Closing the Gap on Instructor Skills Needed for Facilitative Instruction

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ABSTRACT

Today's educators are facing several shifts in how they prepare and deliver training and education. Notably, discovery learning techniques are replacing lecture-based instruction. With discovery learning, teachers need to facilitate more hands-on activities and also provide timely and consistent feedback (Castronova, 2002). Thus, there is a need for additional and different training of today's instructors to prepare them to be facilitators. To this end, the U.S. Army is conducting research to align its training and education to an Army Learning Model that espouses discovery learning along with facilitative tailored learner-centric instruction (U.S. Army Training and Doctrine Command, 2011). Accordingly, the Army Research Institute (ARI) initiated research to identify the skills that Army instructors need to support learner-centric instruction. Initial research resulted in the identification of "32 KSAOs essential for instructors to be effective" (Keller-Glaze, Bryson, Morath, & Bickley, 2015). Based on the KSAOs initially identified, a set of 36 behavioral statements describing effective instruction were developed as a framework for assessing instructor performance. Observation and ratings of Advanced Individual Training (AIT) maintenance course instructors revealed varying levels of instructor effectiveness. Ten of the instructor behaviors were identified as needing improvement and translated into enabling learning objectives. A blended and team facilitated training intervention was designed to address these learning objectives and subsequently implemented in a controlled experiment to determine whether this targeted training intervention improved instructor performance. This paper addresses the identification of 36 effective instructor behaviors, the development and implementation of the targeted team training intervention, and the results of a rigorous pre- post training treatment and control group evaluation design involving blind ratings of video-taped instructors. This research provides a unique perspective into the issues surrounding the continuing shift to learner-centric training and education, the training of instructors to support this shift, and the evaluation of instructor behaviors.

ABOUT THE AUTHORS

Joanne D. Barnieu, Senior Technical Specialist, ICF International, has twenty-four years of experience in instructional design with extensive experience in adult learning and serious games and simulation design for Defense-related projects. For over eight years, she has served as the lead instructional designer for emerging training technology projects and supported the design, execution, and analysis of training effectiveness studies for military personnel for the Army Research Institute, Army Research Laboratory, and PMTRASYS. She has four years of experience working on applied research projects in support of the Army Learning Model (ALM). Ms. Barnieu ensures sound instructional design principles related to high-end technology-based training systems design, including serious games development and simulations, and has designed several prototypes used in military training research. She holds a Bachelor of Arts degree in French Education from Franklin and Marshall College and is pursuing a Master of Science degree in Training

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Ray Morath, PhD, Fellow, ICF International, has more than 21 years of experience managing and contributing to applied research projects in the areas of leader development, job analysis, performance assessment, training development and evaluation, and the development and validation of training assessments—with the majority of these efforts conducted on behalf of U.S. Army and U.S. Air Force clients. He holds a Ph.D. in Industrial/Organizational Psychology from George Mason University.

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INTRODUCTION

Research in the field of learning science and in the area of college and career readiness has led to a shift in how students are learning in elementary and secondary education environments. Among these changes are the practice of discovery learning and the implementation of common core standards, both which focus on problem solving. Discovery learning is based on a constructivist theory of learning by which students solve problems by drawing from prior experience or constructs and apply acquired skills to new contexts. Concerning common core standards specifically for math and science, topics are broader and provide students with the ability to reason abstractly and quantitatively, to construct viable arguments and critique the reasoning of others, to use appropriate tools strategically, and to apply mathematics to solve everyday problems. For example, in science class, the teacher allows the students to "act like scientists" as they perform experiments in order to discover relationships and construct models to express their understanding (W.R. van Joolingen et al, 2005). With discovery learning and common core standards, instruction is shifting from a traditional lecture-based approach to a more learner-centric approach. This shift means that the role of a teacher has evolved to a more facilitative role where teachers need to facilitate more hands-on activities and also provide timely and consistent feedback (Castronova, 2002). To support this role shift, new skills must be acquired or enhanced and addressed during in-service training. Two questions arise, first as to whether or not these skills have been accurately identified, and second as to whether in-service training is designed and delivered appropriately to yield skill acquisition. The literature increasingly describes how teachers learn by working with their colleagues in professional learning communities (PLCs), by engaging in continual dialog and by examining their practice and student performance to develop and enact more effective instructional practices (Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009). Teachers also benefit from peer review after classroom observations (Hord, 1997). It is possible that skills required for teachers to be more effective facilitators are best taught and assessed through peer groups of other teachers rather than via courses, seminars, or online learning modules. This paper provides evidence to support this hypothesis based on a study that was conducted for the U.S. Army, whose instructors have also made this shift from "sage on the stage" and "death by PowerPoint" to facilitators of interactive, engaging learning environments.

BACKGROUND

The Army Learning Model 2020 (ALM) sets forward an agenda for innovation in Army training where instructor-centered training is replaced by learner-centered training (TRADOC, 2011). Today's training must support the ever-changing training needs of the Soldier. Not unlike discovery learning and common core standards, ALM has a focus on problem solving and critical thinking and also addresses the need for just-in-time training and training that is adaptive to the individual learner. Since the instructor role in Army education is shifting from what it has traditionally been to one that supports more student-centric, problem-based learning, we undertook a project addressing the following objectives (Keller-Glaze, Bryson, Morath, & Bickley, 2015):

- Characterize a program of education for Army instructors that prepares instructors for both formal and informal Army teaching environments.
- Identify usable methods and tools for assessing Army instructors' effectiveness.

The project involved two years of research. The first year of research, as described below, led to the identification of specific behaviors which Army instructors need to be effective facilitators in a learner-centric environment. The findings from Year 1 were leveraged for the second year of research which focused on identifying effective interventions to close existing gaps on those instructor behaviors.

Year 1

Recent research efforts to develop a framework to select, develop, and evaluate Army instructors revealed a lack of requirements for instructors of adult learners in an environment of interactive, engaging, and learner-centric education. Through a review of military and education literature and a workshop with subject matter experts, a definition of an effective instructor was developed initially. Subsequently, 13 work behaviors and 32 knowledge elements, skills, abilities, and other characteristics (KSAOs) were identified as being necessary for an instructor to be effective in a learner-centric environment.

We created a measure based on the KSAOs in which the KSAOs were rewritten as 36 behavioral statements and labeled "tasks" that are performed by instructors in a learner-centric classroom. Data were gathered from instructors regarding the importance of these tasks, the frequency with which they are performed, and the effectiveness of instructor training in teaching these tasks. All 36 instructor tasks were rated as moderately important or higher (i.e., very important, extremely important) by instructors, with the vast majority of tasks rated as either very or extremely important. Thirty-one of the tasks were rated as performed occasionally (or more frequently during instructional cycle). The mean ratings of the remaining six tasks suggest they are performed rarely to occasionally. The behaviors, KSAOs, and tasks can be used in the selection, development, and evaluation of instructors who can effectively implement learner-centric practices and technology into their instruction.

Similarly, the USMC had no official definition of what constituted a basic, senior, or master-level instructor. To address this, the Instructor Professionalism initiative was launched which resulted in the identification of four additional instructor attributes to complement the tactical knowledge they must have and the administrative and logistical standards they must meet. These four attributes were leadership, communication, expert technique, and character (Schatz, et al, 2012). Although the 36 behavioral statements did not represent a one-to-one match with behaviors listed under the four attributes described above, there were many similarities between the two. In all, we could conclude that being a "great" instructor required skills above and beyond what standard instructor training programs typically address.

Year 2

The focus of this paper is on the research which was conducted in Year 2 during which time we examined the objectives, methods, and outcomes of Army instructor preparation with an eye towards the challenges of the future. The focus of the research, which was primarily concerned with the preparation of instructors tasked with training procedural skills was to 1) characterize the complementary training needed by Army instructors above and beyond current instructor preparation and 2) to validate this characterization in the Army institutional training environment.

Current procedures related to assessing and developing Army Non-Commissioned Officer (NCO) instructors are detailed in TRADOC Regulation 600-21 (TR 600-21); (U.S. Army Training and Doctrine Command, 2014). The regulation provides a framework of 19 instructor competencies and outcomes associated with performance at three levels of competence (i.e., instructor, senior instructor and master instructor). The regulation also provides a training matrix for improving the competencies, and assessments that can be used to measure competency at various levels.

As such, the regulation provided a valuable foundation for this research. However, this research sought to expand upon this regulation by developing, implementing and validating an instructor development program. In addition, this effort extended current instructor development resources by creating a template for future instructor development to better address the rapidly changing nature of instructor requirements, training content and instructional methods and tools.

STUDY DESIGN

Instructors at the Bradley Training Division (BTD) at Fort Benning agreed to participate in the study which involved observing and/or video-taping portions of their live classes and undergoing a rating of their pre and post complementary training performance. BTD is responsible for teaching Bradley Fighting Vehicle mechanics how to perform their maintenance duties. Training ranges from large group (40 to 50 students) lecture sessions covering basic automotive concepts such as tool-use and safety, to small group (4 to 6 students), hands-on troubleshooting sessions with actual vehicles in a maintenance bay. Instructors at BTD work in teams of five to eight in order to facilitate a low student to instructor ratio during the hands-on portions of training. The instructor teams are composed of both civilian and active duty military personnel. The focus of this project was solely on the military instructors, who have a more limited scope of time to gain the instructional skills necessary to be effective.

Working with the management at BTD, it was determined that a sample of the small group, hands-on instructional sessions could be recorded for one team of five military instructors (the treatment group) both before and after the instructor training interventions would be conducted. Additionally, to serve as a control group, another team of five military instructors would be observed on-site both before and after the treatment group receives the instructor training. The control group, however, would not receive any training between the sets of observations. Pre-training sessions and post-training sessions would be separated by a break in instruction during which the instructor training would be conducted for the treatment group.

COMPLEMENTARY TRAINING DESIGN, DEVELOPMENT, AND EXECUTION

In order to develop the instructor complementary training program for the treatment group, the research team first vetted the 36 behavioral statements (also termed "tasks") and was able to condense them to a list of 10 instructor behaviors as seen below in Table 1. The team leveraged the 10 behaviors to generate a list of learning objectives used to design and develop the training intervention.

Table 1. List of Targeted Instructor Behaviors (from Year 1 Research)

1.	Prepare complementary instructor notes for potential questions, key points, and list of examples.
2.	Explain why lesson objectives are relevant, explicitly linking previously learned content with current content, and ensuring students grasp concepts before proceeding.
3.	Communicate information and ideas orally by providing examples, stories or anecdotes that the learner can relate to as a means of facilitating learning/understanding.
4.	Communicate information and ideas orally through the use of rephrasing or by tailoring content based upon the skill/experience level of the learner to facilitate learning/understanding.
5.	Apply educational technology during class such as mobile learning devices, interactive whiteboards, and student response systems in ways that will support and enhance student learning.
6.	Interpret and attend to the verbal and non-verbal cues from students that may signal a lack of understanding, motivation, or attention/engagement and adjusting the communication style accordingly.
7.	Facilitate student progression of a psychomotor (e.g., hands-on) procedure following an unsuccessful attempt while ensuring that the student can actually complete the procedure without instructor assistance.
8.	Evaluate student performance through the use of interactive exercises (e.g., role playing, group discussion) to determine if they are progressing and meeting the general outcomes and specific objectives of the course.
9.	Provide specific and timely feedback that is performance-based and non-judgmental, focusing on both what was performed correctly and areas for improvement.
10.	Facilitate unstructured classroom time to foster ongoing learning and practice.

Learning Objective Decomposition

In order to develop a training solution to close an identified gap, a set of learning objectives needed to be established based on the 10 target behaviors. We began by identifying a main instructional goal based on the content represented across these behaviors. This main instructional goal was defined as:

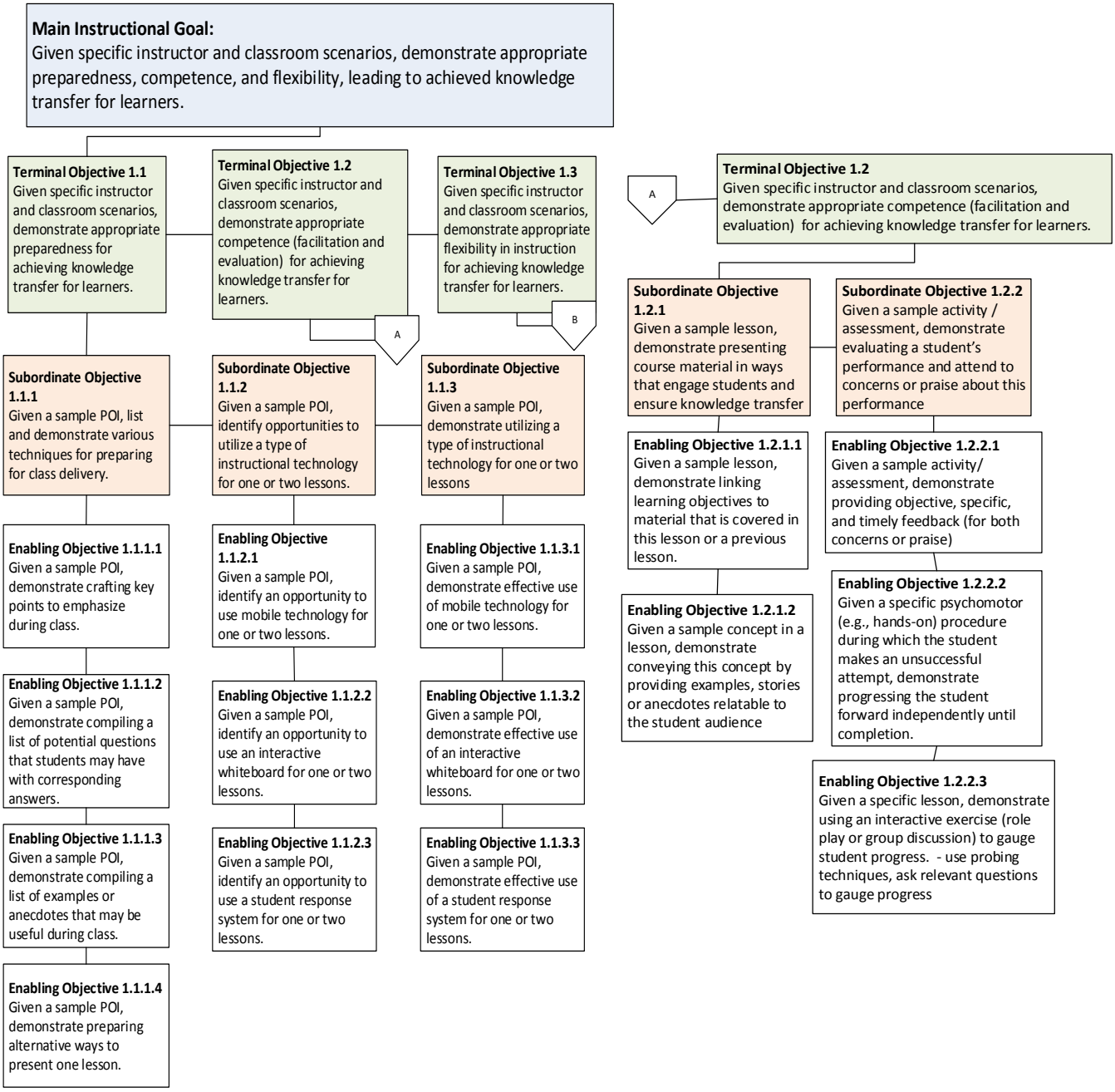
> *Given specific instructor and classroom scenarios, demonstrate appropriate preparedness, competence, and flexibility, leading to achieved knowledge transfer for learners.*

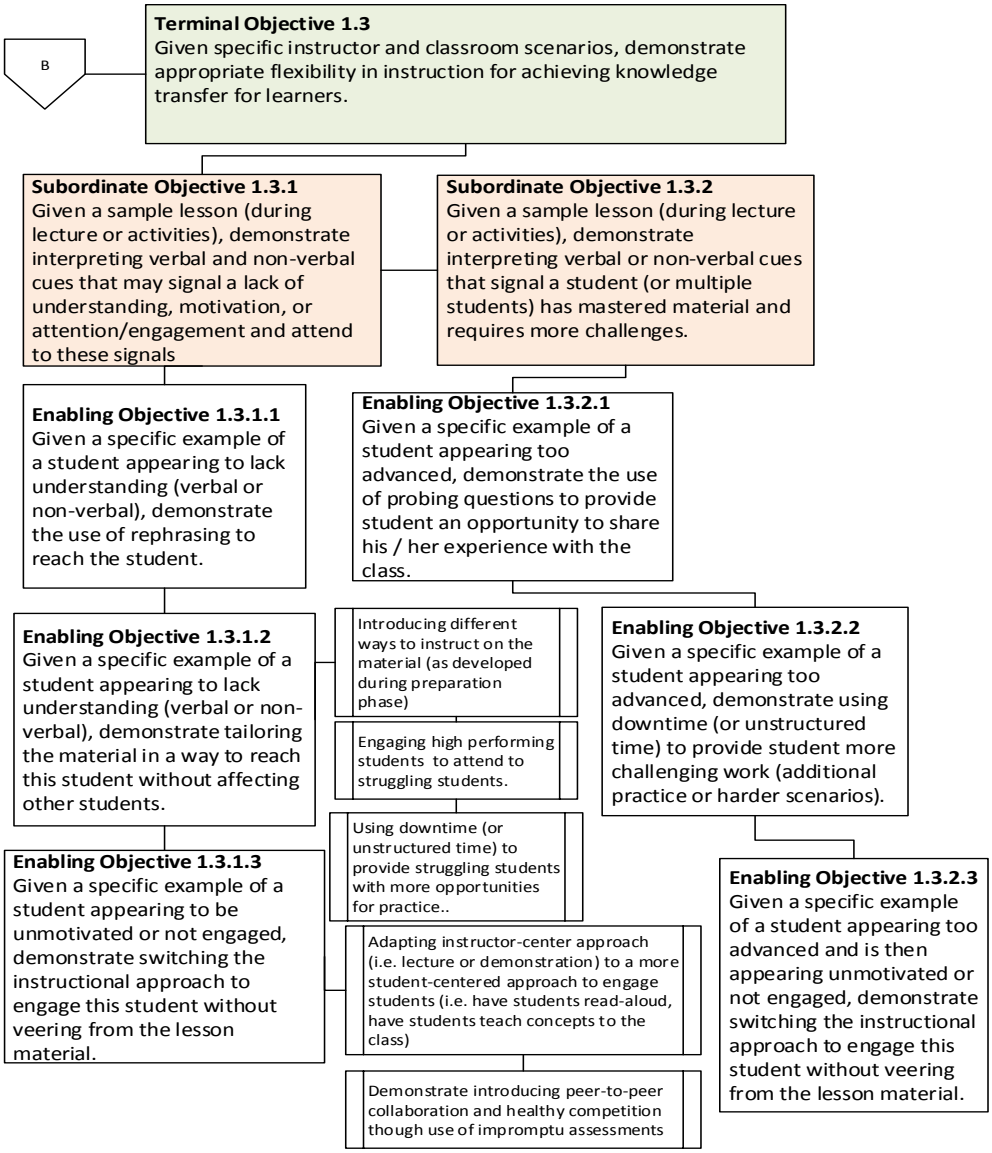
Subsequently, the main instructional goal was decomposed into terminal, subordinate, and enabling learning objectives following a systematic instructional design process (Dick and Cary 1990). Figure 1 below (on next two pages) depicts the systematic learning objective decomposition, converting the 10 behaviors to three terminal learning objectives (three modules), including a total of 21 enabling learning objectives. This instructional design map was then used to map enabling learning objectives to optimal training delivery methods. Note that the acronym used in the diagram POI stands for Program of Instruction, which encompasses the instructor's training materials for that particular topic. Table 2 below can be used as a reference to crosswalk the behaviors listed in Table 1 to the terminal learning objectives (TLOs) shown in Figure 1. TLOs were established by examining the behaviors and determining how to place them in broader categories of demonstrative learning objectives. We were able to determine that three broad categories existed: (1) Preparing for instruction, (2) Facilitating and evaluating performance during instruction, and (3) Adapting instructional approaches. Subordinate and enabling learning objectives were derived by converting behaviors into more granular and measurable observable acts.

Table 2. Crosswalk of Terminal Learning Objectives to Behaviors

TLO	Description	Behavior(s)
1.1	Given specific instructor and classroom scenarios, demonstrate appropriate preparedness for achieving knowledge transfer for learners.	• Prepare complementary instructor notes for potential questions, key points, and list of examples. • Apply educational technology during class such as mobile learning devices, interactive whiteboards, and student response systems in ways that will support and enhance student learning.
1.2	Given specific instructor and classroom scenarios, demonstrate appropriate competence (facilitation and evaluation) for achieving knowledge transfer for learners.	• Provide specific and timely feedback that is performance-based and non-judgmental, focusing on both what was performed correctly and areas for improvement. • Explain why lesson objectives are relevant, explicitly linking previously learned content with current content, and ensuring students grasp concepts before proceeding. • Evaluate student performance through the use of interactive exercises (e.g., role playing, group discussion) to determine if they are progressing and meeting the general outcomes and specific objectives of the course. • Facilitate student progression of a psychomotor (e.g., hands-on) procedure following an unsuccessful attempt while ensuring that the student can actually complete the procedure without instructor assistance.
1.3	Given specific instructor and classroom scenarios, demonstrate appropriate flexibility in instruction for achieving knowledge transfer for learners.	• Interpret and attend to the verbal and non-verbal cues from students that may signal a lack of understanding, motivation, or attention/engagement and adjusting the communication style accordingly. • Facilitate unstructured classroom time to foster ongoing learning and practice. • Communicate information and ideas orally through the use of rephrasing or by tailoring content based upon the skill/experience level of the learner to facilitate learning/understanding.

Figure 1. Instructional Design Map – Learning Objective Decomposition.





Instructional Delivery Strategy

The instructional delivery strategy was determined by leveraging instructional design subject matter expertise, best-practices, and BTD staff input. After developing an initial list of potential delivery options, we engaged in a one-day workshop with BTD to discuss the benefits of each delivery strategy as well as potential barriers (e.g., budgetary and temporal resources). A list of initial strategies suggested during this meeting included the following delivery techniques:

1. Self-Study (Paper / Pencil) - Pre/ Work or Homework.
2. Blackboard™ (BB) Assignments with Peer Discussion (Face-to-Face) – Pre/Work or Homework
3. In-class individual assignments
4. In-class group assignments
5. Case study and Role play exercises
6. Live Senior Instructor Mentoring and Feedback
7. Interactive Multimedia Instruction /Simulation.

The output of this meeting was the final blended delivery strategy agreed upon by all stakeholders. Table 3 below presents the final delivery methods listed by TLO/Training Module and the supporting rationale for each delivery method.

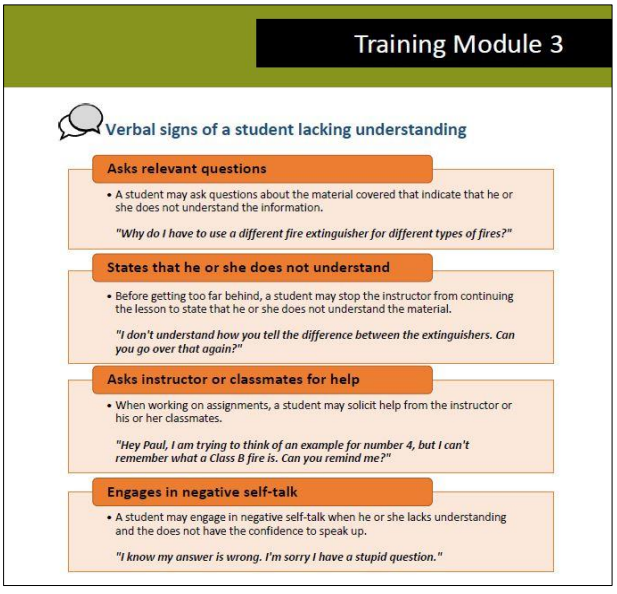
Table 3. Delivery Method and Rationale for the Terminal Learning Objectives

TLO	Delivery Method	Rationale
1.1 / Module 1	Self-Study and Team Discussion with a Senior Instructor Facilitator (named the Instructional Team Lead)	Learning to prepare for instruction seems conducive to self-study activities. Student instructors can also work independently; start and stop as needed; as opposed to requiring a cohort of instructors who must start/stop at the same time. Also, this is how an instructor would have to prepare in reality, on his / her own, looking through the POI and preparing in this manner upon arrival at the unit. The team discussion allows the student instructors to share their self-study assignments with one another and receive feedback from the Instructional Team Lead as well as from their peers.
1.2 / Module 2	IMI (a total of 4 scenarios were developed)	The nature of the behaviors taught in this module require the student instructor to observe and learn and to observe and rate. Thus it seems appropriate to invest IMI development resources to make this set of behaviors 'come alive' in the training. The user of an IMI for training can also lead to more student engagement. The animation provides the student instructor the option to "see and hear" how the instructor should perform and can "see and hear" the students reactions to instructor behaviors, allowing the student instructors to rate the instructor performance. By using IMI, there is no person or person(s) involved in oversight or training. It is self-directed with no time on the part of Army Senior Instructors needed.
1.3 / Module 3	Self-Study and Team Discussion with a Senior Instructor Facilitator (named the Instructional Team Lead) / Classroom Role Play	This module involves the observation of human expression, both verbal and non-verbal. It would take considerable development resources to use an IMI to instruct and assess these behaviors. A feasible alternative is to start the module with self-study as well as team discussion and then transition to classroom role plays where individuals can demonstrate the ability to identify the fine nuances of human behavior addressed in this TLO. Through the use of scripts, students could act out in certain ways so that the student instructors use the skills they learned in the self-study and team discussion to address the students. Student instructors have the opportunity to see / hear the situation, reflect on it, discuss among peers, and receive input and feedback from the instructor.

Training Materials Development

The instructional approach included a blended approach of self-study exercises, team discussion, in-class role plays, and a set of multi-media vignettes that required student responses to various instructor scenarios. To support this blended solution, the materials developed included an Instructional Team Lead Guide, a Student Instructor Self-study Guide and the multimedia vignettes that were available through download on Blackboard ™. The Instructional Team Lead Guide was designed for the Senior Instructor who facilitated the team discussions in Modules 1 and 3. In addition to including all of the training modules, it also included a description of the Instructional Team Lead's role in the instruction, key points to be considered during the training, examples to be used to illustrate these points, answer keys for the self-study assignments, instructions for rating student's responses

Figure 2. Sample from Self-Study Guide - Didactic



to assignments, and instructions for implementing role plays with students. Figure 2 depicts a sample from the didactic instruction provided in the Self-Study Guide.

Student instructors were required to read the didactic instruction individually and then complete assignments using a .pdf fillable form. The group of student instructors then met face-to-face with the Instructional Team Lead in a team setting to review the module and the assignments. The Instructional Team lead was provided with the answer key for the assignments in the Instructional Team Lead Guide; therefore he or she was able to facilitate discussion and provide feedback as student instructors shared their assignment work in a round table format. Figure 3 shows a sample assignment that each student instructor was required to complete in Module 1.

A total of four self-directed multimedia vignettes were developed for Training Module 2. These vignettes included didactic instruction presented by an instructor avatar and assessments that allowed the student instructors to view and rate avatar-based instructor performance in a simulated classroom. Figure 4 provides samples of the multimedia vignettes:

The rater was able to review the classroom lesson from the first instructor and rate his or her performance. Following this rating, the rater was shown a different instructor. After rating this instructor, the rater was asked to select which instructor he or she felt was more engaging. This selection was followed by a series of multiple choice questions requiring the rater to elaborate more on why he or she felt this instructor was more engaging. The vignette concluded with feedback based on which instructor was selected as the most engaging.

Figure 3. Sample from Self-Study Guide – Assignment

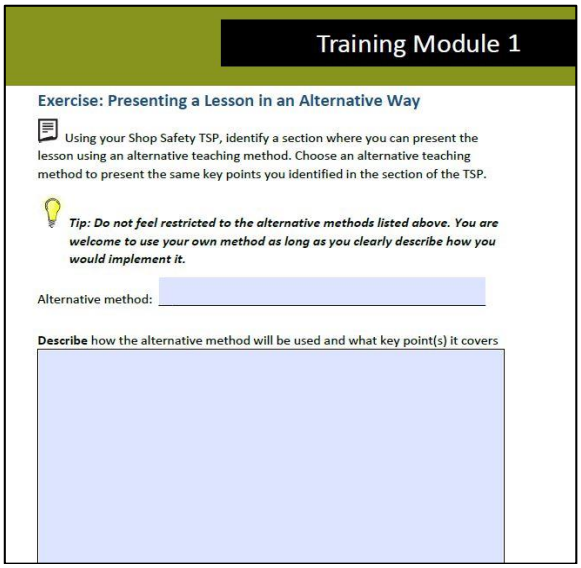


Figure 4. Sample from Multimedia Vignette

Execution of the Training Intervention

As part of the study, the five instructors in the treatment group participated in the training as described above (self-study, team facilitated discussions, multimedia vignettes, and in-class role plays) over a two-week period of time. Those instructors in the control group did not participate in the training intervention at all. At the conclusion of the two-week period, both the treatment group and the control group began training a new rotation of students. This new session provided the opportunity to video tape the "post" performance of the treatment group and to directly observe the performance of the control group instructors. In addition to other data collected, the comparison between the pre and post videos would provide data needed for the training effectiveness evaluation, as described in the next section.

EVALUATION

Method

The final phase of the project was to conduct an effectiveness evaluation of the training intervention described above. For this effort, we used several different evaluation methods to provide insights into a) reactions to the developed training (i.e., satisfaction and utility) and b) impact of the training on job performance. A pre-post with a comparison group, quasi-experimental design was implemented in an attempt to control for maturation effects between the

timeframe prior to instructors participating in the complementary training and after they participated in the training. All evaluation efforts took place in the BTD utilizing the two sets of instructors (both control and treatment groups). In addition to collecting reaction data from the treatment group regarding all three modules, the data collected included the following:

1) Pre- and post-ratings from trained raters who evaluated instructor effectiveness of both the control and treatment groups
2) Pre- and post-ratings from students of the instructors in both the control and treatment groups

Pre and Post Ratings

In order to carry out the observations, a group of scientists were trained to use a rubric to evaluate the effectiveness of the target instructor behaviors during the observed sessions. These scientists were not told if the sessions they were observing were pre-training or post-training, minimizing the chances that ratings would be biased by the expectation of improvement. Video-recorded sessions of the treatment group, which totaled over 30 hours of video, were also watched by each scientist in different orders to minimize any bias that might be introduced by watching a particularly weak (or strong) instructor early in the viewings. In addition to the scientists, both teams of instructors as well as their students were also surveyed after each set of observations / video-recordings. All surveys included items relevant to how effectively the instructors used the behaviors during their instruction, and the instructor surveys also inquired how comfortable the instructors felt with the content of the lessons that were observed.

Analyses

As the sample size was too small to yield statistically significant results, the majority of analyses consisted of examining means and standard deviations and triangulating across findings to see where consistencies in the data existed. From an analytic perspective, the evaluation of the training intervention effectiveness hinged on how each group of raters (the scientists, the instructors themselves, and the students) evaluated the ten targeted behaviors exhibited during the instructional sessions. That is, if the complementary training intervention was effective, there should be a significant difference between how behaviors were rated pre- and post-training for the treatment group, but no corresponding difference for the control group.

FINDINGS

Observer and Student Ratings of Instructor Effectiveness

A 5-point scale was used by raters during observations as listed below:

(0) = Not relevant (behavior not relevant to the instructional period under observation)
(1) = Below standard
(2) = Basic
(3) = Proficient
(4) = Master

The observer ratings showed that the treatment group instructors made their largest improvement for the following behaviors (refer to Table 1 for the list of behaviors). Note that .21 Pre to Post delta equates with a .21 increase in the mean score for that behavior.

1. **Behavior 1:** Prepare complementary instructor notes for potential questions, key points, and list of examples (Pre to Post $\Delta = .21$).
2. **Behavior 3:** Communicate information and ideas orally by providing examples, stories or anecdotes that the learner can relate to as a means of facilitating learning/understanding (Pre to Post $\Delta = .77$).
3. **Behavior 5:** Apply educational technology during class such as mobile learning devices, interactive whiteboards, and student response systems in ways that will support and enhance student learning (Pre to Post $\Delta = .39$).

The student ratings showed that the treatment group instructors made their largest improvement for following behaviors:

1. **Behavior 4:** Communicate information and ideas orally through the use of rephrasing or by tailoring content based upon the skill/experience level of the learner to facilitate learning/understanding (Pre to Post Δ = .48).
2. **Behavior 10:** Facilitate unstructured classroom time to foster ongoing learning (Pre to Post Δ = .34).

For both the observer and the student ratings, the treatment group demonstrated improvement on behaviors where the control group either maintained or decreased their average proficiency, thus potentially suggesting a training effectiveness impact.

Training Delivery Method

To determine if the instructional delivery strategy played a role in the proficiency change for instructors, we analyzed the change scores for behaviors addressed solely in the team-facilitated discussions versus in the self-directed multimedia-based training. Specifically, Behaviors 1, 4, 5, and 10 were only addressed in a team-facilitated environment. As seen in Table 4, the largest improvement (regardless of rater type) was in the content delivered in a team-facilitated environment. Raters also used the same 5-point scale described above (i.e. 2.18 is the pre mean score for behaviors addressed solely in the team-facilitated delivery). The mean score increase between pre and post for "solely team-facilitated" is higher than "multi-media & team-facilitated".

Table 4. Mean Observer / Student Ratings per Delivery Method

Mean Observer Ratings for Pre- and Post-Behaviors by Delivery Method		
	Solely Team – Facilitated	Multimedia or Multimedia & Team-Facilitated
Pre	2.18	2.53
Post	2.55	2.62
Mean Student Ratings for Pre- and Post-Behaviors by Delivery Method		
	Solely Team – Facilitated	Multimedia or Multimedia & Team-Facilitated
Pre	3.43	3.78
Post	3.72	3.82

CONCLUSION

Although the study was limited by the number of instructors who received the complementary training (thus limiting the degree of certainty available to make conclusive inferences based on the data), patterns in the results do exist. Specifically, there is evidence across data sources that the complementary training resulted in improvement in the following behaviors:

1. **Behavior 1:** Prepare supplemental instructor notes for potential questions, key points, and list of examples.
2. **Behavior 5:** Apply educational technology during class such as mobile learning devices, interactive whiteboards, and student response systems in ways that will support and enhance student learning.
3. **Behavior 10:** Evaluate student performance through the use of interactive exercises (e.g., role playing, group discussion) to determine if they are progressing and meeting the general outcomes and specific objectives of the course.

These findings could apply to school administrators as they plan for and select training for their educator staff or as educators seek self-development. Furthermore, there is some evidence that team-facilitated discussion (vs. self-directed computer-based training) is a more effective manner for instructors to learn and enhance instructor skills that relate to facilitative instruction in a learner-centric environment. This could prove important for administrators as they evaluate strategies for communication or prepare agendas for staff meetings or in-service days. Overall, the research effort outlined in this paper supports the notion that educators today do benefit from peer group instruction and collaboration. Although this study involved face-to-face team discussions, this does not rule out the possibility that online forums or other forms of social media where peers can collaborate are equally effective.

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