

Motivational Elements of Computer-Based Instruction: Teaching Quality Processes using the CANE Model

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Problem Statement:

Service agents are not following necessary procedures when documenting cases in the online case management system.

The organization in this study is a multinational service company, providing both hardware and software technical support for UNIX workstations and servers. In the course of providing service, service agents are asked to document each customer service request (case) in an online case management system. The data collected from this documentation process is used to facilitate solving the customer's problem by both the original agent assigned to the case, and, if necessary, other agents, as well as to drive customer management, product quality, and service quality initiatives.

Unfortunately, service agents are not documenting the cases in a consistent manner, which results in problems if more than one agent must provide support on a given case, and causes numerous reports based on the data supposedly being collected from the cases to be highly inaccurate. Although we are unable to accurately measure the cost to the company of the documentation problem, we do know that it is a customer satisfaction issue (as customers find themselves repeating descriptions of their problems), as well as an employee satisfaction problem (as service agents spend time trying to interpret each others' notes). Decisions made based on the data are flawed, and the data has come to be viewed as unreliable. As there is no other reliable source for the data needed to make some decisions, estimates and guesses are frequently used, sometimes with highly unfortunate results. Finally, the failure to comply with the documentation standard jeopardizes the ISO 9000 certification of the service organization.

The task of this study is to determine if a way can be found to motivate the service agents to provide the necessary data in an accurate and reliable manner. Several attempts have been made within various countries to solve this problem in the past, but none have resulted in a persistent change. As the company moves toward a global case management model, it is becoming critical to resolve this problem in a more lasting way.

Analysis:

Preliminary research indicated a strong similarity between this problem and one described by Clark (1998, in press). Following Clark's analysis method (with some modifications to fit the present situation), the following questions were considered:

1. Are agents aware of clear and specific business goals?
2. Do agents understand the methods by which to reach those goals?
3. Are necessary resources (policies, software/hardware tools, and training/documentation) available to agents?
4. Do agents have enough motivation for a personal commitment to the goals?

Clark indicates that only if all four questions can be answered in the affirmative will the agents perform the task as requested. As we will see below, this is far from the present case.

In the first steps of the analysis, it became apparent that a substantial factor of the problem is that the agents have never been presented with a clear set of case management goals which explain the rationales for the various documentation requests made of them. Analysis of previous training efforts, process studies, and interviews with agents (including managers at various levels) from around the world resulted in the following list of six "Case Management Goals." It must be understood that these are intermediate-level goals. They do not encompass the high-level goals of the service organization, nor do they describe in detail the activities requested of the service agents, such as performance targets. Yet these goals do follow from the high-level business goals, and they provide the basis upon which immediate tasks and performance targets are chosen.

Table 1 - Case Management Goals







- 1 - Solve the current customer's problem in a timely manner
- 2 - Enable others to help solve the customer's problem
- 3 - Enable Customer Management efforts
- 4 - Make it easier for other agents or customers to solve this problem again later
- 5 - Help keep this problem from occurring again by contributing to Product Quality programs
- 6 - Help the service organization make strategic decisions by contributing to Service Quality programs

Using these intermediate goals, the four questions above were each considered in turn. To provide more granularity for the analysis, agents were divided into three types: onsite support agents, who are generalists who work in distributed field offices and spend much or most of their time at the customer site; phone support agents, who specialize in a specific technology area and work from centralized answer centers; and monitoring agents, including both "Customer Service Managers," who supervise the other two types of agents as well as monitoring service quality by region or technology area, and "Account Managers," who monitor service quality on key customer accounts and act as a

customer advocate within the service organization. The first two groups may be considered primarily *producers* of data, whereas the third group are primarily *consumers* of data. In addition, in their role as supervisors, many monitoring agents are responsible for informing support agents of documentation standards and for enforcing them. As we shall see, agents of all three types have insufficient knowledge of the business goals described above, and particularly in the case of monitoring agents, who might have been expected to provide some consistency in this area, this is hurting the organization. The qualitative analysis results are summarized in Table 2.

Table 2: Analysis Results

	Solve	Cooperative	Cust Mgt	Re-Solve	Prevent	Strategic	
Aware	Green	Yellow	Yellow	Green	Red	Yellow	O
	Green	Red	Red	Green	Red	Green	P
	Green	Green	Green	Yellow	Red	Green	M
Understand	Green	Red	Red	Red	Red	Yellow	O
	Green	Red	Red	Red	Red	Yellow	P
	Yellow	Red	Yellow	Red	Red	Yellow	M
Environment	Yellow	Red	Red	Red	Yellow	Yellow	O
	Yellow	Red	Red	Red	Yellow	Yellow	P
	Yellow	Red	Red	Red	Yellow	Yellow	M
Motivation	Green	Red	Yellow	Red	Red	Yellow	O
	Green	Red	Red	Yellow	Red	Yellow	P
	Green	Yellow	Green	Red	Red	Yellow	M

 Green: Positive	 Yellow: Partial/Mixed	 Red: Negative	 O: Onsite Agents
			 P: Phone Agents
			 M: Monitoring Agents

As we can see from the above table, only the first goal is widely and well understood, though there are some environmental issues (primarily diagnostic tools and training) which could use improvement. All five of the other goals are poorly understood, and in some cases (eg, Goal 5) agents are widely unaware of the goal, even though data to support the goal is presently being collected. Goal 6 has been particularly complicated by the institution of a bonus program based on specific targets related to this goal. While the bonus program has made people more aware of elements of the goal, it has also obscured the reasoning behind the goal, with unfortunate results. (Agents are often tempted-- and even encouraged-- to falsify the data in order to achieve the bonus.) While it is certainly true that there are substantial motivation problems with all but the first goal, the cognitive and environmental problems are severe and must be addressed.

Two key initiatives will help with these issues. The first is a new training program now being implemented in a distributed, web-based format. This program has the purpose of making all six of these goals, and the tasks which support them, well understood. The second initiative is an organization-wide upgrade of case and customer management tools. It is hoped that this will resolve many of the environmental issues apparent in the analysis summarized above.

With these initiatives in mind, we now consider the remaining motivational issues evident from the analysis.

Table 3: Motivational Objectives:

- Provide more motivation toward enabling cooperative problem solving
- Provide more motivation toward enabling Customer Management practices
- Provide more motivation toward contributing to the Knowledge Database
- Provide more motivation toward contributing to Product Quality programs
- Clarify motivation to all agents around contributing to Service Strategic and Quality programs

With the implementation of the distributed training program described above, we have an opportunity to attempt to address these motivational objectives, as well as the cognitive and behavioral objectives already planned. But what methods might be used in a web-based format which would help to reach these objectives?

Again, following Clark, we see that motivation can be considered in terms of three main factors: Task Assessment, Emotion, and Values, each of which may be broken down further as shown below:

Table 4: Motivational Factors:

(Based on Clark, 1998)

Task	x	Emotion	x	Values	=	Goal
Assessment						Commitment
• Ability				• Utility		
• Context				• Interest		
				•		
				Importance/Identity		

In the next section, we will consider the body of research on motivational methods with respect to these factors, in search of techniques which might be implemented in the planned training program.

Implementation Suggestions

Task Assessment Implementation Suggestions

Although Clark breaks Task Assessment into two categories, Ability and Context, most authors surveyed tended to consider these two aspects together, e.g. as "Personal Agency Beliefs" (Ford) or "Self Efficacy" (Bandura). A review of the literature suggests the following techniques, each of which will be discussed in more detail below:

- Cognitive Training Content
- Mastery Modeling
- Guided Practice
- Transfer Program
- Comparison to Previous Tasks (Self-Modeling)
- Goal Setting during Training

Cognitive Training Content

All of the research reviewed was quite clear on the point that people cannot be persistently motivated to do something they do not know how to do. While they may be infused with motivation to try a new activity, if information on how to perform the activity is not forthcoming, persistence will fail (Clark, Ford, Bandura, Blair & Price). Therefore, one of the most helpful things we can do to aid motivation in this circumstance is to complete the cognitive and behavioral portions of the training program as planned.

Mastery Modeling

Bandura and Ford both describe the advantages of modeling as a way of increasing one's belief in the ability to perform a task. Bandura, in particular, describes several key aspects of successful modeling, including peer similarity and verbalization of strategies, and offers the claim that such modeling is actually more effective as instruction than the tutorial format. (See Bandura, 1997, Chapter 10.) However, modeling as described by Bandura relies heavily on video as a means of providing the model. Logistical considerations (network bandwidth, production expense) will probably prohibit the inclusion of large video segments in the planned training. Further research is needed to determine whether similar advantages may be obtained by the use of still images of peer models in sequence, with or without sound, or animated application screen-shots with voice-over. One argument in favor of asking learners to construct the model from still images or text comes from Salomon, who points out that use of an "easy" medium like video can in fact cause learners to pay less attention to the material than a more "difficult" medium, such as print. (The "difficulty" of the medium is a perception of the

learner.) The research reviewed to date has not provided an opinion of how learners might regard web pages themselves on such a difficulty scale.

Guided Practice

Bandura also emphasizes the need for "guided practice," which combines cognitive practice (mental rehearsal) and actual practice of the new behavior or strategy, with constructive corrective feedback. Bandura suggests breaking skills into subskills for this practice. (We will see this idea again in the Emotions section.) Both of these types of practice will be relatively easy to incorporate into the training, though the mental rehearsal will be challenging for the learners, who may not always be able to visualize the screens of the online case management system. The behavioral practice has already been incorporated into the online training system, using a special interface to a training version of the case management system which can review edits made by the learners and provide feedback based on instructor-supplied scripts. Ways in which this might be enhanced and made more realistic include adding audio files of customer descriptions of problems (for phone support scenarios), as well as sample emails which could be sent to the learner's account, containing technical information to be stored in the case for later analysis. For onsite support scenarios, still images of the scene at the customer site could be added as further enhancement. A future direction for the training program is to add instruction in general problem-solving techniques, for which these types of enhancements could be particularly helpful as part of an "inbox exercise."

Bandura also suggests incorporating self-management components into this portion of the training, specifically: "anticipate potential stressors, devise ways of overcoming them, monitor the adequacy of their coping approach, and use self-incentives to sustain their efforts" (Chapter 10). Inclusion of these components could help with two specific problems learners will encounter when using their skills in the production environment: the time pressures inherent in the support business, and the peer pressures which are likely to occur with the first learners in the sequence, when most of their peers have not yet received the new training. Mental rehearsal will probably be of more substantial aid with these two issues, which are primarily psychological (internal or social), than with the documentation processes themselves.

Transfer Program

The third component Bandura stresses in improving self-efficacy is the provision of a "transfer program" which provides learners with the opportunity to use skills in a limited real setting which has been selected as being likely to produce good results. The first short period of skill use must be followed up with a chance to review results and offer further constructive feedback and modeling as needed. This component will be perhaps the most difficult to manage, because of the distributed nature of the learner population and the lack of coordinating resources. However, creative use of internal newsgroups, email aliases, online chat sessions, and conference calls may provide the forum for such followup. To ensure that the followup sessions occur, automated reminders and participation tracking should be implemented. (As with many other aspects of this online

program, management support for the necessary time investment will be critical. It is hoped that by asking the managers to complete the training system first, they will be made aware of the resource commitment necessary for the success of this program.)

Comparison to Previous Tasks (Self-Modeling)

A possible source of modeling which requires no special media support is "self-modeling," in which the present task is compared to other tasks which the learner has completed successfully in the past. This idea is supported by both Ford and Bandura.

In the present circumstance, the key concerns of the agents seem to be the inability to perform the documentation steps while providing quality support to customers, due to time constraints. Comparisons to other tasks which the agents presumably perform (such as updating a checkbook balance while in a grocery store checkout line) may help. The stronger the resemblance to the current task, the more effective the self-modeling will be.

Goal Setting during Training

As we shall see below, in the Value/Interest section, goal-setting can be used to highlight interest in a task. But Bandura also suggests that it can be used to gradually increase self-efficacy. In the present problem, agents are concerned with the amount of time the documentation steps take. By showing agents how much time these steps actually take, and helping them to set and achieve goals to shorten the time, we may be able to reduce this (sometimes legitimate) concern.

Emotion Implementation Suggestions

Clark initially suggests that emotional issues such as anger and depression may resolve themselves if other motivational and general issues are dealt with. However, the literature does indicate a number of steps which may be taken to aid in resolving emotional barriers to performing tasks:

- Focus on short-term sub-goals
- Adjust performance goals to "optimal challenge"
- Match control-related intervention to individual needs
- Aid relaxation and "positive yielding"
- Increase sense of personal control
- Enlist emotions related to Personal Goals (motives)
- Solve other motivational factor issues
- *Solve environmental and skill problems*

Focus on short-term sub-goals

Both Clark and Ford explain that short-term sub-goals can be much less intimidating than large, long-range goals. Ford also suggests that emotions are able to provide energy for

short-term, proximal sub-goals, whereas emotions are too unsteady to energize more long-term, distal goals.

The tasks in question are easily broken down into sub-tasks, simplifying the feedback process as well as making them more approachable. Implementing this technique will not be a problem.

Adjust performance goals to "optimal challenge"

Ford and Bandura both stress the need to match standards of performance to a capability level appropriate for the learner. Ford describes the advantages of setting gradually increasing performance goals, keeping the target reachable, but challenging. In this way, frustration and impatience may be avoided, and interest enhanced. We will examine this idea again in the Value section, where we will see that there are certain problems in the current situation.

Match control-related intervention to individual needs

Shapiro, Schwartz, & Austin address the issue of the effects of seeking and gaining control in their 1996 article. One of the key causes of depression is the perception that the person is not in control of important parts of their life. Shapiro et al. explore this concept and suggest that the best way to help someone deal with this feeling of lack of control will depend in large part on the personality profile of the person in question. Although their comments are directed more toward clinical interventions than toward instructional or motivational programs, some ideas seem applicable to the current project. However, using either of the techniques below presumes the ability to determine the learner's "control" profile with some accuracy. This may not be realistic in the current project.

Aid relaxation and "positive yielding"

For those whose profile indicates elevated desire for control and a negative assertive, overcontrolling attitude, assistance in relaxation techniques and "positive yielding" may be most beneficial. Shapiro et. al. suggest that it may be helpful to encourage these individuals to see others as a positive source of control. This may be particularly relevant when learners feel that they have not had enough input on the business goals and how to best reach them. Along with standard relaxation methods, these individuals may benefit from assurances of the capabilities of the teams responsible for developing the business goals and tasks, and encouragements to trust the members of these teams. Examples of previous successes of these oversight teams in addressing the needs of the agents (e.g., the current tool improvement initiatives) may help foster this kind of trust.

Increase sense of personal control

On the other hand, those whose profile indicates an elevated "negative yielding" score and low sense of self as a positive source of control may benefit from becoming more empowered. Many goal and task decisions are in fact made with input from local user

groups, in which the individual learners may participate if they choose. These individuals may also benefit from understanding more fully how their input affects business decisions which depend on the data being collected. Examples of different ways in which the tasks may be completed may also help increase the sense of personal control the learners have over the tasks.

Enlist emotions related to Personal Goals (motives)

As part of his discussion of personal goals (or motives), which will be discussed more fully in the Values section, Ford elaborates on basic emotions which may be enlisted to support or conflict with each of the motives. For example, feelings of guilt may help activate the personal goal of "Social Responsibility." However, while this technique may be helpful in face-to-face interactions, the medium of web-based instruction is probably not subtle enough at present to be used in this way.

Solve other motivational factor issues

As discussed above, Clark suggests that solving other motivational factor issues will often remove the force of emotional barriers to performance. While this cannot be taken to mean that the emotional problems will "solve themselves," it is probably true that more effort should be concentrated in the areas of Task Assessment and Values. Bandura supports the idea that emotions around a task are often based most strongly on the level of self-efficacy, corresponding here with Task Assessment. Ford also points out that "One cannot capitalize on positive personal agency beliefs and emotional strengths unless there is some goal in place against which to anchor these thoughts and feelings." (p 206) This emphasizes the need for focusing on creating personal value for the tasks.

Solve environmental and skill problems

Finally, Ford, Bandura, and Locke & Latham all emphasize the need to resolve real cognitive and environmental issues before expecting motivational interventions to have a positive effect. Efforts to improve morale will at best have an only temporary effect if the real reasons for the low morale are not dealt with, and in fact attempts to improve the emotional climate without addressing real problems may backfire when the participants realize the superficiality of the intervention. Clark has observed that in such cases the recipients of such interventions may become jaded and suspicious of future attempts to address the real problems (and the author has seen similar effects as well).

For this project, the initiatives underway to address the significant cognitive and environmental issues need to be thoroughly presented to establish credibility and to attempt to defuse suspicions left behind from just such previous attempts.

Value Implementation Suggestions

Ford provides an extensive framework for enlisting Personal Goals, or motives, to organizational goals. Locke and Latham also suggest the effectiveness of goal-setting,

whether the goals are set participatively or non-participatively. Finally, Clark offers practical suggestions toward interesting individuals in the tasks and helping them see the tasks as part of their responsibility.

Utility

- Give examples of past, present and potential benefit

Interest

- Encourage interest in processes and outcome
- Demonstrate enthusiasm for subject
- Use Goal Setting to create challenge

Importance/Identity

- Relate organizational goals to personal goals/motives
- Clarify importance of individual role in process
- Encourage "ownership" of process

Give examples of past, present and potential benefit

Clark, Ford, and Blair & Price all support the logical notion that clear explanations and examples of the past, present, and future benefit of a task will aid in motivation. The benefit may relate to the individual's work environment or professional aspirations, for example. In this case, clear benefits relating to the work environment are available for all goals, though some benefits may take time to realize. Information on how to access the results of the various programs depending on the data being collected may aid in demonstrating the benefits of the tasks requested.

These tasks cannot be as easily related to professional aspirations, at least on a global scale. In some countries (e.g. Germany) it is actually illegal to use performance data collected from such online systems as a means of performance evaluation. It is not clear whether even a rewards system based on individual contributions to the knowledge database are legal in such countries. Although group-based bonus programs have been judged legal, recent experience with such programs has illustrated the complexities of the effects such programs have upon motivation, in line with warnings presented by Bandura and Locke & Latham.

Encourage interest in processes and outcome

In addition to enhancing the "Utility" portion of the Value factor, providing information on the various programs which depend on the data may encourage interest in the data-collection processes, and in the outcome of these processes. Clark suggests that interest can often provide value motivation.

Demonstrate enthusiasm for subject

Ford and Bandura both support the demonstration of enthusiasm for the subject matter as a means of enhancing motivation. By modeling enthusiasm, the model expresses a value for the subject matter which the learner may more easily adopt. In the case of live or videotaped models, this component is easy to incorporate into mastery modeling as described above. However, the same restrictions described above regarding mastery modeling and web-based instruction also apply here. Enthusiasm is most often conveyed by tone of voice and facial and body language. Both are difficult to incorporate in the present medium, though voice may be feasible.

Use Goal Setting to create challenge

Locke and Latham stress the use of goal setting to create challenge and increase interest in a task. Here, the term "goal" is used to describe a measurable performance target, rather than an internal motive. Goals may be self-competitive or competitive between members of a group, or between groups. In any case, the goals should provide "optimal challenge," as discussed above in the Emotion section.

Locke & Latham, as well as Bandura, suggest that extrinsic, non-participative goal setting is most useful for simple tasks, and for workers who do not have much familiarity with the work or subject. As workers become more experienced and tasks more complex, participative, self-evaluated goals may be more effective. (Locke & Latham also suggest that the participative aspect of these goals may actually have primarily a cognitive benefit, rather than a motivational benefit.)

In the case of the "goals" described at the beginning of this review, there are no numerical performance targets; agents are asked to execute the tasks needed to support these goals in every case. The goal is 100% and cannot be made flexible to create the optimum challenge as described in the literature. Performance goals based on some of the metrics being collected from the data have been published, particularly around the rapid response and resolution of cases, but because extrinsic motivation in the form of a bonus program has been attached to these performance targets, the original goals have been obscured.

It may be possible to "phase in" supporting tasks for each of the six goals, but in fact each task does not take much time or effort, and there is some concern that this type of introduction would simply create opportunities to delay adopting these tasks and behaviors indefinitely.

Goal setting, in this case, seems more appropriate to the training stage than to the actual production activity, at least in regards to performing the documentation tasks (Goals 2-6).

Relate organizational goals to personal goals/motives

In many ways this technique incorporates and subsumes the others in this section. Ford describes a comprehensive set of "Personal Goals" or motives, in his 1992 book (pp 88-

89), and presents the theory that all motivation must be anchored by one or more of these motives. (See Table 5.) Some motives may be assumed to be important to everyone, and certain trends to exist (for example, young people tend to value Entertainment over Tranquility). However, for each individual, the strongest motives may be different. The proposed technique, then, is to establish first which motives are most important to the individual, then show how an organizational goal relates to those particular personal goals or motives.

Table 5: Personal Goals/Motives	
(Ford, pp 88-89)	
<i>Affective Goals</i>	<i>Self-Assertive Social Relationship Goals</i>
Entertainment	Individuality
Tranquility	Self-Determination
Happiness	Superiority
Bodily Sensations	Resource Acquisition
Physical Well-being	
	<i>Integrative Social Relationship Goals</i>
<i>Cognitive Goals</i>	Belongingness
Exploration	Social Responsibility
Understanding	Equity
Intellectual Creativity	Resource Provision
Positive Self-Evaluations	
	<i>Task Goals</i>
<i>Subjective Organizational Goals</i>	Mastery
Unity	Task Creativity
Transcendence	Management
	Material Gain
	Safety

This technique requires highly individualized training, but may actually be feasible within the proposed format, provided a concise enough evaluation tool for determining the motives most important to the individual may be found. After administering the motive profile assessment (and storing the resulting profile for future use), conditional text may be used in the descriptions of each of the goals to individualize the explanation supporting the goal.

For example, suppose the individual has identified Tranquility, Exploration, and Social Responsibility as key motives (plausible, given the population of support agents). The description for Goal 4 might read:

4 - Make it easier for other agents or customers to solve this problem again later.

Working toward this goal will help lower the volume of cases reported to the service organization, as more customers will be able to locate solutions for themselves online. When cases are reported to the service organization, many of them will be much easier to solve, because those which have been previously reported will have documented solutions in a searchable database. [Tranquility]

Successfully reaching this goal will allow support agents to spend more time exploring new solutions to fresh cases, rather than struggling to answer questions which have been previously reported. [Exploration]

By contributing toward this goal, you will be helping other support agents, as well as customers, work more effectively. If we each do our part in contributing to the Knowledge DataBase, all support agents will be able to answer customer questions more easily and effectively. This will help lower the service organization's operating costs. [Social Responsibility]

It may be possible to collapse some categories to a single parameter for the purpose of this project (e.g., Cognitive Goals or Integrative Social Relationship Goals). This could lower the number of profiling questions and reduce the number of alternative text segments.

Clarify importance of individual role in process

Clark identifies "importance" as one of the three elements in the value factor, giving the sample objection "This is not important" and the sample response "This task uses your ability and expertise." Clark goes on to provide added detail that supports the concept of "identity" as well as importance: i.e., a person may lack motivation toward a task because they feel it is not part of their identity, or not an important part of their work.

The importance of a task, and its relationship to the identity of the individual, may be enhanced by clarifying why this task is most appropriate to this particular job role. In the present example, for several of the goals, there is no other way to collect the necessary data. Provided the agents agree that the purpose of the data collection is valid, the importance of the tasks to them personally may be increased by explaining that they are the only ones who can provide the necessary data to make the goals possible.

Encourage "ownership" of process

Another way to increase the importance and identity with the process ties back to the control-related interventions suggested in the Emotions section. As described above, the process of determining the priorities of business goals, as well as how to meet these goals, is carried out in part by local user groups, in which agents may directly participate. Again, Locke & Latham suggest that participating in the decision-making process is less helpful for new or inexperienced agents, but for agents who have a longer history with the

company, participation in these user groups is appropriate, not only to increase their value for the goals, but also because their experience and perspective helps in finding solutions to the service problems dealt with by these user groups.

Descriptions of existing user groups and instructions on how to form new user groups are already a part of the training program being implemented.

Final Thoughts:

In conclusion, there are several considerations which need to be kept in mind as these implementation suggestions are evaluated for inclusion in the web-based training effort.

First, all authors have stressed the need for respect for the individual in any interventions. This respect must include an acknowledgment of the prior concerns, experiences, and motives of the agents who are being asked to make a commitment to the goals described above. Without such acknowledgment, any intervention will be limited in its success.

Second, the literature reviewed makes it clear that all aspects of the problem must be treated. No factor in the Commitment equation described by Clark can be neglected, and even more importantly, the cognitive and environmental factors must be effectively addressed to ensure goal commitment.

Third, it is necessary to consider the feasibility of each of these proposed techniques within the currently proposed media platform (Web), in order meet organizational needs. As noted above, extensive use of full video will not be possible in the current project. Alternate methods of implementing the same concepts must be found. It is desirable to further research the potency of alternate methods of presenting mastery modeling, in particular.

Finally, valid effectiveness measurements are needed to confirm the appropriateness of these intervention methods. Measurements of both cognitive/behavioral skills and motivation need to be taken before, immediately after, and a period after the intervention. Ideally, each technique to be validated should be tested in isolation and in combination with the others, but unfortunately the organizational environment will probably not allow for such thorough testing.

References:

Annotated Bibliography:

Bandura, A. (1997) *Self Efficacy: The Excercise of Control* . New York: W. H. Freeman.

In this recent work, Bandura, a prolific writer in the area of self-efficacy and motivation, provides support for his thesis that self-efficacy is one of the strongest (if not *the* strongest) predictors of task performance. Bandura chooses examples from a variety of domains, including education, health, athletics, and, of greatest

interest in this review, "organizational functioning" (Chapter 10). He provides thorough analysis on the nature and function of self-efficacy, as well as comprehensive implementation suggestions toward enhancing it.

Blair, D. V. and Price, D. J. (January, 1998) Persistence: A Key Factor in Human Performance. *Performance Improvement*. 37(1). 27-31.

Blair & Price tackle the problem of "persistence," which describes the tendency of humans to stay with a task after initiating it, in terms of motivational factors. The hypothetical example is topical to this review, being concerned with the performance of assigned tasks in an employment setting. Examples of barriers to persistence are reviewed, and basic principles toward encouraging persistence are presented.

Clark, R.E. (In Press, 1998) Motivating Performance Diagnosing and Solving Motivation Problems and Opportunities.

Clark illustrates the CANE model (Commitment And Necessary Effort) using the example of an organizational problem with documenting service cases. In doing so he also provides pointers to other major reference works in the field. His method provides structure to the analysis of similar problems, including the situation described above.

Ford, M.E. (1992) *Motivating Humans: Goals, Emotions, and Personal Agency Beliefs*. Newberry Park, CA: Sage.

Ford provides an exploration of the factors contributing to and detracting from motivation, in the context of Living Systems Frameworks. In particular, his categories of human "Personal Goals" or motives and the effect they have on motivation is helpful in considering motivational interventions. A summary of the theory is available in the final chapter (8), while Chapter 7 consolidates the implementation suggestions in seventeen principles for use in attempting to motivate people and provides four extended case studies as examples.

Locke, E.A. and Latham, G. P. (1990) *A Theory of Goal Setting and Task Performance*. Englewood Cliffs, N. J.: Prentice Hall.

Locke & Latham explore the ways in which goal setting influences task performance, including its effects on task assessment and value. Extensive examples of case studies fill the volume. Of particular interest in the current project is Chapter 12, Applications, though earlier chapters also provide many helpful references. Appendices provide condensed reviews of existing studies, guidelines for conducting studies, etc. A notable feature of this work is the careful documentation of research method, both experimental and otherwise.

Salomon, G. (1984) Television is "easy" and print is "tough": The differential investment of mental effort in learning as a function of perceptions and attributions. *Journal of Educational Psychology*, 76, 774-786.

Salomon reviews research into the difference in perception among learners between television and print, and the implications this may have for mediated instruction. Although web-based media are not specifically considered in this article, the observations of learner's pre-conceived notions of the difficulty of the media and their effects on learning must logically apply.

Shapiro Jr., D. H., Schwartz, C. E. & Austin, J. A. (1996) Controlling Ourselves, Controlling Our World: Psychology's Role in Understanding Positive and Negative Consequences of Seeking and Gaining Control. *American Psychologist*, 51 (12), 1213-1230.

Shapiro et. al. provide a fascinating review of the research into control issues from a psychological perspective. They propose that control-related interventions need more individualization based on the profile of the recipient, and in particular suggest that more attention be given to the benefits of "positive yielding" in certain subjects. Includes a review of health issues related to control.