TRAINING TO IMPROVE DECISION MAKING—
SYSTEM DYNAMICS APPLIED TO HIGHER-LEVEL MILITARY OPERATIONS

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Abstract. This paper is concerned with how to improve the training of higher-level military officers, given that the conditions for learning in “conventional” exercises (with a high degree of realism and complexity) are sub-optimal. From other applications (e.g., business and public management) we know that a key feature of effective decision training is high exercise frequency. Another requirement is for the decision-maker to see the full range of consequences resulting from his/her decisions. Both aspects require time compression in the training environment. We suggest applying the same principles when training military commanders, in a newly created concept termed Minimalist Decision Training (MDT). MDT is characterized by simplifying the commander’s operating environment, radically compressing time and space. In MDT, a typical two-day exercise can cover several repetitions of a thirty-day conflict and at the same time provide continuous feedback about the unfolding of the conflict, consequential to decisions made. To this date, we have tested prototypes of system dynamic models (“microworlds”) to be used as MDT environment at the Norwegian Defence Staff College as well as operational headquarters. The pilot users (instructors as well as student officers) have reported a high degree of satisfaction with the models as exercise environments. In particular, the operational relevance of a “high-intensity” model has been assessed. In a post-exercise survey participants indicated that eight out of ten suggested manoeuvre principles were believed to have substantial impact on operational outcome. We take these findings as evidence to support the view that the MDT concept is viable, and deserving further attention within research and development.

INTRODUCTION

It has long been recognized that decision making in organizational and managerial contexts is a highly complex task (Simon, 1956; 1978). Most real-life situations require that the decision maker has acquired the skills of his profession through real-life experience. This is a far-from-trivial demand, when decisions and their consequences are (widely) separated in time and space. Repeated instances of what might appear to be the same problem, in reality differ on important characteristics, which only contributes to the difficulties people have when it comes to make valid and robust inferences.

These difficulties are also present in the typical military staff exercise, where a higher-level combat/conflict situation is simulated. This kind of exercise requires considerable resources and takes days or weeks to conduct. Replays to investigate alternative outcomes are just too costly. Unfortunately (?), the only “real-life” operational experience most military officers will get during their career is what they get through more-or-less realistic exercises.

The main obstacle in contemporary development for higher-level military training seems to be the desire to achieve the greatest possible technical detail and accuracy in the simulations that are to support such training. In practice, the creation of higher-level simulations has been regarded as a problem of integrating/aggregating as many lower-level (tactical) simulations as possible, and in real time. As a consequence, development budgets “explode”, and the real learning remains with the development team and the application testers.

Minimalist Decision Training (MDT), which will be introduced in this paper, takes the opposite “angle of attack”. With this approach, the simulation model focuses narrowly on the problem at hand, which (for an operational or strategic commander) is usually related to the perception and handling of dynamic dilemmas, featuring aspects such as time lags, feedback and non-linearities. Most, if not all, of the technical detail concerning weapon platforms such as information systems is just left out of the simulation model.

OUTLINE

This paper presents a system dynamic model (“microworld”) to be used for training higher-level military decision making. We start with the background: by pointing out the challenges facing the operational commander of today. Then we discuss the benefits (and possible pitfalls) of reducing training complexity, before introducing the concept of Minimalist Decision Training (MDT) and our suggestions for “translating” concepts from military operations into system dynamic terms. The major portion of the paper is devoted to the model description and a review of feedback from pilot users. The paper concludes with recommendations for further work.

DEMANDS ON THE OPERATIONAL DECISION MAKER

It used to be that an operational level commander would command single service units of national capabilities. Current operations, however, are joint and combined at increasingly lower levels of command. They are also multinational at ever-lower levels of command. This has implications for training in that the typical single service training previously so critical for the operational commander no longer is sufficient. Not that the single service training is less important—on the contrary, increased op-tempo and technical sophistication combined with delegation makes it ever more important to understand the operational dynamic implications on single service combat or crisis decisions. But in addition, more understanding is needed about similar implications of decision making on complementary service operations.

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