comply with the standards and guidelines related to instructional format and writing conventions. In addition, there were vertical and horizontal reviews conducted by other content SMEs (e.g., internal and external to the OTP) for accuracy and completeness in terms of breadth and depth of content, in context.

The intent of the IT in designing this methodology was to actively involve the SMEs from the onset, not only to capture their expertise, but also to gain and sustain their buy-in and commitment throughout the different phases of the initiative, and to do so primarily from a distance. Therefore, to resolve the second issue of the OTPs collaborating from a distance, the lead IT developed a process using technology (e.g., Web-based application and tools, relational database) to lessen the impact of being geographically dispersed.

BACKGROUND

The goal of this large-scale collaboration model is to integrate the contributions submitted by multiple subcontractors (known in our illustrative example as the OTPs). To meet this goal, the prime contractor appointed a lead IT with the responsibility to the customer, prime contractor, and the OTPs to synchronize (move along at same rate) and standardize (end-product has the same structure and language) processes and products.

Systems designers envision the entity to be designed as a whole; as one that is designed from the synthesis of the interaction of its parts. Systems design requires both coordination and integration. We need to design all parts interactively, therefore simultaneously. This requires coordination. The requirement of designing for interdependency across all systems levels invites integration. In an age of continuous and intensified change, the understanding of the role of systems design in creating our future and the development of competence in systems design are of the highest priority (Banathy, 2000).

Since the overarching component of such an initiative was the integration of work produced by the multiple OTPs, the lead IT adopted a systemic approach to achieve process and product standardization. To understand instructional development, it is helpful to view from within the context in which it functions. An educational or training environment is, in effect, *a system of systems*. By definition, a system (the whole) is a structure that is dependent on the product of the interrelationships of the parts rather than the attributes of any individual part (Ackoff, 1995). Therefore, it is imperative to view an instructional development initiative within a systems approach context based on general systems theory.

General systems theory (Gharajedaghi, 1999; Rothwell & Kazanas, 1992) is based on the belief that for significant and long-term change or opportunity to become institutionalized, it is imperative to recognize and manage the organization as a system. A system, composed of the performance of interrelated subsystems, forms a unified whole which is more than the sum of its individual parts. The application of general systems theory develops performance and instructional strategies in a systematic manner and includes the following: identifying specific requirements, designing an optimum solution, developing an intervention, and comparing results to plans (Branson & Gilbert, 1997).

Keeping the system healthy and functioning at a level in which its goals are being met by means of actively contributing inputs, outputs, and continuous feedback is referred to as maintaining an open-system. A system in which all subsystems share a common goal must be receptive to inputs and outputs in making its goal a reality (Converso, 2001, p. 16). In order to create and sustain an open-system, the IT from the onset actively engaged the partners by formally requesting input and