FEEDFORWARD EFFECTS ON PREDICTIONS
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The scenario began with a two-minute preparation phase during which participants positioned their forces. The battle began at the end of the two minutes, and continued until participants lost more than 25% of Blue force strength, or destroyed the Red force, or the Red force invaded the airfield. The scenario terminated with a message of victory or defeat.

A large number of measures including the predicted probability of winning, the observed win probability, the observed number of kills of Red and Blue units of different types, and scenario duration were collected.

RESULTS

Initial analyses indicated that two participants lost all 10 of the battles in the experiment. These participants were removed, leaving nine participants in each of the groups (FF, no-FF). The data were then blocked into two sets of five trials each for subsequent analyses.

To address the question of which task variables distinguish victory from defeat we performed a stepwise logistic regression of battle outcome (victory, defeat) onto task variables that represent the number of Red and Blue units killed. In addition to using simple counts of each unit-type killed as predictors we also included predictors representing all two-way interactions among the unit-types. The logistic regression equation depicted in Figure 1 classifies all but 2 cases correctly.

The equation depicted in Figure 1 can be summarized simply. Victory requires destroying three Red force-protection capabilities plus minimizing Blue losses when engaging Red Comanches with Blue Missile Defenders. The gray bars in Figure 1 depict domain-relevant interpretations of the multiplicative relationship between pairs of units (i.e., two-way interactions) used in the regression analysis. Red Rangers, for example, provide anti-infantry protection for Red Tomahawk Missile Launchers, which, in turn,

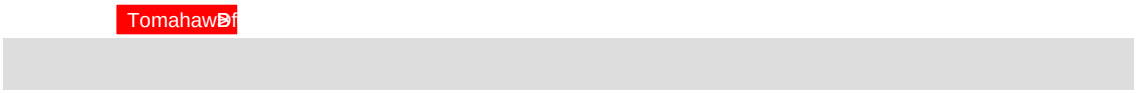

Figure 1. Task variables that distinguish victory (1) from defeat (0).

Separate Group (FF, no-FF) x Block (1, 2) mixed ANOVAs were conducted for predicted probability of winning, the observed probability of winning, and a difference score representing the calibration of participants' predictions with performance (i.e., predicted – observed probability of winning). No reliable differences were found.

Subsequent exploratory analyses examined which task variables were important for victory or defeat and which task variables influenced participants' predictions.

provide anti-vehicle protection for Red Rangers. Blue Missile Defenders and Red Comanches interact via their anti-vehicle (air) and anti-infantry capabilities, respectively.

To correctly predict outcomes, participants should have attended to the items described by the logistic regression equation. . The question then is which task variables were related to participants' predictions?

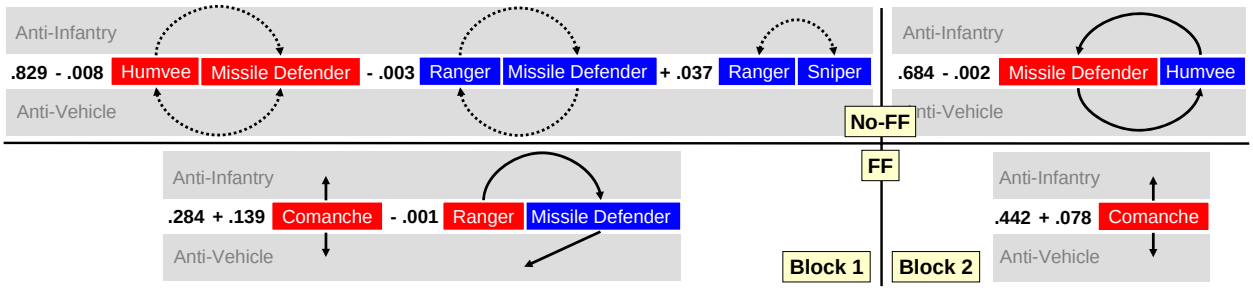

Figure 2.Task variables related to partic

critical for success. The FF group had not completely discovered the appropriate strategy to eliminate these enemy units but they were on the correct path for such strategy discovery compared to the no-FF group. Past research in strategy development (Hansberger, Schunn, & Holt, in press) suggests strategy development similar to that being displayed by the FF group significantly improves performance and understanding of a DDM task over time.

The presence of improved strategy development and learning in the FF group is also supported by the positive trend in their performance compared to the no-FF group. If these trends continue, the FF group would outperform the no-FF group over a longer period of time than the 10 trials provided in this expe