

Operator Performance Laboratory (OPL) Research Project Synopsis



Skill Appropriate Training Environment (SKATE)



NAWC Research,
contract N68335-09-
C-0352

Project Goals:

In current net-centric training exercises, it is possible that, due to the differences in skill levels of the participants, certain missions are not accomplished properly by those individuals who are less skilled. Conversely, there may be participants who are highly skilled and are given a task that is no longer interesting to them and does not afford adequate training. When a trainee fails to complete a mission in a net-centric exercise, it could bring down an entire training exercise because that mission task element (MTE) may be a prerequisite for someone else to perform their mission. SKATE was designed to quantify skill levels of trainees, teams, or units, generate skill-appropriate training scenarios, and provide a continuous skill-level assessment of disparately skilled trainees, teams, and units in a joint training exercise while maintaining the overall integrity and realism of the mission itself.



How it works:

SKATE contains two distinct technological components, the first being a neural network that trains itself based upon legacy data stored in a database and classifies the pilots based upon that training. The neural network is a well-established algorithm for data classification based upon previously classified data. The network's classification will provide a skill level that can be used to access a database of skill appropriate training scenarios to be loaded into the simulators. The second technology comprises of automated performance quantification using mission technical metrics (that are domain specific).

Our approach is new because SKATE measures skill levels automatically before a training exercise, uses the skill assessment to find an appropriate scenario, and is able to integrate into instructor operation stations across net-centric distributed exercises. We feel that our approach will be successful because it incorporates a novel idea but is based on very simple database technology that is of low risk to implement. In other words, we are not using complex algorithms to determine skill levels, but rather we are using lookups into databases of existing data to assess level of skill on the basis of historical data.



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