The Moving Target Tutor (MTT) —
Teaching the Declarative Knowledge to Shoot Moving Targets

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Shooting a moving target is a fundamental skill for Marines operating in combat environments. It is a difficult skill to train, often failing to be fully learned despite the field manuals and other training strategies now employed.

Previous ONR research[1] suggests that skill acquisition can be improved and retained longer by training the declarative knowledge that leads to procedural skills and training it through learning the declarative information, practicing the declarative information, and proceduralizing the information into skills through practice.

The Moving Target Tutor (Fig. 1) directs learners through the declarative knowledge and preliminary skills for shooting moving targets.

The tutor teaches the basic subtasks (Fig. 2) of judging distance, speed, angle, and then the lead for that combination through an iterative loop consisting of learning, practice, and evaluation.

The MTT also teaches background knowledge and engagement techniques, including use of the scope and lead measurement.

Future work will examine how to make the tutor infrastructure more generally applicable, how well the tutor works (which will be tested in a live-fire test at Quantico starting August 2011), how to make the instruction more adjusted to the learner, and how to apply it to a new domain (Combat Life Saver).

Figure 1. Practicing subskills in the MTT.

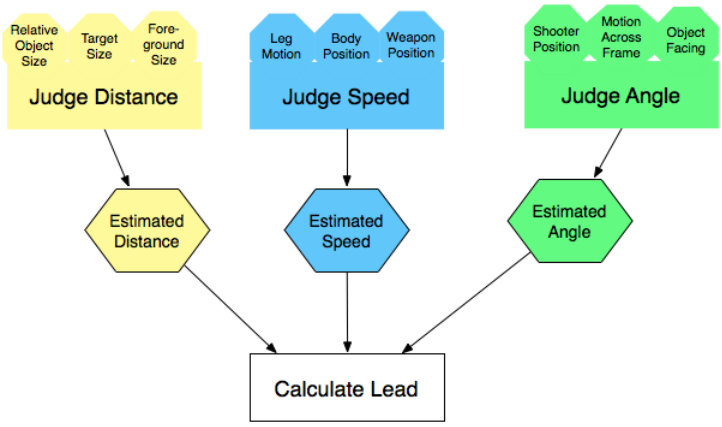

Figure 2. Knowledge taught in the Moving Target Tutor: How to judge distance, speed, and angle, as well as the integration task of computing/retrieving the correct lead necessary for hitting a moving target.

The MTT and learning theory are developed with support from ONR Div 30 (N00014-11-1-0275/N00014-10-1-0401) and the MCWL and uses results from Div 34 (Herbal High level behavior representation language, N091-086/P10008 / N00014-06-1-0164). Sparks, Pursel, and Eby have served as SMEs.

1 - Work on cognitive task analysis and on learning, Kim, Ritter, & Kubek (in press, 2011), An integrated theory for improved skill acquisition and retention in the three stages of learning. *Theoretical Issues in Erg. Sci.*