

## 7.3 Leveraging M&S in Soft Skills Training for the DoD

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James D. Cimino

D2 TEAM-Sim

[jcimino@d2teamsim.com](mailto:jcimino@d2teamsim.com)

Soft skills, also called "people skills," are typically hard to observe, quantify and measure. These skills have to do with how we relate to each other: communicating, listening, engaging in dialogue, giving feedback, cooperating as a team member, solving problems and resolving conflicts. Most of the soft skills training is scenario based, utilizing written or video-based scenarios, with limited or no branching, as well as quantitative feedback. This paper will outline a game-based approach to configurable, scenario-based, soft skills training. The paper will discuss the application of realistic visual behavior cues (e.g. body language, vocal inflection, facial expressions) and how these can benefit the learner. Using the concept of a "virtual vignette," this paper will discuss a prototype system intended to teach suicide prevention and provide qualitative feedback to the learner. The paper will also explore other soft-skills training applications for this technology.

#### 1.0 INTRODUCTION

By definition, soft skills are more than just tangible facts. According to Konopka and Dupre, while it is difficult, it is not impossible to do "soft skill" development in non-traditional, non-face-to-face settings. In fact, there may actually be real advantages to doing it "from a distance" [2]. This paper will present an approach to using gaming technology to teach soft skills, with a focus on teaching suicide prevention, and looking at other potential applications.

The US Army [7] has provided a number of resources to teach its leadership and soldiers on how to recognize and properly deal with a potential suicide. The mission of the Army Suicide Prevention website [6] is to improve readiness through the development and enhancement of the Army Suicide Prevention Program policies. These policies are designed to minimize suicide behavior, thereby preserving mission effectiveness through individual readiness for Soldiers, their Families, and Department of the Army civilians. A major component of the training related to this Suicide Prevention Program focuses on "soft skills."

#### 2.0 SOFT SKILLS

The US Office of Personnel Management [1] has identified an overlapping set of core competencies for executive development.

They are Leading Change, Leading People, being Results Driven, having Business Acumen, and Building Coalitions. Within these competencies are subsets of soft skills that could be considered relevant for Suicide Prevention "soft skills" training:

##### Leading Change

- Flexibility
  - Is open to change and new information; rapidly adapts to new information, changing conditions, or unexpected obstacles.

##### Leading People

- Conflict Management
  - Encourages creative tension and differences of opinion. Anticipates and takes steps to prevent counter-productive confrontations. Manages and resolves conflicts and disagreements in a constructive manner.

##### Results Driven

- Decisiveness
  - Makes well-informed, effective, and timely decisions, even when data is limited or solutions produce unpleasant consequences; perceives the impact and implications of decisions.
- Problem Solving
  - Identifies and analyzes problems; weighs relevance and accuracy of information; generates and evaluates alternative solutions; makes recommendations.

##### Building Coalitions

- Influencing/Negotiating

- Persuades others; builds consensus through give and take; gains cooperation from others to obtain information and accomplish goals.

Every one of these soft skills could be utilized when dealing with a soldier who is a potential suicide risk.

### 3.0 CHALLENGES

According to Lauren Smith [3] there are several challenges to developing effective soft skills training. A common mistake is to limit interactivity. Web-based training that consists mostly of text, graphs and simple images tend to fall short when it comes to the transfer and application of the knowledge. Material in a format that encourages participants to consider how to apply a skill in a variety of situations and contexts will not help participants actually learn the skill.

Another challenge is to make abstract soft skills concepts more concrete and tangible by providing the appropriate steps, definitions, illustrations, and relevant examples of how to apply them.

It is important to allow participants to evaluate their current behavior and to gauge their proficiency. The challenge is to provide relevant scenarios that illustrate both poor and excellent use of the associated soft skill. Students may have trouble retaining general concepts, but they will remember the scenarios if they can relate to them.

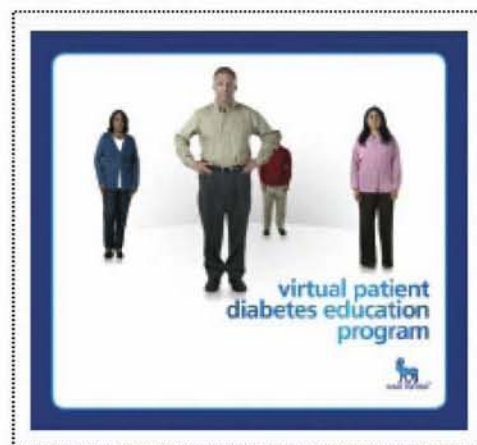
Keeping the students interested is another challenge to delivering effective soft skills training. Students are more inclined to practice and learn the information presented in a training program when they are engaged. This used to mean utilizing a combination of different types of interactive multimedia such as audio, video, graphics, animations and games into the content. Content that simply emulates the standard “Death by PowerPoint” will not engage today’s young learners.

To make soft skills training effective, one would need to provide expert feedback to participants throughout in order to make them aware of their progress. Immediate feedback is important to learning and should be incorporated into all web-based exercises where possible.

### 4.0 ROLE PLAYING

According to Charles Green [11], soft skills training comes in three forms: role plays, video replays and case discussions. The concept of using role playing techniques to teach soft skills is not a new. According to Green, there is no substitute for realistic “muscle memory” activity when it comes to learning soft skills. Role playing allows one to present more complex, hypothetical scenarios [11].

An example of this is a recent program [9] designed to be used by trained speakers. The goal was to offer doctors a look at how their treatment decisions affect long-term outcomes for patients with type 2 diabetes through 3-D video animations. In this software solution, a doctor would role-play with a virtual patient. These virtual patients were created such that the instructing physician could alter the characteristics of a selected patient in terms of their weight, age and A1C levels.



**FIGURE 1: Video-based Role Playing Application**

Changing any of these characteristics presented the instructor with immediate visual feedback. The selected patient would get immediately thinner or heavier, younger or older, based upon the associated settings that were selected via an intuitive Graphical User Interface (GUI). The back-end software provided over 900 different scenarios based upon the combinations of settings that the instructor selected. Both videos and text were used to display the selected patient's "responses" to the Doctors examination. This tool provided an interactive approach to getting Doctors to engage in discussions about potential treatment plans for the presented patient. It also afforded the instructor a wide array of patient profiles.

The solution utilized live actors to represent each patient. Over a period of several weeks, make up artists made each patient "older" and "fatter." At each stage, the patient was photographed and video tapped both sitting on the examination table and responding to questions.

And while the end product was visually appealing, the implementation does have its drawbacks. Any desired additions or changes to the scenarios would require the actors, make-up artists and videographers to once again be brought together and create the desired footage. If an actor wasn't available, then this could negatively affect the product. These types of changes are costly in both time and dollars.

## 5.0 TECHNOLOGY TO THE RESCUE

According to Margaret Kaeter [10], today's soft skills programs are more like arcade games. Advances in both Commercial Off-The-Shelf (COTS) gaming technology, as well as improvements in 3D modeling and character animation, make these viable alternatives to using live actors. 3-D worlds similar to the popular Second Life also have potential for teaching soft skills, but are beyond the scope of this paper.

The goal is to merge the engaging nature of the video game and the experiential nature of this medium to teach soft skills. A blended Interactive Multimedia Instruction (IMI) approach to this training may be the right direction. The ideal solution might utilize a combination of media, such as slides and videos, to teach the basic concepts for the utilization of necessary soft skills, and gaming technology to provide the scenarios. The remainder of this paper will focus on the COTS gaming application for the visualization of these training scenarios.

## 6.0 VIRTUAL VIGNETTE

The concept for the Virtual Vignette is that of a role-playing game. The person playing the game (a trainee) is placed into a scenario where they must interact with the game character that is a potential suicide risk. At the start of the game, the trainee gets to select their character, and alter certain elements for the scenario.



**FIGURE 2: Virtual Vignette Character Properties Screen**

These elements might include the characters stress level, age, suicide risk, tours of duty, etc. All of these elements would have corresponding questions, responses, actions, animations and consequences. These items would also have a time element associated with them such that any interaction delays could escalate the consequences and vastly change the outcome of the game.

The virtual Vignette will also provide an After Action Review (AAR) so that the trainee can get feedback as to what they did right, or what they did wrong, and why. The AAR will also detail sequence errors within the Virtual Vignette.

### 6.1 Look And Feel

In order for game-based training to be effective, it must look real, feel real and sound real. Today's gaming technology brings together the confluence of technologies necessary to make an effective training scenario for suicide prevention. The first of these technologies is the realistic 3D modeling of characters and environments. The characters need to look and move like real people. The avatars in virtual worlds, such as Second Life, have the level of detail or realism that today's young gamers have come to demand. If it doesn't look real, it will not be as engaging.

The 3D characters and their environment also need to be relevant. If a person is attempting to teach soldiers about suicide prevention, then the characters need to be in the appropriate uniform or dress, and should also be germane to the theater of operation that the trainee finds themselves in. A soldier about to be deployed to Afghanistan should be presented characters in the appropriate desert camouflage, with terrain and quarters that are representative of the locale. Anything else will detract from the effectiveness of the training and weaken the overall experience.



**FIGURE 3: Virtual Vignette Character Interaction Screen (Role Play)**

The animations and movements of the 3D characters need special attention as well. A character that represents a potential suicide risk needs to display the appropriate body language and gestures such that the scenarios feel real. Subject Matter Experts (SMEs) must work closely with 3D graphic artists and animators to get all of the character's idiosyncrasies and body movement correct. If one looks at top selling video games, a lot of detail goes into the realism of the 3D character movements. If quality is lacking in this area, the focus will be taken away from the realism of the training. A person only needs to have watched a movie with poor acting to understand how a bad actor will take the focus away from the story.

Sound is often over-looked, but it is another key component to the realism of the virtual vignette. 3D Characters need to speak, and their vocal inflections need to convey the emotions appropriate for the moment. Background noise is also important for the realism of the scenario. If the characters are standing near a truck, a player should hear the engine idle. If a door opens, he or she should hear it open and then slam shut.

Details, even minute ones, are paramount to creating a realistic scenario. Examples include, but are not limited to, the lighting, items on the floor, dust blowing, etc. Though they are infinitely easier to render in 3D

barren, objects such as desks are not typically clean, flat surfaces in real life, and they shouldn't be in a virtual one. These details add to the realism and help sell the scenario. These items could even include tools that one might need the player to interact with such as a telephone (to call for help), a pencil and paper (to write notes), or even a gun held by the soldier considering suicide.

## 6.2 Consequences

A good game needs to have consequences both positive and negative. These outcomes are driven by the choices made by the trainee. The outcomes should include positive and negative extremes, with various results in between. In the case of a suicide prevention vignette, the obvious negative outcome is that the soldier harms himself or another character. The positive outcome would be that the soldier agrees to accompany the trainee to seek help. SME's would work with the game scenario designers to detail alternative outcomes between these extremes.

## 6.3 Interaction

The trainee playing the game needs to have some degree of freedom to move about the virtual environment. Keep in mind that not everyone that will use this training will be a "gamer," so there should be limits in terms of keyboard controls or keys to invoke specialized moves.

In order for a game to be engaging, it needs to challenge the player. A simple way to achieve this is to vary the scenario slightly each time. In a role playing game such as this, the order in which the trainee asks the questions of the 3D character may impact the outcome. Based upon reactions from the avatar, certain questions could become unavailable, or new questions added.

The starting positions of the characters can also impact the overall game play and scenario randomness. For example, if the scenario is set in a barracks, the character can be placed either close to the trainee or further away. As the player starts to approach the avatar, a collision boundary could detect the proximity and trigger an adverse reaction from the character.

The role play interaction provides an excellent mechanism to focus on behavioral indicators and queues, helping to make the concepts more concrete. It will also help the participants gauge their own skill levels and provide them with ways they can improve their soft skills.

## 6.4 Programming

The complexity of the Virtual Vignette should not be understated. There is a lot of complicated programming and logic behind a system of this nature. However, once the base structure has been built, the potential for soft skills training is virtually limitless.

A core component for the Virtual Vignette is the scenario repository. This repository will contain all of the questions, responses, expert assessments, environments, sounds, character files and associated animations. The technical aspects of how all these components are constructed and integrated is beyond the scope of this paper. However, it should be noted that the Virtual Vignette will have a modular architecture, work within a standard web browser, and be SCORM conformant.

In lieu of live coaches, computer-generated feedback on responses to each scenario will serve as a self-check for the participants in the absence of an instructor.

## 7. ALTERNATIVE APPLICATIONS

While the initial application for the Virtual Vignette has been targeted to teach suicide

prevention, it has the potential to expand to other training initiatives for either soft or hard skills. Cultural awareness and sensitivity would be a logical application for this technology, where the avatar could be a village elder or even a suspected insurgent. This framework could be applied to the Army Combat Lifesaver Course, where the player would need to approach, assess, treat and successfully evacuate a wounded comrade.

## 8. CONCLUSION

Soft skills training will continue to be important for employees in all types of professions. The military is no exception. The type of computer-based training that has been discussed in this paper alleviates the discomfort of role-playing exercises. Students can go through training at their own pace, and take responsibility for their own development. Inevitably, this leads to better overall soft skills training results. Games that leverage 3D modeling and simulation are excellent for delivering realistic role play scenarios.

Regardless of the technology, it is important to recognize that solid content is at the core of quality soft skills training. Any effective training for soft skills must use a sound development approach and identify learning objectives. Ultimately, soft skills training is only as good as its content.

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James D. Cimino  
D2 TEAM-Sim

**D2** | TEAM-Sim

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## Outline/Agenda

- Introduction
- Soft Skills
- Challenges
- Role Playing
- Technology to the Rescue
- Virtual Vignette
- Alternative Applications
- Conclusion



## Introduction

- Soft skills: more than just tangible facts
- Difficult to do “soft skill” development in non-traditional, non-face-to-face settings
- Utilize gaming technology to teach soft skills
- A major component of the Suicide Prevention Program training focuses on "soft skills."

## Soft Skills

- Core competencies
  - Leading Change
  - Leading People
  - being Results Driven
  - Building Coalitions
- Subsets of soft skills relevant for Suicide Prevention training
  - Flexibility
  - Conflict Management
  - Decisiveness
  - Problem Solving
  - Influencing/Negotiating

## Challenges

- Not to limit user interactivity
- How do we make abstract concepts concrete and tangible
- Provide relevant scenarios
- Keeping the students interested
- Provide expert and immediate feedback

## Role Playing

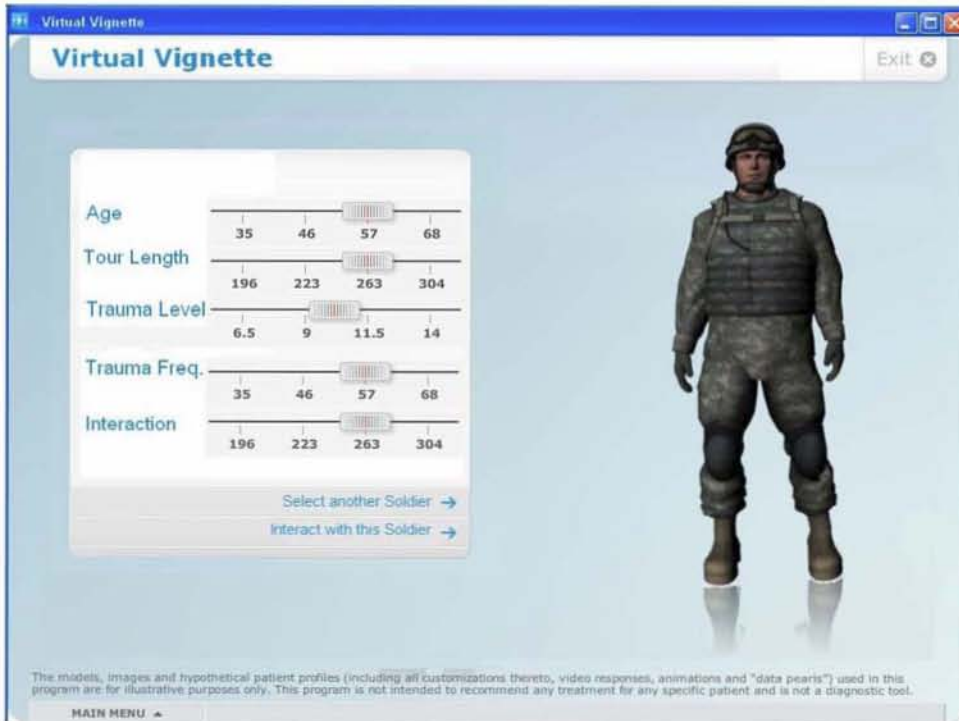
- Three forms:
  - Role plays
  - Video replays
  - Case discussions
- Role playing allows for more complex and hypothetical scenarios
- No substitute for realistic “muscle memory” activity

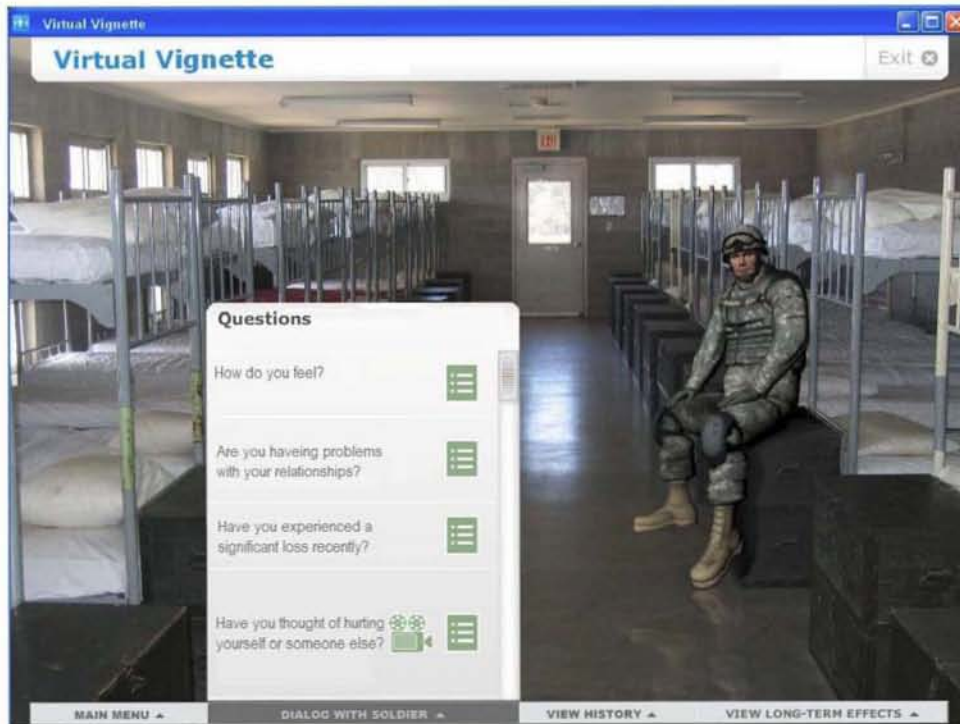
## Technology to the Rescue

- Today's soft skills programs are more like arcade games
- Viable alternatives to using live actors
  - COTS gaming technology
  - 3D modeling and character animation,
- Goal: merge the engaging nature of video games and the experiential nature of this medium
- Use a blended IMI approach

## Virtual Vignette

- **Easy**
  - to populate with scenarios/modify existing scenarios
  - to update
  - to re-use
  - to deploy
- **Engage**
  - interactive 3D game-like environment to role-play
- **Evaluate**
  - After-action Review recaps what was done correctly, incorrectly or out-of-sequence.
- **Educate**
  - Repository of relevant videos and supporting materials (i.e. documents, presentations, and images)





## Virtual Vignette

- **Look And Feel**
  - 3D characters and environment need to be relevant
  - Animations and movements
  - Realistic sound
- **Consequences**
  - both positive and negative
  - detail alternative outcomes between extremes
- **Interaction**
  - needs to challenge the player
  - not everyone is a gamer

## Alternative Applications

- Cultural awareness and sensitivity
- Army Combat Lifesaver Course
- Leadership Training
- Sexual Harassment Prevention
- Only limited by our imagination

## Conclusion

- Soft skills training will continue to be important
- Games that leverage 3D modeling and simulation are excellent for realistic role play
- Computer-based training alleviates the discomfort of role-playing exercises
- Students can go through training at their own pace
  - Take responsibility for their own development.
- Training is only as good as its content

## Questions/Comments

