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AD-A231 775

# Decision Making in Armored Platoon Command

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and Martin Thordsen

Klein Associates, Inc.

for

Contracting Officer's Representative  
Judith Orasanu

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MAR 04 1991  
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Basic Research  
Michael Kaplan, Director

July 1990



United States Army  
Research Institute for the Behavioral and Social Sciences

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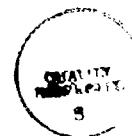
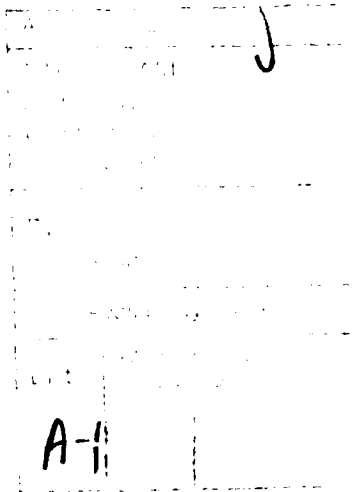
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UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS --		
2a. SECURITY CLASSIFICATION AUTHORITY --			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE --					
4. PERFORMING ORGANIZATION REPORT NUMBER(S) KA-TR-858(B)-05F			5. MONITORING ORGANIZATION REPORT NUMBER(S) ARI Research Note 90-51		
6a. NAME OF PERFORMING ORGANIZATION Klein Associates Inc.		6b. OFFICE SYMBOL (if applicable) --		7a. NAME OF MONITORING ORGANIZATION U.S. Army Research Institute for the Behavioral and Social Sciences	
6c. ADDRESS (City, State, and ZIP Code) P.O. Box 264 800 Livermore Street Yellow Springs, OH 45387			7b. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION U.S. Army Research Institute for the Behavioral and Social Sciences		8b. OFFICE SYMBOL (if applicable) PERI-BR		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER MDA903-85-C-0327	
8c. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600			10. SOURCE OF FUNDING NUMBERS		
			PROGRAM ELEMENT NO	PROJECT NO.	TASK NO.
			61102B	74F	N/A
11. TITLE (Include Security Classification) Decision Making in Armored Platoon Command					
12. PERSONAL AUTHOR(S) Brezovic, Christopher P.; Klein, Gary A.; and Thordsen, Martin					
13a. TYPE OF REPORT Interim		13b. TIME COVERED FROM 86/01 TO 87/04		14. DATE OF REPORT (Year, Month, Day) 1990, July	
				15. PAGE COUNT 114	
16. SUPPLEMENTARY NOTATION Contracting Officer's Representative, Judith Orasanu					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP	Situational awareness Decision making		
			Expert vs. novice Decision strategies		
			Military decision making CDM (Continued)		
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
<p>This research studied command decisions during armored platoon leader training exercises. The Critical Decision method was employed to identify command decisions and the environmental features of decision situations offering a command challenge to the students. The student platoon leader, the trainer evaluating his performance, and one researcher all rode the platoon leader's tank and observed the events from the same perspective. A total of 57 decision points were identified and probed. The interviews collected direct contrasts between the more experienced trainer and the new student for the analysis of decision situations and factors affecting decision making.</p> <p>The students deliberated during option selection in approximately half of the decisions. The students also reported relying on analogues to select their choice of options in close to half of the decisions, but the use of analogues ranged from helpful to disruptive in resolving decision situations. Option deliberation and analogue use as strategies in decision making by the novices were more frequent than in previous work with more experienced</p> <p style="text-align: right;">(Continued)</p>					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL Judith Orasanu			22b. TELEPHONE (Include Area Code) (202) 274-8722		22c. OFFICE SYMBOL PERI-BR

DD Form 1473, JUN 86

Previous editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE  
UNCLASSIFIED

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

ARI Research Note 90-51

18. SUBJECT TERMS (Continued)

Time pressure  
Hypotheticals  
Analogues

19. ABSTRACT (Continued)

decision makers..

Poor performance by the students was consistent with their inability to imagine hypothetical situations, such as enemy actions and the relationship between friendly and enemy tactics. The findings suggest that performance errors were due not to a limited ability to monitor situational cues but to the misinterpretation of the cues. The results were contrasted to traditional decision-making literature. Training methods were recommended that would incorporate the implications of the study findings.

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# DECISION MAKING IN ARMORED PLATOON COMMAND

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## DECISION MAKING IN ARMORED PLATOON COMMAND

### EXECUTIVE SUMMARY

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#### Requirement:

The failure of formal models to describe decisions made in natural environments has necessitated direct field observation of both novice and experienced decision makers in order to develop alternative decision-making descriptions. Approaches and programs for training, doctrine, etc., may be counterproductive if based on erroneous models. Researchers thought that decision-making skills could be improved by emphasizing option generation and evaluation, a suggestion based on previous laboratory experimentation with naive subjects, artificial time restraints and tasks, and impoverished decision contexts. These results have been incorporated in military doctrine and guidelines without careful review of their applicability to the military tactical environment. The research presented here investigated the validity of option generation and deliberation decision process models for describing how novices attain experience in armored platoon command. A primary focus was the novice decision makers' description of contextual cues present at the time of the decisions. Investigators constructed a representational system for the cues and topics related by the novice decision makers and compared them to reports of the same decision situations related by experienced instructors who had evaluated them.

#### Procedures:

Two observers interviewed three classes of Armed Officer Basics over days three to six of field training exercises at Fort Knox, KY. They identified decision situations and interviewed student platoon leaders twenty minutes after they completed the exercise scenarios. One researcher rode in the platoon leader's tank during the exercises and interviewed the student. The other interviewed the instructor who rode on top of the platoon leader's tank. Three types of data were collected from the students in the interviews: the type of decision situation and decision strategy used, the cues and knowledge available to the student during the time of the decision, and self-performance

ratings on tank and platoon actions as a result of the decisions. Instructors also reported cues and knowledge available and rated students' actions on the same performance scale presented to the students.

#### Findings:

The contextual cues and areas of knowledge students reported in their decision accounts were very similar to information offered by the instructors. This suggests that performance inconsistencies and failures were not generally the result of inattention to appropriate environmental cues but misinterpretation of the cues importance. Analysis of the students' decision strategies revealed two main methods of resolution: (1) limited option deliberation, and (2) recognition-primed decision implementation. These two methods were approximately equal in frequency. The students' high use of the latter type of strategy is consistent with our earlier research on more experienced personnel in other domains and supports the validity of a recognition model for decision making at lower levels of expertise. The number of analogues reported by the students was fairly stable across the observed training period and demonstrate the proclivity of novices to use previous experience to guide decision making. Analogues were helpful about half of the time and on the remaining occasions were mixed ranging from not helpful to disruptive. Results suggest several additional training techniques to focus on refining students' ability to call up appropriate analogues in real time during the decision situation. Additional training would emphasize use of analogues to guide their decision making and to sharpen implementation of their procedural knowledge.



## DECISION MAKING IN ARMORED PLATOON COMMAND

### Introduction

This study is part of an ongoing series of projects on decision making in naturalistic contexts. The focus of these projects is to identify the types of decision strategies used by individuals with varying levels of experience. Our work has specifically attempted to determine the differences between novices and experts in their resolution of decision situations.

Most of the behavioral research in decision making has been done with restricted contexts and naive subjects, and for this reason the findings may not be easily generalized outside of the laboratory. Decision tasks investigated by established methods often involve a variation on a gambling task, with specified outcomes and associated probabilities. This framework does not seem to capture the situation in which there is an active search for clues nor does it reflect the dynamic nature of a task that requires constant monitoring and reevaluation over time. This apparent mismatch between formal approaches to studying decision making that involves static and well-defined events, and decision making as practiced in dynamic operational settings, is becoming increasingly recognized (e.g. Berkeley & Humphreys, 1982; Brehmer & Allard, 1986; Dreyfus & Dreyfus, 1986; Ebbesen & Konecni, 1980; Hogarth, 1982).

Within the last five to seven years, there has been a change in emphasis as researchers have begun looking at more complex real world decision tasks. David Woods (1984) and Jens Rasmussen (1985) have studied decision making in nuclear power plants. Ebbesen and Konecni (1980) have studied the courtroom, specifically how bail is assigned. Ranaan Lipshitz (1987) has examined military decision making, using retrospective accounts of actual incidents.

Our own work has looked at several different settings. We have studied urban fire ground commanders (Klein, Calderwood, & Clinton-Cirocco, 1986), wildfire incident commanders (Taynor & Thordsen, 1987), and design engineers (Klein & Brezovic, 1986). In attempting to model strategies, we also have been forced to abandon decision analytic types of descriptions, in favor of what Rasmussen has called rule-based skills. We have found a preponderance of cases where the decision maker relies on situational awareness, that is, the ability to immediately ascertain the important features of a decision situation and to derive the appropriate implications, in order to understand the dynamics of the problem. By recognizing the problem as a familiar situation the decision maker can identify the typical response. This response is then implemented. If there is time, it is first evaluated. Sometimes it is modified to reflect some unique aspects of the new task. Occasionally, it is rejected in favor of a less typical response. Rarely, the decision maker will have to reassess the entire situation. We have termed this

process a Recognition-Primed Decision to emphasize that recognition--a type of pattern matching--dominates analytical deliberation.

We have hypothesized that time pressure accentuates this approach, and that more experienced decision makers rely on their ability to size up a situation and act on that understanding. Therefore, we have tended to study experienced decision makers acting under time pressure. Our first effort was an investigation of decision making by urban fireground commanders (FGCs) at the scene of a fire (Klein, Calderwood, & Clinton-Cirocco, 1985). Our choice of data-gathering method for this study was guided by our desire to model as closely as possible the natural decision making of FGCs, while meeting the demands of scientific rigor. The method chosen was a retrospective protocol analysis based on the FGC's reconstruction of his step-by-step decisions and commands at an incident. Incidents were chosen on the basis of their having presented a command challenge, a criterion suggested by Flanagan's (1954) critical incident method. The fact that the reported incidents contained these non-routine decisions assured two major goals of the critical incident method--that recall of non-routine events tends to be superior to that of more routine cases, and that the most difficult cases will tend to reveal important aspects of expertise that would not otherwise be apparent (Flanagan, 1954).

The Critical Incident method developed for this initial study has now been further extended and refined. We have used the approach to examine the cognitive processes and strategies that surround decision making in several additional studies. More recently we have been able to directly contrast the decision strategies and situational assessments of experienced vs. inexperienced decision makers (Calderwood, Crandall, & Klein, 1987). This and other related studies have allowed us to test and refine a pool of techniques and types of probes that elicit detailed, specific information about the conscious processes and strategies that underlie real world decision making. The model of decision making that has emerged from this work has emphasized the importance of the rapid pattern detection ability of skilled decision makers.

In the present study, the Critical Decision method was adapted to the U.S. Army environment of armored platoon command. Fort Knox, Kentucky, is the site of armored platoon command training and as such offers a unique opportunity to contrast the decision making of novice commanders with the more experienced trainers tasked with evaluating the novices' performance. The present effort attempted to capture the differences between these two levels of experience in real time during the course of these training exercises.

A review of military manuals and guides was conducted to gain an understanding of the types of situations that the students would be encountering during these training events. During the course of the review, we saw much of the training material was also focused on specifying certain techniques of resolving decision situations. An examination of the techniques revealed a clear emphasis on analytic methods of resolving decision situations.

The tone and trend of many of the military training manuals strongly suggests that all command decisions be preceded by the careful process of critical feature extraction and deliberations. These features are then appraised via some weighting scheme. The end product of this preprocessing is a system of attribute-weight pairings that are then simply combined in some fashion to input into the next step of the analysis, that of option generation and evaluation. The Army War College (1983), as a typical example, describes these six steps in the formation of a commander's response to a decision situation:

1. Understanding the nature of the problem (effects desired and background of the problem)
2. Consideration of the characteristics of the area (includes geography, transportation, telecommunications, economics, political, sociological, and scientific/technological attributes)
3. Assessment of relative combat power (enemy, friendly, and force tradeoff comparisons)
4. Development of operational concepts (derivation of enemy capabilities and development of own courses of action)
5. Formulation of concept of operations (includes analysis of enemy capabilities, analysis of own courses of action, selection of preferred course of action, and translation of course of action into a concept of the operations)
6. Issues and policy (includes a reexamination of the concept of operations, identification of issues, and policy implications)

All of the above steps involve extensive analysis of problem features. The emphasis is first on a reasonably comprehensive search of relevant problem dimensions and then a careful (if not complete) analysis of the impact of the dimensions on the problem solution process. This entire process is time intensive, and time is a resource not in ready supply in tactical environments such as platoon command. Generally, only the planning and other

more strategic functions of higher level command can in principle afford this focus and level of analysis.

Attempts to translate the prescriptive decision-making models, prevalent in the strategic planning literature, to the tactical environment are insensitive to the possibility of insufficient time to resolve decision situations. One clear barrier to the uncritical adoption of a formal model to the tactical environment is the emphasis on identifying as many major problem dimensions as possible BEFORE executing any action. If this analysis were followed as typically described, the result could well be an untimely termination of command long before a response could be generated.

The Army War College supplement quoted above is respectful of some of these difficulties and offers caveats against uncritical adoption of the recommended sequential planning steps. Guarded statements on the importance of the judgment of the problem solver and the specific nature of the problem are offered. However, the problem resolution process outlined in the document is treated as doctrine to be followed in most cases. This operating framework was seen in other instructional guides down to the small unit level. The field circular relevant to the present study, FC 17-15-1 (Tank Platoon ARTEP Training Plan, 1984), incorporates many of the decision assessment procedures described in the War College supplement. The emphasis is again on situation feature extraction and analysis prior to action.

One example that perhaps best illustrates the incompatibility of this doctrinaire approach with the real events is the task described as 'Execute(s) Actions on Contact' (FC 17-15-1, 1984, pp. 6-35). The evaluation standard for this decision situation has as its first section: 'the platoon leader... determines the strength, composition, and disposition of the (opponent force) and informs the company commander immediately.' In live (simulated) combat, the platoon leader is more involved with the protection of his tank, the initiation of fire commands to both his platoon and his individual tank, and the search for alternate fire positions in the immediate area. There are serious questions on the time availability to begin a detailed search of the terrain for the number of opponents and to catalog the characteristics of the opponent along the above dimensions. In the duration, the platoon would be paralyzed for those several seconds that the platoon leader would need to complete even a cursory evaluation, long enough in real time to sustain serious casualties if not fatal compromise of the platoon mission.

It is curious that most of the formal models of decision making leave time at either a constant or as an identified but unaddressed limiting factor to a full decision analysis. One of the few models that have attempted to address this factor explicitly is the 'garbage can' model of decision making (Cohen,

March, & Olsen, 1972). At first, the model focused largely on organizational decision making in large bureaucracies, but more recently the originators have tried to extend the generality of the model to military command (March & Weissinger-Baylon, 1986). It was a repeated theme in the military accounts collected in the book that the scarcity of time in military command forced choices to be made in an unanalytic fashion. Military veterans contributing to the book offered the more interesting accounts, as much for what they had not related about their experiences as for what they had. All of these veterans were involved in armed hostility.

Naval commanders in the book reported recalling specific previous events of their careers that explicitly guided their command decisions. Appeals to general command doctrine or detailed accounts of calculations undertaken to guide decisions were noticeably absent in their recollections of command. And, the specific events recalled to guide the decisions were not all successful in addressing the problems they faced at the time.

Augmenting this U.S. Navy perspective of armed conflict, a recent work by a U.S. Army captain (Bolger, 1986) offers additional support for the utility of recalling past events or analogues in the resolution of decision situations. Bolger was the commanding officer of B Company during one set of exercises at the Fort Irwin National Training Center (NTC) in California. NTC is one of the few areas in the military where training occurs against dedicated emulators of threat forces (threat in the current U.S. doctrine is defined as Eastern Europe Communist Bloc Armed Forces). In two weeks of combat maneuvers, the units sent to NTC fight in as close to a real combat environment as safety allows. Reviewing the actions Bolger describes, the failure of any 'rational man' model of decision making becomes apparent. Instead, there is a reliance on past events to highlight certain options at the expense of others. Little time was spent during the exercises on the generation of a list of possible options, even an incomplete one. The commander of the task force routinely outlined what his plan objectives were and then tasked his subordinates with generating the operating details. As with the Navy officers, past events were recalled to guide decisions.

The conclusion one draws from these few accounts of military command in action is that there is little place for the careful reasoned approach, insensitive to time, that has been proposed as the model for human decision making. On the contrary, an inappropriate emphasis on the generation of options over the search for patterns in the decision environment seems a clear prescription for disaster. The description of decision making under time pressure we have studied emerge from our work avoids this time trap. Instead, the rapid pattern detection ability of skilled decision makers we have seen affords them the ability to

immediately relate a decision situation to something they have seen--and resolved--before.

Those particular features of a decision situation that are attended to, selected from the array of all possible cues or situational aspects, are arguably the essential factors in guiding the decision option selection. The focus of the current effort is to determine decision strategies of tank platoon leaders, and at contrasting these strategies for inexperienced and experienced subjects. To the extent that the strategies are guided by the local environment and the context of the demands of the decision situation, then we will be describing the nature of that awareness. Some of our earlier research depended on retrospective interviews, for events that occurred months or years earlier. We recognize that such data have limitations and uncertainties, (e.g. Nisbett & Wilson, 1977) and we have presented them as a source of hypotheses, not as proofs. In the current study, we have directly observed the incidents as well as conducted interviews soon after the incidents.

The opportunity to observe the events allowed us to verify the accounts of the actions given by the students and the instructors. We expected to determine how the students change their decision strategies over the course of the seven day exercise period, in particular the types of cues they reported from the early days of training to the latter days. If the students attain the ability to report similar types of environmental cues in similar frequencies to the instructors, then we expected to see an increase in performance ratings on those occasions. On those occasions where the students relied on past events to guide their decision option selections, then we hoped to record how the use of analogues related to performance.

#### Method

##### Subjects

Twenty-one students and nine instructors were interviewed. The students or the Armored Officer Basics (AOBs) came from three separate classes of second lieutenants who travel to Ft. Knox's Armor Platoon Leader Training Course to further their Military Occupation Specialty training. Student backgrounds were of three types: ROTC graduates (six), national guardsmen or reservists (six), or West Point graduates (nine). All students possessed undergraduate degrees.

The Tank Crew Instructors (TCIs) were responsible for evaluating the AOB during the exercises and completing an evaluation form for each student when the AOB held a command position (either as Platoon Sergeant or as Platoon Leader). All TCI's were noncommissioned officers, either Staff Sergeant or above, and typically had several years experience as a tank commander (from no fewer than five years to as much as 11).

Educational background varied from high school graduates to a few years of additional undergraduate study. We were able to insure a degree of consistency in the reports we gathered by observing the same training team through two of the three data collection trips.

### Procedure

The format for the interviews followed the guides attached in Appendix A. All interviews were taped and transcribed. In order to help orient the reader to the circumstances of the data collection, a short description of the field events and the researchers' roles follows.

Our field research team was composed of two members, one of whom observed the students and the other the instructors, from day three to day six of the seven day field training exercises. One researcher rode in the platoon leader's tank during the exercise, the other researcher viewed the events from the jeep of the lead trainer. This lead trainer, a captain, moved freely through the area to follow the course of the events.

The training schedule for each day was made available on each of the three trips. With the schedules, we were prepared for the types of problems being presented to the platoon leader in the training periods for the day.

The field training period for the cadets was arranged in two phases. The first three days were devoted to techniques of movement and specific offense or defense tactics and missions. The last four days were 'force on force' exercises, where one or two platoons of tanks would face another platoon in mock combat. Each platoon is generally given a clearly defined overall mission or field posture to implement, according to the trainers' lesson plans, but the platoon commanders are given latitude on certain parameters of execution. There were three exercises held per day, each lasting anywhere from 1.5 hours to 4 hours.

The format of each of these exercises or training scenarios was the same. First, the lead trainer would select the AOBs to be the platoon leader and the platoon sergeant for the upcoming scenario and then brief them on missions, radio communication protocols, etc. The lead trainer would then establish deadlines for the execution of the overall plan and time schedules for certain sub elements of the mission. The AOBs were then released to plan the execution of the mission; this activity entailed plotting terrain routes for the platoon to take, possible additional radio protocols or signals, and other such platoon coordination activities. They would then brief the other members of their platoon, go to their vehicles, and begin execution of the mission according to the timetable laid out by the lead trainer.

When the exercise had begun, the second researcher would accompany the lead trainer or team chief. The team chief would direct his jeep to crisscross the terrain where the scenario was taking place, often stopping for periods of time on the highest terrain feature that afforded a view of the entire platoon in action. Supporting this physical view of the events was the battery of three separately tuned radios that the team chief would use to monitor and interact with both the AOBs and the TCIs. The team chief acted as company commander for the cadets in the exercise as well as directed the development of events as head trainer to the TCIs. Ample time existed for the second researcher to probe the team chief's expectations for the events as well as identify decision situations that were challenging or difficult for the platoon leader.

At the conclusion of the exercise, the platoon would be directed to move to a location near the area of the events for an After Action Review (AAR). The review took approximately 20 minutes. During this time, the researcher who had ridden in the tank would attend the review and note the topics covered, identify the options mentioned to the courses of action taken, and note the guidance offered by the instructors to the students for similar situations in the future. In this way, it was possible to track the influence of the AAR on the AOB's later account of the events.

During the time of the AAR, the second member of the research team would be meeting with the TCI who had ridden on the back of the platoon leader's tank. The TCI was asked to identify those decision situations which were the most difficult or challenging for the AOB during the past exercise. When the TCI had finished this listing, he was asked to rank the decisions in terms of learning importance. The ranking criterion was selected to help identify the more crucial decision points for the AOB interviewer to cover in his interview with the former platoon leader in the short time available for that activity.

The amount of content overlap between the team chief's and TCI's list of decisions was a check on the validity of the technique. The interview with the TCI then began on decision points, in ranked order. The interview continued through the AAR and after, generally ranging from forty minutes to as much as two hours in duration. The decision point identification, rankings, and subsequent interviews were all tape recorded.

The ranked decision point list generated by the TCIs was used to question the AOBs. At the conclusion of the AAR, the researcher attending the review would meet with the researcher interviewing the TCI and copy the TCI's ranked list of decisions. The AOB interview would then begin. Roughly, 15 to 45 minutes would elapse before the next exercise would take place; the



researcher observing the AOBs would use this time period to interview the student who had acted as the platoon leader during the previous exercise. The interviews were tape recorded.

Direct observation of the entire exercise allowed the researcher interviewing the AOBs to validate the student's account of the external events of a decision situation. This capability was an advantageous adaptation of the Critical Decision method to this study. Two other techniques were developed to further refine the method to this context. The first involved two related approaches to aid in focusing the recall process: time-centering and place-centering. In time-centering, an interviewer would describe the mission phases up to the point of the decision situation we wished to probe. Similarly, in place-centering we would describe the mission posture at the decision situation we wished to probe. For both of these to be less intrusive in the recall process, we took care to use only the terms given in either the original operations order (by the team chief) or those used by the AOB himself during his briefing to the tank commanders of his platoon. By describing in these general terms the physical features of a decision situation, we attempted to limit the possibility of the researcher biasing the recall process.

The second modification to the Critical Decision method involved an overt approach to performance evaluation often used in other behavioral research. For each decision point, we asked for performance ratings from both the TCI and AOB. There were two seven-point rating scales, one on individual tank handling and the other on platoon maneuvering. Both employed performance anchor points tying the overall quality of a decision to the mission objectives. For the tank handling scale, a value of 1 was "(platoon leader's) tank in immediate danger, unable to complete the mission", and a value of 7 was "(platoon leader's) tank in best position possible to achieve the mission". The platoon performance scale ranged from 1="platoon in immediate danger and possibly unable to complete the mission" to 7="platoon in best position possible to achieve the mission". We found that this technique narrowed the description of the events and elicited specific performance judgments not contained in other probes.

The data collected from these scales were not as important as the focus that the question forced the AOBs and TCIs to adopt. In all cases, both TCIs and AOBs would justify their ratings on the two scales. These ratings invariably invoked a stream of event and environmental descriptions of what supported the number chosen. A short example: an AOB gave himself a '1' on handling his tank during a firefight and rattled off that: 1) he did not back his tank down and shift a couple of feet left/right between each round or two fired; 2) his position, where he chose to set up, was restricting his range to move around; 3) the identified

'enemy' were only platoon-size elements and therefore not likely to survive the first bursts of fire from his platoon.

The Critical Decision method allowed three types of data to be gathered for all decision point interviews: the decision situations and option selections, the accounts or descriptions of the events surrounding the decisions points, and the performance ratings. The most difficult data to organize for analyses were of course the decision point descriptions. The accounts were condensed and then formatted for analyses in the following manner.

We began by simply categorizing the elements of the situation that were mentioned by AOBs and TCIs. We first condensed the transcripts made of the taped interviews in order to more sharply focus on the elements specific to each training scenario. Appendix B contains all of the condensed material from each interview in which decision situation descriptions were presented. Table 1 presents a sample listing of one of the condensed accounts. The condensed accounts were then studied for repeated themes or clusters of semantically related nouns. The identification of elements was performed by noting environmental cues that were used repeatedly, specific action patterns, and topic areas repeatedly addressed. Table 2 presents the list of 16 categories.

The construction of these categories to describe the aspects of a situation that a decision maker could recall served as basis for the description of situational assessment (SA). Our final summarization efforts were guided by the issues and concerns raised in military history and current military doctrine. We found that this framework of analysis served to highlight important differences that underlie an expert and a novice perspective on identical events in armored combat. We have relied on this framework for analysis of SA throughout the remainder of the study. The following is a description of the final categories and examples.

Timing. Speed of an action's execution, mission phase imperatives, evaluations of available time to execute an action. (Example, cadet: 'Gotta call for smoke [artillery shell type] ahead of time so it dissipates enough for when you need to get through there.') (Example, trainer: 'With a mission of movement to contact, you know the enemy's out there, you've got to be pushing, constantly moving--you can't slow down and go into a defensive mode.'))

Tank control. Movement of the platoon leader's tank, actions of the crew of a specific tank, fire plan for specific tank. (Example, cadet: 'I didn't realize where we (the platoon leader's tank) were in relation to the center (of the future engagement area) until I picked up my head (from plotting

Table 1

Example Situational Awareness Account Summary  
[Decision Situation: Actions on Contact]

A08

- : were assigned this position, "not much choice"
- : pulled up too high first time, (TCI: "back down" suggestion)
- : present position: clear shot for 3000 meters EXCEPT for little valley, big enough to hide tanks
  - enemy tried to use this valley to approach
  - NOT going to engage over 3000 meters anyway
- : entire position covered
- : terrain: flanks covered by trees, lake and trees
  - only access to rear
- : platoon formation real close, 25-30 meters apart
  - supposed to be 100-150 meters apart
- : battle position not large enough to spread tanks out
- : each platoon tank had berm to front
- : road on left
  - open area, enemy could engage tanks using road
- : couldn't see platoon tanks across road
- : priorities were making sure commander informed, using artillery, giving platoon fire commands

TCI

- : after first engaged, move to alternate
  - good enemy gunner could destroy platoon leader tank if no move made
- : no movement at all on battle position
  - wasn't engaged yet but no reason to sit and watch
- : can't see entire engagement area, don't know where enemy is
  - don't know if enemy ready to engage
- : could use indirect but danger of obscuring own platoon vision
- : when not moving, tank becomes a pillbox
  - no better target than a pillbox
- : should move around so many times enemy would think multiple tanks there
- : not much terrain on position to move around on, but 2 or 3 other spots to move to
- : have to back up
  - give enemy idea tank moved from that spot
  - then can move back up to engage
- : could give signature from main gun, and still effectively engage
- : if (platoon leader was enemy) on offense, then think opponent dug in somewhere - most likely on high ground to overwatch
- : platoon on high ground
- Rule: whoever gets to high ground first has advantage over adversary
- : enemy expects platoon to be on high ground

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Table 2

Situation Assessment Categories

Time  
Tank - individual tank actions  
Tank - hypothetical actions or assumptions  
Platoon Control  
Platoon control - hypothetical actions or assumptions  
Friendly support elements  
Friendly support elements - hypothetical actions or assumptions  
Enemy Control  
Enemy control - hypothetical actions or assumptions  
Enemy support elements  
Communications - up, down, and laterally in the chain of command  
Communications - hypothetical actions or assumptions  
Terrain  
Terrain - hypothetical opportunities or assumptions  
Mission  
Training

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artillery map coordinates). (Example, trainer: 'He backed down but not quite far enough, swung the tank to go over to west portion--the extreme west, but he flanked himself' (exposed the weaker armor of the sides of the tank.))

Tank control, hypothetical. Possible alternative actions AT THE TIME to the above, evaluation of possible alternative actions, assumed tank control actions. (Example, cadet: 'The driver and the gunner knew where we were going; I shouldn't have had to direct the driver for the routes to take.') (Example, trainer: 'Wouldn't have even let the gunner attempt to lay on the enemy [put the main gun directly on target] on the first round, just send a round down range, get the (enemy) to start ducking.')

Platoon control. Movement of the platoon, formation of the platoon, engagement actions or fire tactics of the platoon, platoon strength and safety. (Example, cadet: 'I wanted to maintain visual contact with the platoon and I kind of forgot about my (the tank's) front. (Example, trainer: 'At the primary battle position, there was good dispersion of the platoon, but the platoon leader's wing man was in a position which could not cover the east flank.')

Platoon control, hypothetical. Possible alternative actions AT THE TIME to the above, evaluation of possible alternative actions, assumed platoon control actions. (Example, cadet: 'We

were on-line, good command, and control. If we had to stop, had a breakdown, we were still covered.') (Example, trainer: 'He (the platoon leader) was making a critical turn; if he went over (the top of the ridge) without the rest of the platoon, someone would have been lost (not able to find the trail) for sure.')

Friendly support. Actions and position of support elements such as sister platoons on the mission or artillery support. (Example, cadet: 'There was a scouting force in front.')

(Example, trainer: 'There was a covering force in front, with a covering force it's a fairly good idea to do a hasty occupation, they could screen what was going on.')

Friendly support, hypothetical. Possible alternatives to the above actions AT THE TIME, assumed actions of the above. (Example, cadet: 'Thought of calling for smoke, but just couldn't get through.')

(Example, trainer: 'The platoon set-up not far from a pre-plot (artillery mission). If they had called for that pre-plot, it would have come right in on top of them.')

Enemy control. Sighted enemy movement or locations, enemy formations, enemy engagement actions, enemy strength. (Example, cadet: 'I jumped up, saw enemy tanks in front of me so I laid the gun around...')

(Example, trainer: 'Had already made contact with the enemy earlier, so you knew that the enemy was there.')

Enemy control, hypothetical. Possible alternative actions AT THE TIME to the above, assumed continuation of actions of above. (Example, cadet: 'We knew where they were going to be, behind the ridge was low ground, only place they could be.')

(Example, trainer: 'The only thing blowing the bridge did was to slow the enemy down--they could still shoot over it.')

Communications. Radio information to be passed up to the commander or received from the commander, or relayed to/received from other platoons or platoon members. (Example, cadet: 'I was working on getting a grid (map location for the enemy) in on a spot report.')

(Example, trainer: 'Should have called in to the commander and let him know that that vehicle was out of action.')

Communication, hypothetical. Alternatives to the above choices considered AT THE TIME, to all elements on the radio net. (Example, trainer: 'Did have the platoon sergeant in that particular area; the platoon sergeant does have radio capabilities with the rest of the platoon and the company commander.')

(No examples from the students.)

Terrain. Any reference to the physical environment during the time of the decision point. (Example, cadet: 'There was a ridge behind the hill...')

(Example, trainer: 'There was a road to the front that was open...')

Terrain, hypothetical. Alternatives to the above situational features, where the interviewee indulged in 'what if the terrain were different there' exercises; interviewee's expectations for the terrain. (Example, cadet: 'I was kind of surprised how close the trees were.') (Example, trainer: 'He [platoon leader] should have known they [the platoon] were bogged up, he had chosen an impossible route.')

Mission. Descriptions of the operation orders, or procedures inherent in the nature of the operation. (Example, cadet: 'That's SOP, when the enemy was in or beyond the kill zone then displace.') (Example, trainer: 'You never slow down while on offense, have to keep moving, pushing.')

Training scenario. References to the training program itself, or expectations of actions/events based on the recognition that the scenarios are for training purposes. (Example, cadet: 'There was a possibility that they [the enemy] were just backing down, but I knew they were another AOB class, I know how they run the FTX [field training exercises].') (Example, trainer: '...if the enemy had gotten outside of what [the cadet] had thought they were going to do, he would have suffered total defeat right there. A smart enemy. Here [the cadet] is just facing other students that aren't, you know, proficient with it, and they constantly do what's expected...')

The interviews with the TCIs and the AOBs were all summarized using the above format. Frequency of situation category use was recorded, and the type of decision situation that generated the descriptions was identified for later analysis. To examine the type of decision strategies used by the students, we used the following methods as adapted from our previous research in time-pressured decision making. No decision strategy analyses were performed on the TCI interviews. The TCIs were not personally in command of a platoon, therefore any description of decisions they executed or options they considered would be pure speculation.

Each decision point was conceptualized as the search for solutions to two logically distinct questions "What is my situation?" and "What am I going to do about it?" These questions can be translated for purposes of discussion into the two "sides" of a production rule of the form "if X then do Y". Many real world problems appear to have much more uncertainty involved with the X, or conditional, side of the equation. In such cases the decision is best represented as "If X do Y" but "If X2 do Y2." The decision requires coming to some determination about the actual state of the world, from which a general course of action is implemented based on experience or explicit procedural guidelines.

A coding scheme was developed that allowed classification of each decision as primarily involving either X or Y deliberation or no deliberation. Of course, it is logically possible for a decision to have involved both X and Y deliberation. However, preliminary analyses of these protocols indicated that decisions could be classified as having primarily involved the X or Y dimensions, so this dichotomy was adopted as a simplifying assumption. Additional categories were developed for specifying whether or not the selection appeared to have been made by concurrently comparing and contrasting options, or by serially evaluating a workable option. Protocol analysis focused on coding each decision along these dimensions.

We limited the following analyses to those decision situations for which the AOB and TCI matched, i.e., both trainer and cadet addressed the same event(s). A total of 57 decision points were collected that fulfilled this criterion. The data are examined in the following order: situation assessment (SA) data, performance data, and student decision strategies and use of analogues.

## Results

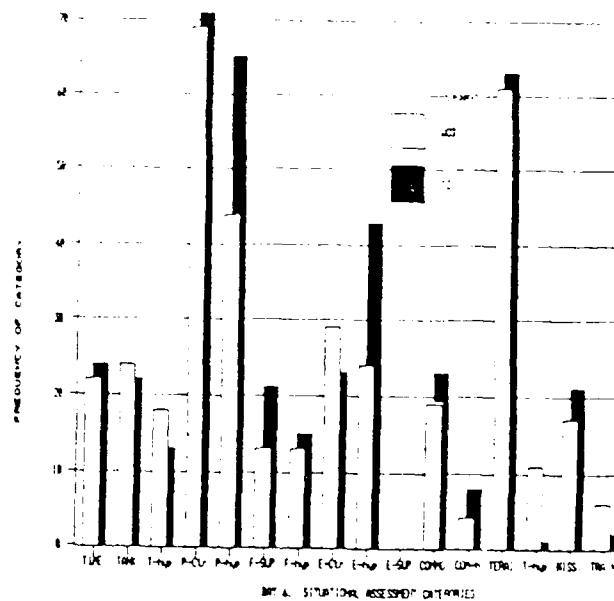
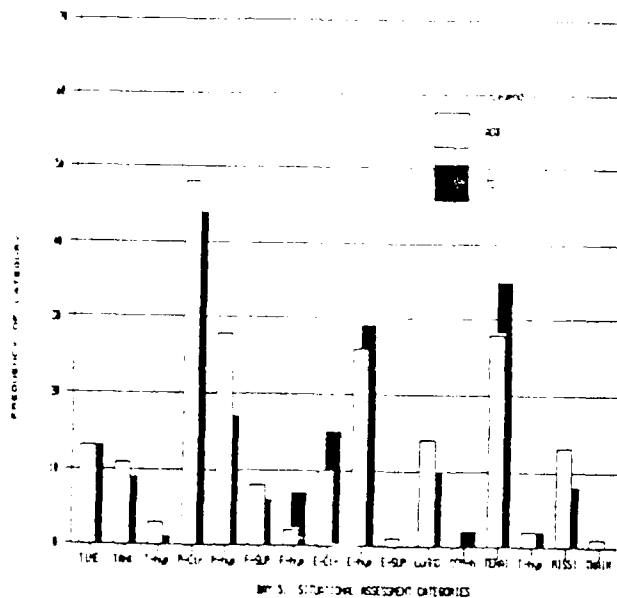
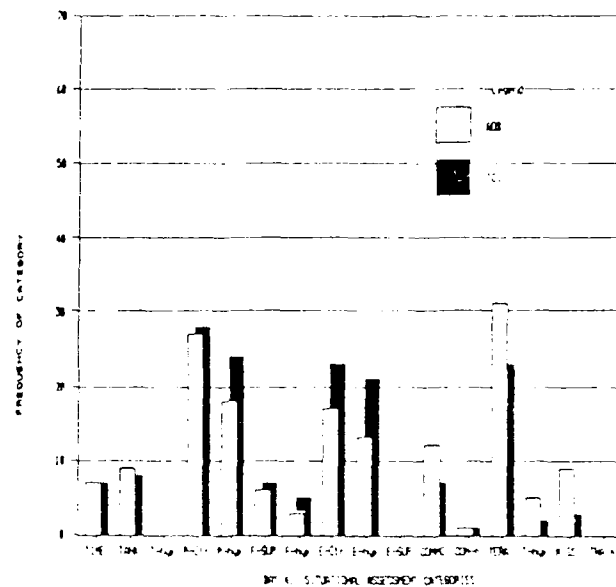
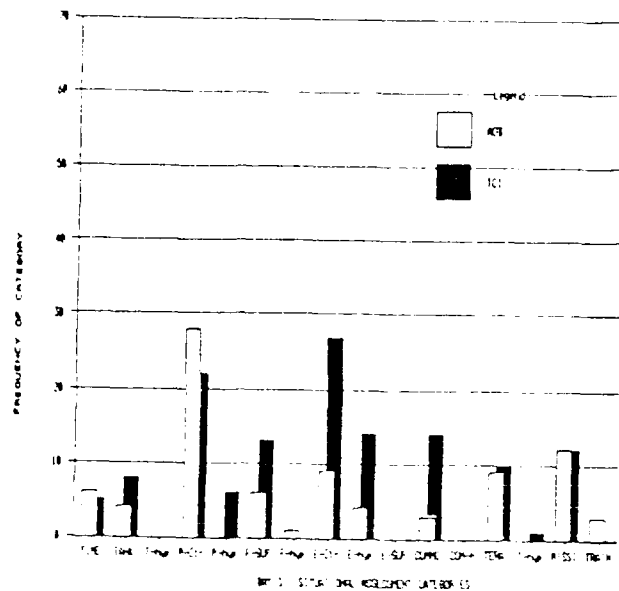
Situation Awareness. The differences between the AOBs and the TCIs with regard to their use of the situational aspect categories are presented in Figure 1. The general profile appears to be the same for the two groups. The numbers of categories used by the AOBs vs. TCIs were roughly matched over days. For the AOBs, this was 16, 20 and 18 on days 4, 5 and 6, and for the TCI it was 16, 17 and 19. The major difference was in the categories for hypotheticals. The TCIs always showed a higher proportion of hypotheticals for Enemy features, Platoon features, and Communications. Based on this clear difference, one interpretation is that the AOBs had less facility in representing future outcomes for courses of actions.

Turning to the types of categories used, there is good agreement between the TCIs and the AOBs. The correlations between category use frequencies, AOBs vs. TCI, are high: .75 for Day 3, .92 on Day 4, .97 on Day 5, and .96 on Day 6. This shows that the AOBs are generally able to be aware of the same things that the TCIs notice, and in roughly the same ratios. After Day 3 there seems to be relatively small difference between the two groups regarding their use of the different categories, so category usage counts are insensitive to the differences in the interpretations of what was attended to by both groups. This also strongly suggests what we are seeing is not a difference in articulation ability, but in which categories are receiving attention.

Although the TCIs were in general more likely to recall the hypothetical actions or situation features present at a decision

Figure 1.

Situation Assessment Category Use Over Days



Time = time  
 Tank = individual tank actions  
 T-hyp = tank hypothetical actions/assumptions  
 P-Ctr = platoon actions  
 P-hyp = platoon hypothetical actions/assumptions  
 F-SUP = friendly support elements  
 F-hyp = hypothetical friendly element actions/assumptions  
 E-Ctr = enemy actions

E-hyp = enemy hypothetical actions/assumptions  
 E-SUP = enemy support  
 COMM = communications  
 COM-h = hypothetical communications  
 TERA1 = terrain  
 T-hyp = terrain assumptions  
 MISSI = mission  
 TRAIN = training scenario



point, the usage pattern was variable. On some days, AOBs would mention more hypotheticals than TCIs. For example, on Day 6 the AOBs show 18 mentions of hypotheticals regarding their own tanks vs. 13 for the TCIs, and on Day 5 the AOBs mention 28 hypothetical issues about their own platoon compared to 17 for the TCIs. On Day 6 the AOBs were much more sensitive to hypothetical issues about terrain (11 mentions vs. 1 for the TCIs). But the general trend is for the TCIs to show a much greater awareness of hypotheticals, in some cases almost twice as great as the AOBs, and this difference persists during the four days of observation. Table 3 shows the sum of all hypotheticals for the TCIs and AOBs across days.

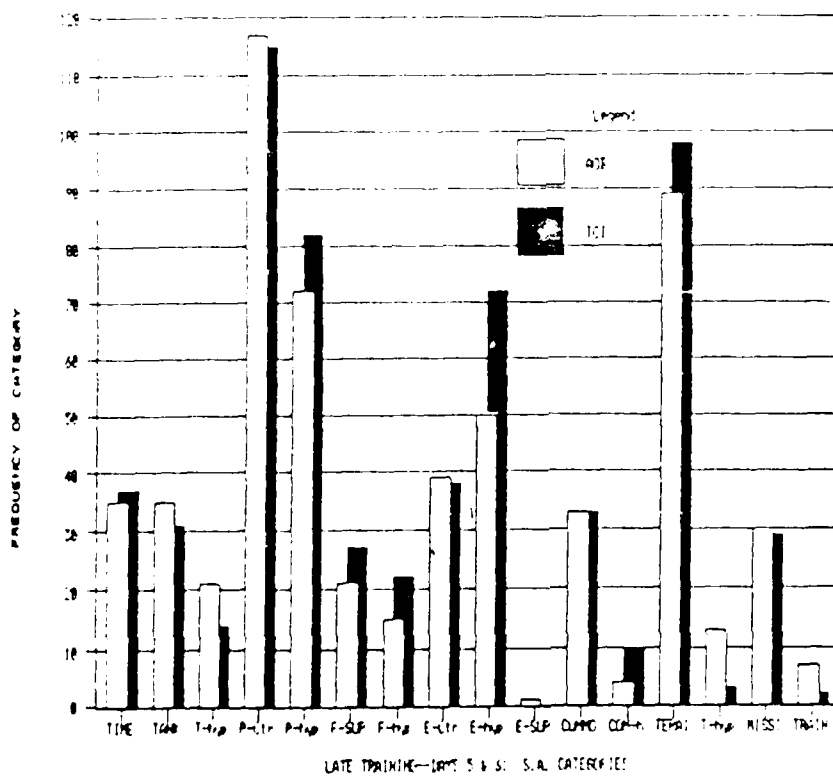
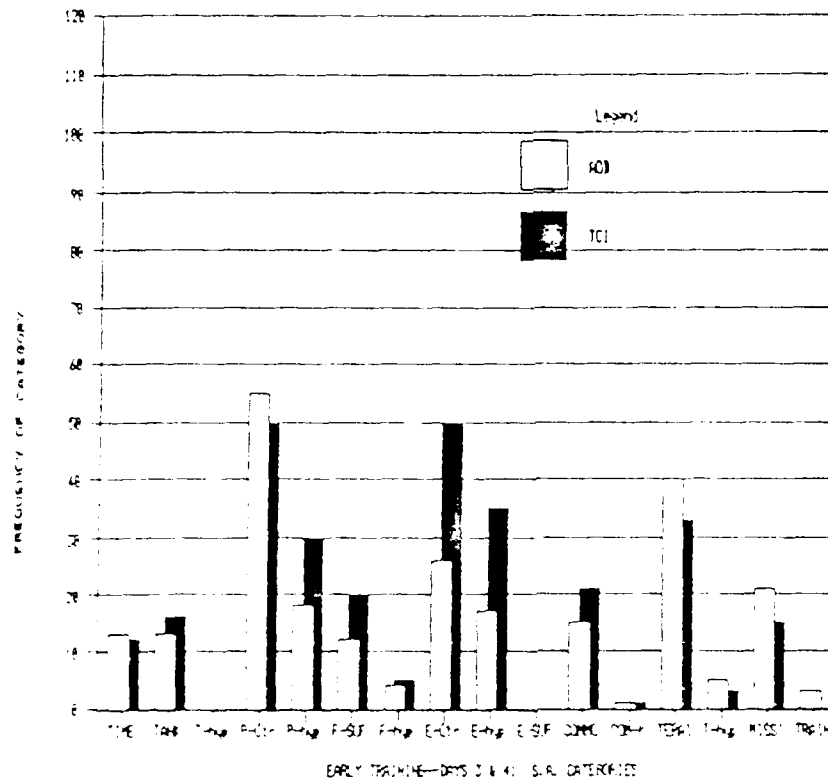
Table 3

Pattern of Trainer and Cadet Hypotheticals Across Training Days

	Trainer	Cadet
Platoon (movement control and placement)	112	90
Enemy (movement control and placement)	107	67
Company (support elements' actions and placement)	27	19
Terrain (available cover and concealment)	6	18

It is interesting that for the TCIs, there were about the same number of hypotheticals for platoon as for enemy, whereas the AOBs were much more focused on platoon hypotheticals than enemy hypotheticals. They seemed less able to imagine how an enemy would react than to anticipate behaviors of their own platoon. In examining the report transcripts we saw that the TCIs were addressing platoon and enemy hypotheticals at the same time, e.g., 'if we position the platoon to cover the flanks and the forward area, then the enemy would need to move quickly through the center to attack our position.' The cadets on the other hand spoke of platoon movement possibilities in terms of completion of their required missions, and possible enemy response to these alternatives was not automatically a consequent consideration.

Figure 2. Situational Assessment Changes from Early to Later Training



The difference in frequency of terrain hypotheticals between the two groups may reflect the fact that the TCIs knew the terrain so well there was no need to pose alternate expectations. When this recall pattern is examined with the data on enemy hypotheticals above, a broader view of the TCIs decision assessment strategies emerges. Specifically, their experience allowed them to be less concerned with the static environment (the terrain and given mission) and more aware of the dynamic environment (friendly or enemy force actions).

We have combined Days 3 & 4, and Days 5 & 6 in Figure 2, to sharpen the contrast in other areas. As seen above, the major differences are in the lower AOB sensitivity, versus the TCIs, to hypothetical activities of friendly forces (other than the AOB's own platoon), hypothetical activities of enemy forces, and hypothetical communications. The number of times these factors were used shows important differences between the two groups. By the latter days of training (days 5 & 6), these differences had remained although the number of references had increased for both groups. Of the real time topics, i.e. actions taking place or actual environmental features present at a decision situation, only friendly support had TCI references in greater numbers than AOBs regardless of training period. Some of the differences in cues used may be a function of the different training exercises used on Days 3 and 4 vs. 5 and 6. The more complex exercises would explain the greater frequencies for Days 5 and 6.

We were concerned that the nature of the scenarios determined the topics generated by the AOBs. One method of controlling for this possible error was to use the TCI topics use pattern as "ground truth" and present the AOB data as deviations from the TCI baseline. This allowed us to see where the AOBs were excessively or inadequately attentive, assuming that the TCIs were a reliable baseline. These data are presented in Table 4.

With scenario complexity controlled for, Table 4 shows that the differences between AOBs and TCIs in reporting situation aspects are robust. This analysis supports the trends identified in inspection of Figures 1 and 2, i.e., as training increased, the AOBs mentioned generally the same aspects of the decision situation as the TCIs. The exceptions to these trends were again the slow rate of increase in the recognition of hypothetical events possible in each scenario.

Given that there were few but important demonstrable differences in the decision situation accounts of the TCIs and AOBs, the next step in our analyses was to determine whether student performance ratings were impacted by these differences in situational assessment category use.

Table 4

Percent Difference of SA Categories Use: AOB of TCI

	<u>Day 3 &amp; 4</u>		<u>Day 5 &amp; 6</u>	
Time	110%*		96%	
Tank	82%		116%	
Tank-hypothetical	0%		220%	
Platoon Control	115%		103%	
Platoon Control -hypothetical				
Friendly Support	66%		98%	
Friendly-hypothetical	30%		58%	
Enemy Control	54%		96%	
Enemy-hypothetical	46%		72%	
Enemy Support	0%		0%	
Communication	96%		114%	
Communication-hypothetical	50%		50%	
Terrain	113%		89%	
Terrain-hypo	125%		600%	
Mission	200%		122%	
Training	(AOB=3, TCI=0)		200%	
Sum of	AOB	TCI	AOB	TCI
Reports in the				
Categories	243	291	582	613
Sum of Decision Points Probed	25		32	

\*percentage derived by dividing number of AOB mentions by number of TC mentions.

Performance ratings. Two performance rating scales were used in the interviews with the students and the trainers. The scales attempted to distinguish between cases where the cadet acting as platoon leader recognized a poor decision in the maneuvering of his tank and where he recognized poor platoon command decisions, i.e. the wider importance of the decision for

the safety and success of the whole platoon on that mission. We expected the TCIs to rate the cadets' performance consistently lower on both scales for the following reasons. The experience that these trainers had in armored platoon movement, and with tanks in general, would allow them to recognize when a cadet decision was simply adequate versus when it was optimal. In other words, the TCIs would be more aware of the demands of actively controlling a platoon as well as the scope of the consequences for poor execution.

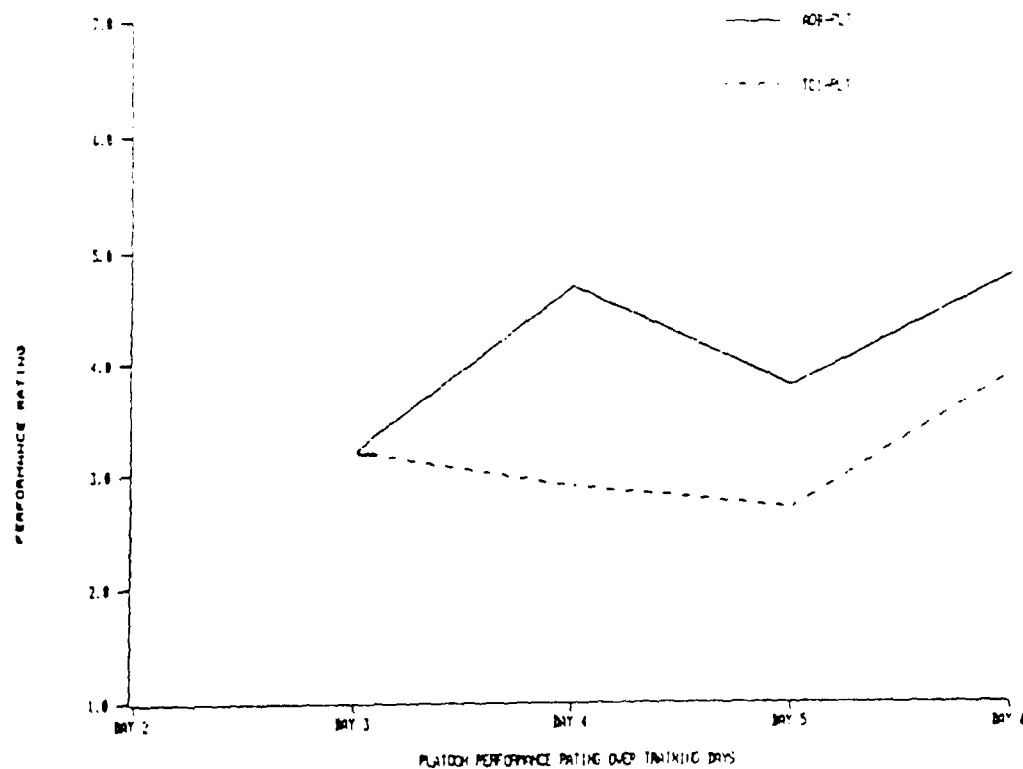
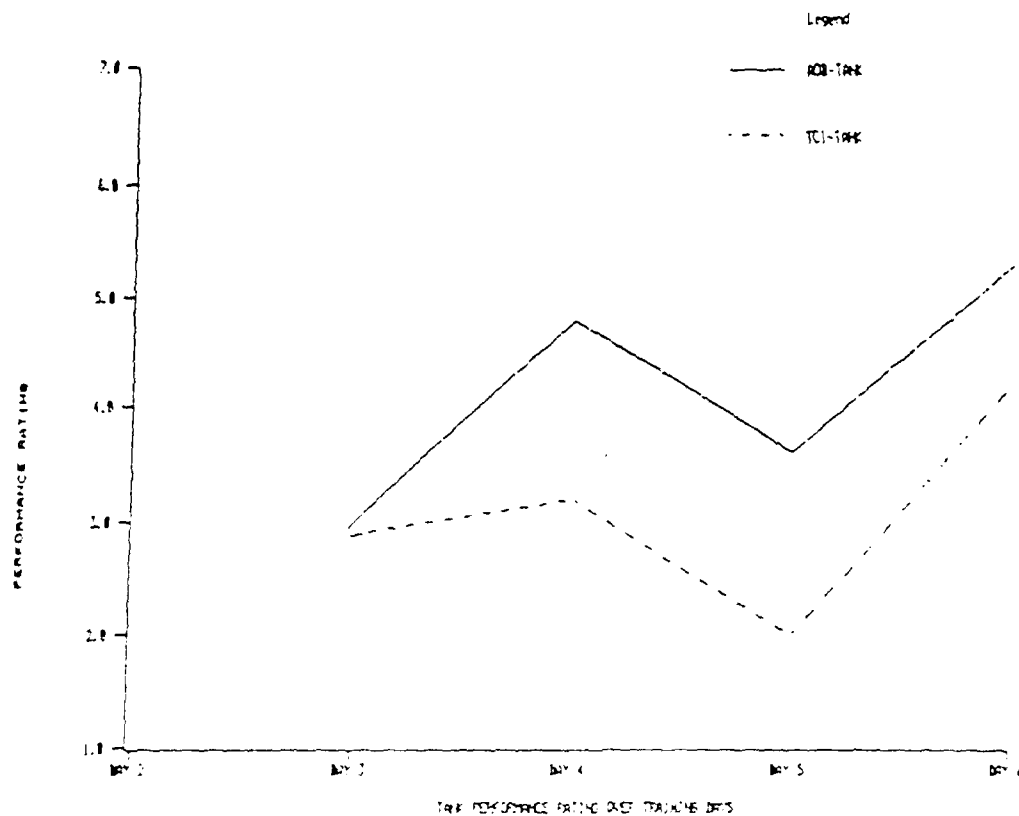
Figure 3 shows the mean ratings on the 50 of the 57 decision accounts for these two scales over four days, for both TCIs and AOBs. Seven decision points of the total 57 had incomplete or missing performance scores, due to insufficient time in the field conditions to include these probes in the interviews. From a general equivalency in performance evaluations by the AOB and TCIs on day 3, there is a small upward trend in the ratings on both scales.

The overall contrast in ratings between the cadets and their instructors was in the direction predicted. A more curious finding was the anomalously low ratings on day 5 from both the TCIs and the cadets. From the data on the decision descriptions above, and the decision strategies discussion that follows, there are few clear indications that a performance decrement had occurred on this day. We suggest one possible interpretation for this change. Since day 4 had been the first tests of live force on force actions, a simple execution of procedure according to mission may have been a 'good' exercise. Few attempts at additional exploitation of opportunity were reported (or witnessed). Instead, the emphasis on purely surviving the mission appeared to be in place.

The ability to extend the platoon's influence in the mission may have been the emphasis for day 5 to the end of the training period. From the decision accounts, we noted that the trainers placed emphasis on the interpretation of what the terrain or situation offered to BOTH enemy and the platoon. In contrast, the AOBs seemed to be fixated on how the terrain affected their own plans, regardless of effects on enemy or on other friendly platoons.

In other words, Day 5 was possibly the first time the cadets had to seriously engage in the tactical implications of force-on-force. The cadets' inability to address these implications resulted in lower overall platoon leader performance. If day 5 is ignored, we see a trend for the AOBs to feel that their performance improved from Day 3 to Day 4, without much improvement thereafter (i.e., they handled new tasks at the same steady state of performance). The TCI's tended to see the performance jumps as coming on Day 6. The above shift in performance criteria has not been confirmed through follow-up

Figure 3. Performance Ratings Over Days



interviews, but the indication that a shift had taken place appears too strong to ignore. The shift, if real, does suggest that any straightforward interpretation of the performance ratings will be confounded by the TCIs expectations at that particular timeframe of the exercises. Any further examination of the rating differences should be undertaken with caution, but the overall trend for an increase in performance is nonetheless exhibited by our findings.

One interpretation of the small difference between the performance ratings of the TCIs and AOBs suggests that these two groups are viewing decision situations from rather similar perspectives. We have noted that the elements of a decision situation are recalled in equivalent fashion for the cadets and the trainers. If these situational cues are available to both groups, the next question becomes 'what are the strategies used in resolving the decision situations?' We examined the cadets' accounts to identify those strategies in the following section.

Decision Points. The 57 matched decision points collected in this study were those identified by the trainer riding on top of the platoon leader's tank through the exercise. A review of these decision points pointed out that there were identifiable repeated situations, across different students and across different days. Since the point of departure in all the cadet interviews were the decision points listed by the trainers, a closer inspection of the types of decision situations was made.

The first characterizations of the decision situations were focused on the external events. For example, one particular defensive mission exercise contained these type of events: platoon ordered at a specific time to displace, the platoon ordered to assume a specific formation for the displacement, tank allowed to stay on-line during the firefight, use of artillery or indirect fire during the displacement, and the specific time for the call for indirect fire. These actions were then interpreted in terms of the specific mission elements or mission phases that characterized the events. Our review of several military training documents revealed that the events we identified could be discriminated into learning tasks, subtasks, and standards of official military doctrine; these task stages were then adapted to form the 11 exclusive categories used in the following analyses of decision situations. The categories and frequency of use are listed in Table 5.

One analysis aim was to successfully capture the unique types of learning situations that the trainers identified as the most challenging for the cadets. Several categories in our list were not used more than once but are not subsumable into any superordinate group. Our inspection of these lone class representatives revealed that a set of extraordinary circumstances were involved in these decisions, which had

Table 5

Types of Decision Situations Across Days

<u>Type</u>	<u>Frequencies</u>
1. Reaction to enemy indirect	1
2. Actions at checkpoint	5
3. Tank crew rescue	1
4. Actions on displacement	11
5. Actions on contact	11
6. Occupation of a battle position	6
7. Use of indirect fire	5
8. Avenue of Approach/advance	12
9. Planning for displacement	1
10. Technique of movement	3
11. Platoon control during bounding move	1

significant impact on the success of platoon during those exercises. For example, one platoon tank experienced mechanical failure during a displacement, leaving it and the crew immobile in a future kill zone. The company commander called to find out what the platoon leader was going to do about recovering the crew of the vehicle. In response to this query, the cadet switched gears and ordered the platoon to go back into the kill zone to attempt to pick up the crew of the disabled tank. The trainer on the platoon leader's tank immediately overrode this decision and pointed out the poor logic of putting three tanks--the remainder of the platoon--in danger for the sake of one vehicle. The trainer's recommendation to the platoon leader was to stay in the overwatch position to cover the escape routes of the crew of the disabled vehicle WHO SHOULD HAVE BEEN trying to get back to the platoon's position in an expedient fashion.

Another case involved the coordination responsibilities of the platoon leader's position. It was during an advance to contact, where the platoon leader's section had reached an overwatch position in the bounding overwatch movement and the platoon sergeant's section was out of visual contact. The cadet gave the platoon sergeant's section the signal that his section was set, that they should move forward. The platoon sergeant subsequently traveled too far out of the overwatch safety offered from the platoon leader's position, putting the success of the platoon's mission in jeopardy. The responsibility for the monitoring of the entire platoon's actions rests on the platoon leader, the trainer pointed out afterwards. The amount of time taken by the platoon sergeant in getting to the next overwatch position was the clue to the trainer that they were overextending



the platoon's ability to protect themselves. In this example, the platoon leader failed to monitor the progress of the platoon sergeant's section and exercise his command and control duties to reposition the section.

As the students accumulated experience, one would expect the types of decision situations identified as presenting the most challenge to the student platoon leaders would change over a period of days. What we discovered was that all of the decisions we logged on the sixth (next to last day of training) were still recognizable as decision situations faced in the earlier days of the training period. Table 6 shows the decision categories we collected.

---

Table 6  
Types of Decision Situations by Day

		<u>Frequency</u>
Day 3	Actions on Displacement	3
	Avenue of Advance	1
	Actions on Contact	1
	Occupation of a Battle Position	3
	Reaction to Enemy Indirect Fire	1
	Actions at Checkpoint	1
	Tank Crew Rescue	1
Day 4	Actions on Displacement	2
	Avenue of Advance	4
	Actions on Contact	4
	Use of Indirect Fire	3
	Displacement Planning	1
Day 5	Actions on Displacement	4
	Avenue of Advance	3
	Actions on Contact	2
	Occupation of a Battle Position	2
	Actions at Checkpoint	1
	Technique of Movement	1
Day 6	Actions on Displacement	2
	Avenue of Advance	4
	Actions on Contact	4
	Occupation of a Battle Position	1
	Use of Indirect Fire	2
	Actions at Checkpoint	3
	Platoon Control During Bounding Move	1
	Technique of Movement	2

---

An inspection of the table suggests that the cadets were still experiencing difficulties in moving their platoon and their tanks on the last day of data collection. (At this point, it bears repeating that from the fourth day of field training until the last day the cadets were facing live opponent forces; the first three days were devoted to learning movement techniques against simulated enemy actions (colored smoke). Therefore, the sixth day of training really represents just three days of experience for the cadets in dealing with live enemies.) The objective of the training program itself may have had some influence on this pattern. Command decisions in an armored platoon may possibly be simple variants on a few basic themes. If this is the case, then these pure topic classifications do not reveal any change in the manner that the students handle the situations. To determine if any decision strategy changes have occurred, we probed the students to elicit features of the decision context and to identify the reasoning methods used during the resolution process.

In analyzing the decision point data, we used a classification that makes two types of distinctions. First, it distinguishes decisions based on recognition/reaction from those based on the generation and evaluation of 2 or more options at a time. The first type of decision is what we have called a Recognition-Primed Decision (RPD), a type of condition/action sequence such as "If X then do Y." The second type of decision fits the classical type handled by behavioral decision theory. Within this second type, we have further distinguished between decisions about the nature of the situation ("If X") and those about the best reaction ("then do Y"). That is, the decision maker could generate and evaluate alternative hypotheses about the nature of the decision point, and/or could generate and evaluate alternative options about how to handle the decision point. This 3-way classification is presented in Table 7.

The data show that only 42% of the decision points were handled using the RPD strategy. This low frequency was anticipated since the subjects were less experienced than any we have previously studied. The RPDs included cases where several options were considered, but were generated and evaluated one at a time. The decision maker was serially searching for a viable reaction, and was not trying to make a systematic decision.

We also included in the RPD classification those decision points that depended on timing; the situation was clear, and the reaction was obvious. The only requirement was to monitor the situation until the right moment to make the reaction. An example would be displacement, where the cadet had to monitor when the enemy was at a break point in the engagement area. When the enemy reached that point, the cadet had to recognize when an enemy force is at a break point in the engagement area and then

Table 7  
Classification of Decision Strategies

Strategy	Day				Total	%
	3	4	5	6		
Recognition-Primed Decisions	6	3	5	9	23	42%
Concurrent Evaluation of Situation	1	4	5	4	14	26%
Concurrent Evaluation of Reactions	4	6	2	6	18	33
Totals	11	13	12	19	55*	100%

\*Of the 57 Decision Points studied two did not contain sufficient detail for classification.

radio for permission to displace. In another example, the sudden sight of an enemy tank in the engagement area automatically forces a response: wait for a second vehicle to appear and then commence engagement. The skills involved in these choices are first recognizing when the situation is changed and second knowing the option appropriate in the changed situation. Therefore, we considered TIMING decisions as RPDs unless there was some evidence of concurrent deliberation. This is consistent with our recent CD studies.

A total of 58% of the decision points were handled by concurrent generation and evaluation of options--the examination of two or more alternatives at the same time, looking for relative advantages and disadvantages. The proportion of RPDs was fairly constant across days.

We noted that as the training period progressed, the students began referencing previous situations in their descriptions of their actions at a decision point. One exercise that illustrates this point was a deliberate occupation that took place on the sixth day. The cadet positioned his platoon in a primary battle position based on what he remembered of an attack through the area previously. Being familiar with the terrain, he chose to orient his platoon exclusively on a certain avenue of approach he remembered being used with success at an earlier time. Adding to this oversight was the cadet's purposive neglect of specifying return routes from the position to his platoon. The cadet

reported that he and his class were familiar with the terrain, that he expected his platoon to exercise the appropriate judgment in route selection during the displacement.

A displacement activity is not generally carried out in leisure and platoon vulnerability is extreme, depending upon the direction and intensity of the enemy advance. These conditions emphasize the need for preplanning to avoid confusion and mission compromise. The TCI on this exercise was quick to point out that the terrain afforded a type of pincer movement on both sides of the platoon position, a possibility for which the cadet made no plans. The TCI also stated the cadet and his platoon would have been wiped out had the enemy been somewhat more clever than the cadet had anticipated. In a worst case scenario, the enemy could have flanked the platoon and an orderly displacement would have been impossible. The platoon would have had to both identify alternate routes back to the subsequent battle position as well as defend against attrition while falling back.

The fortunate outcome for this exercise, a successful initial displacement from the primary battle position, was more the result of the 'enemy' AOBs doing the obvious rather than any particular skill on the part of the cadet acting as platoon leader. That the TCI made repeated reference to this poor planning indicated that the simpler skills of platoon coordination on a battle position on day three was now replaced by an emphasis on contingency planning. The errors we informally observed from this and other such incidents on the sixth day suggest again that training expectancies had a qualitative shift over this period of days. The types of problems facing the cadets had not changed. Instead, their ability to plan for what most likely would happen AS WELL AS other possibilities were being evaluated on the latter days of the exercises.

Analogues. The example cited above showed the student relying on what he had seen before to guide his decision. We observed a large number of analogues in this study, more than in any of our other studies. The immediacy of our observations may have been a factor here. We observed each of the incidents and conducted the interviews within an hour, sometimes within 30 minutes. Table 8 lists the number of analogues reported. Included in the table is an evaluation of the effectiveness of the analogues in guiding the student, the judgment coming from the TCI's account of the events.

Of the 26 analogues, 14 dealt with terrain, 9 with platoon control, 1 with enemy movement, and 2 with communication. There was an average of one analogue for every two decision points.

There were 7 analogues for days 3 & 4, out of 24 decision points probed. For the last two days, 5 & 6, the frequency of analogues had almost tripled, to 19 out of 31 decision points

Table 8

Use and Efficacy of Student Recall of Previous Experiences to  
Guide Decision Making

<u>Day of exercise</u>	<u>Frequency of analogues</u>	<u>Utility of analogues</u>
3	2	1 helped 1 disrupted
4	5	2 helped 3 disrupted
5	12	8 helped 3 mixed 1 disrupted
6	7	2 helped 3 mixed 2 disrupted

probed. One possible reason is that the cadets simply lacked the experience base on the earlier days. They did not have anything that could serve as an analogue.

How did they use the analogues, and how were they helped or disrupted? A full account of the analogues is presented in Appendix C. Some typical cases are:

"Well, I guess this is a prime lesson in how quickly terrain can change. We were out here about 15, 16 days ago, doing Mounted Land Navigation. And I traveled up and down that same course during that time and there was no problem that time. So I didn't take into account the changes the weather might have on the terrain. So I basically screwed up. thought if it was good then, it would be good now. So I decided on that route."

"I knew more than likely where they (the enemy) were going to be--had a defense there about three days ago. The ridge behind the hill was lower, was probably where they were going to be--only place they could be."

What do we learn from these cases? It is clear that analogues are not uniformly facilitating or disruptive, and we should not expect that they would be. The purpose of training is as much to show the cadets how not to overgeneralize from analogues as to use analogues. They must learn which similarities are important and which are irrelevant or misleading. For purposes of training it is important that they

try analogues that fail, in order to learn why. We can see over the course of the four days we observed them that there was a heavy use of analogues. In about half the exercises the AOB relied heavily on an analogue for guidance. We can also see learning about critical factors affecting the application of analogues. We do not see a better use of analogues. On days 3 & 4, 3/8 analogues were helpful, and on days 5 & 6 10/19 analogues were helpful, about the same ratio.

### Conclusions

The decision point analyses were particularly striking. We have not previously studied subjects with as little experience as these AOBs, and the proportion of deliberated, concurrent evaluation of options was much greater than in any of our other studies. In our initial study of fireground commanders we obtained 80% automatic RPDs, vs. 20% deliberated decisions. Here, we obtained about 50% automatic RPDs and the rest deliberated decisions. This confirms our hypothesis that conscious deliberation is what people do when they lack the experience to recognize the situation.

The analysis of situational awareness showed that the cadets and the TCIs were quite well matched in terms of the range of factors to which they attended and to a lesser extent the frequency of use of these factors. So the limitations of the AOBs were not due to their inability to notice cues. Their problem was in the realization of linkages, of the way the conditions could interact to impact their performance. Previous experience with the exercise scenarios helped them prepare for certain familiar situations, but their attentions on similarities also hurt them in underestimating the contingencies of a problem approximately half the time. The focus on those aspects of a situation that appeared similar to other situations did, however, aid them in recognizing a subset of the type of contingencies that their instructors typically addressed. Some few examples of hypothetical enemy reactions were shown to be considered, but the majority of the "what if" scenarios the students posed involved their own platoons and the terrain.

The ability to pose just the enemy hypothetical relationships would have given the students an increased chance for survival. We saw the majority of decision situations involving enemy contact resulting in student 'deaths.' The enemy hypothetical category frequencies collected from the TCIs in these cases showed the superiority of the instructors in anticipating enemy reactions versus the students. The AOBs have trouble with these hypotheticals, particularly the interaction of hypothetical friendly actions and enemy actions. They could not anticipate the future, what to expect. Again, there are no rules or shortcuts to experiences that allow them to build up prototypes and expectancies. In short, the AOBs lacked the

prototype base that would enable them to rely on RPDs. Instead they had to think out many decision points, after stopping to do so, and getting killed by their TCIs who kept drumming it into their heads that you cannot stop to think on a battlefield. As the students gain more experience, we would expect them to begin to approximate the situation assessments of their instructors, to show a large drop in the terrain analysis and a greater parity of platoon and enemy hypothetical scenario considerations.

It could be argued that recognition is less likely in complex situations, since these require some analysis. However it may be that people are less likely to have experienced the complex situations, and therefore forced into analysis. Certainly the decisions facing our fireground commanders were not simple. The decisions facing the tank platoon leaders were complex, and the AOBs responded by analyzing strengths and weaknesses of different options only half the time. But in the interviews we found that the TCIs had no trouble recognizing what was going on and which reaction was called for.

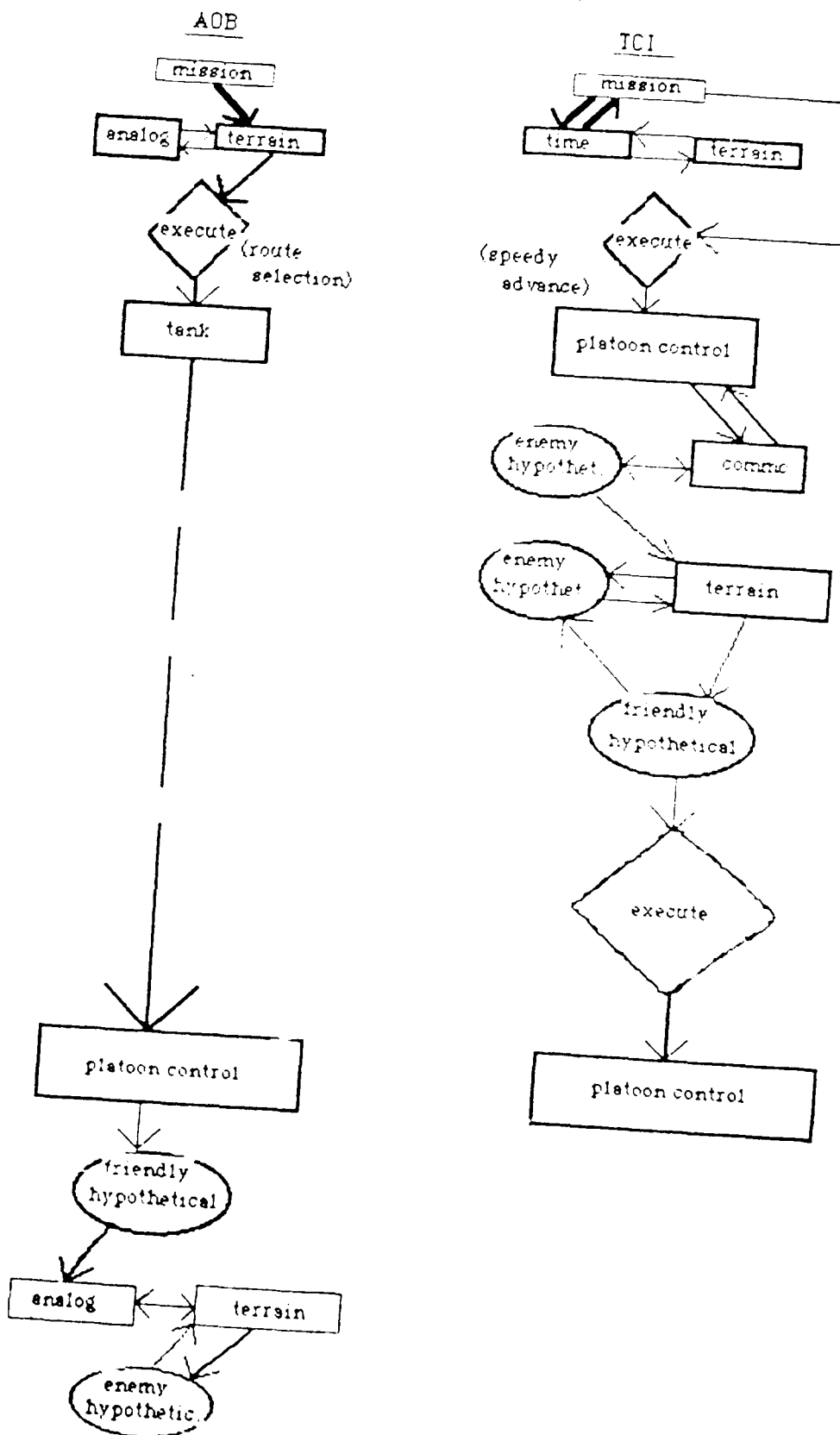
We have attempted to formalize the representation of SA. Figure 4 shows a schematic diagram of the elements of two decision situations. The schematic is reminiscent of the case grammar developed by Fillmore (1968), and it shows the contrast between the AOB and the TCI. The schematic shows the cycle of situational aspect category use that both students and instructors went through at particular decision points. Another format we used is presented in Table 1 and in Appendix B. This is the side-by-side comparison of the SA for the AOB and the TCI. The purpose of these was to show what the TCI was attending to that the AOB was not.

We believe that these forms may have merit for purposes of communication about SA. The results of the SA analysis suggested that attending to the right situational features is not sufficient, i.e. not matched by an increase in performance quality. To help students draw the appropriate inferences from the features they are recognizing, the following simple exercise might be helpful: present data such as Appendix B and let AOB identify what the TCI was seeing vs. their own interpretation. Bloom and Broder (1950) have used such a self-generated evaluation with school children, to good advantage.

How do these results compare to the standard expert/novice studies such as Larkin, McDermott, and Simon (1980) and Chi, Feltovich, and Glaser (1981)? Our present analyzes were not sensitive to the use of specific cues and the organization of cues, but our experience suggests that in all these studies the experts and novices were trying to do the same thing. The differences were not in the strategies used, but in the content known. For the student platoon commanders, we saw that an

Figure 4.

# Schematic Representation of Advance to Contact





increase in experience from day 4 to day 6 was not matched by the ability to derive certain implications, and this is what impaired their performance.

This conclusion is significant in that it means that we should not be trying to formalize better strategies to teach the novices. The traditional goal of teaching general purpose prescriptive decision strategies, such as option generation and analysis, has implied that for a small investment, i.e., the training of MAU techniques, large and generalized gains would be realized. This approach held the promise of providing powerful decision making skills across different domains. Attractive as this goal was, it has not been demonstrated as necessary or desirable in this study.

We have seen that the cadets were having trouble decentering (to use a Piagetian term). They could not take another perspective. They could not position their platoon because they could not anticipate what the other tanks could see of the battlefield. They could not imagine how they looked to the enemy. There are no tricks here. They have to gain enough experience in seeing multiple positions for themselves before they can anticipate how others would see them.

Although this study did not undertake to examine training, certain implications can be readily seen. There is a general need for training in decentering. This is seen in the cadets' continued inability to use indirect fire well (they cannot visualize artillery units waiting to help them), consider neighboring platoons, or enemy goals. They do not make good use of scouts' reports on the enemy, or about scouting actions in general. For example, they do not interpret a report of scouts falling back as a sign of an enemy advance.

One situational feature consistently missing in the students' SA accounts is the quick and accurate recognition of time and space relationships. We did not see much of a drop in mistakes due to poor tracking of timed decisions. Example: Day 3, the AOB reported enemy advancing slowly, perhaps a kilometer every five minutes. The TCI felt that enemy routes were good for speedy advance and AOB erred in not displacing sooner and calling for indirect fire cover. On Day 5, the AOB observed that "enemy was not on my tail, I won't be shot at. The enemy can't be over the ridge yet." The TCI reported that "Enemy had to come over the top of the former battle position, they could see all the way down to the woodline the AOB was paralleling." The mistake was in not using the routes in the woods to preserve cover and concealment, and misjudging speed of enemy's advance.

There is a general theme in our data of the cadets not appreciating speed and direction of change. It is hard enough to

handle first order systems (e.g., simple speed). Second order systems are truly beyond the students (rate of change in speed). Complicating this relationship is that they are dealing with an enemy intent on deceiving them. Training here could involve films and videotapes, teaching cadets to estimate timing issues. The TCIs could film tank advance rates at varying speeds, expose the cadets to these scenes and have them estimate the approximate distance traveled and locations of the tank. The training scenario should be set up like this: The starting positions for the tanks in the film would be given in terms of a map each cadet would have. These maps would also hold overlays for particular missions.

The filmed tanks would be shown, the film stopped, and the AOBs would be guided in assessing the probable location for the tank if it were to continue its movement on that terrain. The objective here would be the assessment of platoon responses to the challenge these filmed tanks would pose, not so much in improving the ability to estimate target movement velocity. Some distortion would occur, but this form of specialized training would be inexpensive and more exercises could be accomplished in a given period of time. As a side benefit, these drills would offer increased opportunity to practice map reading and platoon tactics. We noted informally that another problem area for the cadets was map grid and terrain coordination. The TCIs always looked out and referred to things as being north, south, etc. of reference points whereas the cadets typically used terms like right or left.

As stated above, we believe that there is a need for familiarizing the AOBs with: reading the situations and anticipating the outcomes, developing a base for handling hypotheticals, and applying imagery. Generally this is what the exercises are accomplishing. This would be difficult or impossible to do in the classroom. To some extent, it can be provided via simulation, but we realize that any simulation will not provide the full cluster of concomitant clues to learn how to see what is going on.

The training program presently is well directed to providing the experience base on which prototypes will be synthesized. The training manuals put a lot of emphasis on procedures. In some cases this may be excessive since context determines which procedures and when to reject the book advice. But the drill in procedures is generally necessary to start the instruction of beginners.

Over the course of training, we saw improvements in the use of procedural knowledge. Radio protocols improved. The AOBs learned to make much better use of terrain. They made good progress in movement (speed and mobility). On the other hand, they were still jerky in making transitions, stopping to re-

organize the platoon. They never learn the procedure of backing a tank up after firing, to change location. They appeared stuck in a video arcade mode, continuing to shoot "what's on the screen" rather than seek safety. Finally, they do not master tricks such as pre-planning use of artillery so as to avoid having to code terrain map coordinates during the exercise.

In the recognition of these failures and throughout the study, the Critical Decision method was again useful. We applied it differently in this study, focusing more on situational awareness rather than on decision strategy, but we feel that the type of data that we obtained is quite informative in showing how the cadet's understanding differed from the instructor's. We conclude that the investigation of situation assessment will not be amendable to generalized formal decision research methods. Our findings would not have been at the level of detail we achieved without a reliance on and sensitivity to specific decision situations. Additional work with the Critical Decision method may provide the sharpest insights into the nature of expert-novice differences in real world settings. The collection of such data can clearly assist in the education of neophytes of any field. The guidance given by these data can aid in the construction of those decision aids which stand the best chance of adoption.

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APPENDIX A

INTERVIEW GUIDES

## TCI (Platoon Leader tank) Probe Guide

FTX/STX #/description:

INTERVIEWER: \_\_\_\_\_

Platoon: \_\_\_\_\_

### Part I: Pre-AAR Probes

1. What do you think were the most difficult/challenging decisions the AOB faced in this exercise? Select the most challenging.

(Obtain sufficient mission time and platoon execution anchors to pass off to the AOB interviewer)

2. If you had to rank these decisions in terms of learning importance, how would you rank the decisions you have just given me?

(List the ranked decisions, with brief mission anchors. Obtain sufficient descriptions of the decisions to inform the AOB interviewer.)

-----hand off to AOB interviewer-----

### FOR EACH DECISION POINT:

1. WHAT did the AOB DO? Suppose you had to describe the situation of this decision to a friend of yours. What would you say to him in 25 words or less?

2. If you with all your experience had done exactly what the A.O.B did, how would you RATE yourself on handling:

a) your own TANK on this seven point scale?

1	2	3	4	5	6	7
----- ----- ----- ----- ----- -----						
very poor, tank unable to or not in the position to complete the mission			tank able to proceed with mission but not in best position to complete the mission			tank in best possible position to complete the mission

b). on handling the PLATOON on this seven point scale ?

1	2	3	4	5	6	7
----- ----- ----- ----- ----- -----						
very poor, platoon unable to complete mission			decision of some consequence to the speed and quality of the achieving the objective			Platoon in best position to complete the mission

3. Were there any OPTIONS available to what the AOB decided?
- 4a. (TCI as PL)...what would you have done?
  - b. If you had to be in the EXACT SAME POSITION as the AOB was,  
...HOW would you REFINE what AOB did?
5. What were you AWARE OF--KNOW--UNDERSTAND that would have led you to do what you said you would have done?
- 6a. What would have made you NOT DO this (this = #5)?
  - b. This being the case..what would you have done?

-----  
Return to next decision on rankings list and repeat questions #1--6b.



# AOB (Platoon Leader tank) Probe Guide

FTX/STX #/description:

INTERVIEWER: \_\_\_\_\_ Platoon: \_\_\_\_\_

Describe the first decision situation identified by the TCI in the ranked order list as received from the TCI researcher. Focus the recall process by mission phase or terrain location descriptions of the decision situation.

1. WHAT did you (AOB) decide here? Suppose you had to describe the situation of this decision to a friend of yours. What would you say to him in 25 words or less?
2. If you had to rate yourself on what you did, how would you RATE yourself on handling:

a) your own TANK on this seven point scale?

1	2	3	4	5	6	7
-----	-----	-----	-----	-----	-----	-----
very poor, tank in immediate danger, not able complete the mission			tank able to proceed with mission but not in best position to complete the mission			tank in best possible position to complete the mission

b) on handling the PLATOON on this seven point scale?

1	2	3	4	5	6	7
-----	-----	-----	-----	-----	-----	-----
very poor, platoon in immediate danger, not able to complete the mission			decision of some consequence to the speed and quality of the achieving the objective			Platoon in best position to achieve the mission

3. Were there any OPTIONS available to what you decided?  
Was there anything else you could have done here, that you thought of doing right then?
4. What were you AWARE OF--KNOW--UNDERSTAND that led you to do what you said you did? How would I have recognized to do (what the AOB did)?
- 5a. What would have made you NOT DO this (this = #5)? What would have had to be different for you not to do this?
- b. Suppose this were the case...what would you have done then?

-----  
Return to next decision on rankings list and repeat questions #1--5b.

APPENDIX B  
CONDENSED DECISION ACCOUNTS

## DECISION ACCOUNTS

Day 3  
DP 3.1P

### a. Reaction to indirect ACC

- : hesitated
- : was trying to turn turret around to engage with main gun
- : wanted enemy to cover up/button up
- : operation was deliberate attack
  - movement checkpoints known, movement would be covered up to a point.
  - mechanic and tank platoon support, would all go on-line
  - one of these units would be base of fires for assault.

### TCI

- : got to call for indirect
- : one member of platoon did, overrode AOB platoon leader
- : could use 2 tanks in area for fire support
  - "at that range in the engagement area, could put max firepower with 2 tanks
- : have to know whose on left, right flanks - who was covering me
  - Red 3 was on right, Red 4 slightly behind Red 3.
- : keep moving
- : never call for immediate suppression on incoming artillery
- : mask, let crew mask, inform commander and keep moving.
  - inform commander "I" has been observed, I was observing artillery and continuing mission.

Day 3  
DP 3.3P

b. Action at checkpoint

AOB

- : "had to tell" commander platoon was set
- : platoon was continuing mission
- : (heard himself say, "continuing mission" so just moved out
  - without waiting for code word)

TCI

- : AOB was 200 meters short of checkpoint
- : 'AOB didn't know what to do'
- : knew at checkpoint, would have to stop.
  - platoon was in overwatch for other (imaginary) platoons; they'd have to call set before platoon could move
- : movement speed important
- : too much confusion on radio, platoon members should stay off radio net.
- : have to know what to expect, what terrain was.

Day 3  
DP 3.4P

Actions during Ambush Tactic

AOB

- : was in offense exercises yesterday, decided to continue engaging enemy, take as many out as possible
- : job was to suppress enemy, slow enemy down
- : Alpha team and Charlie company are also in on this engagement - they're supposed to help slow down enemy advance
- : once enemy at engagement area breakpoint, move back to subsequent
- : only had 2 tanks, was shorthanded, were outnumbered

TCI

- : enemies coming from front
- : have to know whether fallback movement is covered.
- : in a hasty defense, may have to run over the next battle position and circle back to it.
- : keep commander informed.
- : platoon sergeant tank disabled but can overwatch this position
- : short one other tank — that crew should be destroying the tank and walking to battle position where they'd be picked up (all without being told)
- : the op-order said fire 1 round then move back
- : intelligence reports coming in, enemy movement this way

Day 3  
DP 3.5P

Downed Tank - Commander Order to Pick Up the Men

A08

- : always follow orders, any orders
- : if in this position, would cross kill zone to get the men
- : don't want to waste any of "my" men's lives
- : trust other platoons, one left/one right, would be suppressing enemy
- : confusion over what is "Training" and what to do in real world
- : Downed tank crew could have dismounted and come back on their own

TCI

- : had already fired on enemy
- : trying to fight all way back down to downed tank would have killed everyone who tried
  - platoon could be wiped out
- : ignore order — tell commander "write them off as dead"
- : down tank is in kill zone
- : enemy movement = @ 500 meters from downed tank.
- : better to write off one crew than risk (your) own platoon
- : enemy knows I'm up here

Day 3  
DP 3.6P

Actions on Primary Battle Position

AOB

- : wanted everybody to get MAX amount training in/
- : another platoon was already displacing (need to provide cover)
- : if both platoons were to displace at once, both would be destroyed, cause no one was providing overwatch
- : need to defend this sector, once enemy gets to breakpoint, going to fall back to secondary position. Once there, establish defense position and fight battle from there.

TCI

- : fire few rounds then move back
- : enemy was firing on this position
- : don't stay in one spot too long--enemy will get a fix and put massive fire on the position
- : this whole area is battle position
- : do what is necessary to stay alive
  - back up, move forward, etc.

Day 3  
DP 3.11

Actions on Displacement (timing and choice)

AOB

- : "SOP", taught in classroom
- Rule: when enemy in or beyond killzone then displace
- : forward observers in (already pulled back)
- : had to cover own move, use platoon sergeant section to overwatch
- : spot reports of enemy movement forward
- : got to get spotrep out to commander
- : Saw white star cluster, time to go
- : op-order said — when enemy in engagement area at breakpoint, displace

TCI

- : enemy at 2 places
  - 1 platoon of BMPs and platoon T72s
  - 2 platoons T72s
- : have to engage — take out as many as possible
- : timing — when enemy exited engagement area, get spot report to commander on enemy's second location and get off battle position
- : enemy was close (spot reports)
- : 1 friendly platoon in area of enemy was probably overrun — this platoon was last to displace
- : another platoon was already displacing



Day 3  
DP 3.21

Actions during engagement (contact)

A08

- : platoon on line and firing  
( 'figure, 4 tanks x 3 sabot  
rounds each for 1 enemy platoon' )
- : op's in (already pulled back)
- : could move up, expose turret to  
obscure engagement area
- : enemy were (had) to be dead

TCI

- : the platoon leader's wingman  
fired by himself, didn't wait  
for platoon, ineffective
- : gave position away
- : number of enemy platoons in  
area, from above
- : spot reports coming in, got to  
relay to commander
- : Need to watch own main gun, get  
gunner oriented to engage
- : driver should be backing down on  
his own, moving to alternates  
- tank commander could help by  
just giving directions e.g.  
"15 yards to left"
- : can just back down and come back  
up
- : must prevent enemy from key in  
on you/your position

Day 3  
DP 3.22

### Actions on Displacement

#### AOB

- : was in a hurry, things had gone bad before
  - made mistakes in spot reports
  - made mistakes in positioning of tank
- : wanted to get there and do it, not thinking about how
- : road on left too open, would expose tank/platoon
  - was a boundary, was not going to go over the road or past it
- : (AOB went straight over top the hill and got killed)

#### TCI

- : initial approach, good use of covered and concealed
- : movement through valley between 2 hillocks on top of battle position
  - exposed flank and showed grill doors to front
- : should have gone around battle position and come back to battle position
  - use ridgeline as cover forward
  - tell driver to move quicker
  - could use smoke
- : possible to move straight over top but have to be quick
- : enemy probably coming up behind me
  - know enemy gunners at least good as me, would be able to engage me
- : terrain: low ground to the east
- : know
  - (rule: never enter battle position from front - always want to enter from flank or rear. Don't want enemy to know exactly where you're going)
- : IF you pull straight up on battle position and turn around, enemy knows you're there
- : IF you use side of battle position, enemy might not know where you're going to stop — might think you're going on to another ridgeline and they might expose themselves
- : pullup from side or rear so
  - don't give position away
  - don't draw fire

Day 3  
DP 3.31

Use of Indirect While Displacing

AOB

- : thinking about getting down low, so couldn't be seen by enemy
- : keep main gun oriented toward enemy
- : get men/platoons off battle position to subsequent
- : wait for platoon sergeant section to be on road to subsequent before calling indirect
- : enemy was advancing slowly, not quite 1 kilometer per 5 min
- : try to stay alive,
  - fight the platoon

TCI

- : enemy can see clearly this position
- : enemy routes good for speed
- : smoke already a preplot
- : enemy still close (probably on friendly sister platoon)
- : enemy would advance to this position,
  - had been fired on from here,
  - would come straight over top
  - could see entire route platoon was displacing
  - would be grill-doored
- : have to approach subsequent from front, have to run over top (leave self open)
- : call for indirect on first battle position
- : may destroy enemy coming up on this position
- : need to check status of second platoon (are they alive and covering my retreat)
  - may call second platoon myself
- : both first and third platoon displacing at same time
  - enemy could advance unhindered unless second platoon slowed enemy down
- : keep gun oriented toward enemy

Day 3  
DP 3.32

### Formation at Battle Position

#### AOB

- : wanted to keep control of platoon
- : wanted visual sight of them and forgot about front
- : could see tank on right, but one on left was on a hill blocked by bushes
  - knew he was there but couldn't see him
  - wanted to know where he was, have to assign sectors of fire, have to know what he sees
- : wanted space between vehicles, prevent bunching up
- : no good berm to front to pull into or behind
  - couldn't tell where to stop
  - terrain: gentle slope of hill, a few shrubs
- : it was already time to be in position
- : (AOB pulled up on line with platoon, exposed the tank and died)

#### TCI

- : gunner cannot move tank up by relying on sights - leaves main gun exposed
- : should stop in hide position. Make sure platoon on line and in hide position
- : move up to turret down and assign sectors of fire then move to hull down
- : have to split engagement area into 3 for surveillance/engagement
- : engagement area is only commander's best guess for main enemy advance
- : don't forget flanks
- : main enemy avenue of approach is high speed avenue
- : check out battlefield
  - don't want to go to hull down immediately—IF a large body of enemy tanks there
- : call in "established"
- : don't want platoon to just drive up (individually)
  - if one gets there first, 25% firepower forward, 75% back
  - move everyone together in case anything there, can give platoon fire command, all fire at once

Day 3  
DP 3.41

Formation on Battle Position/Location of Battle Position

AOB

- : terrain flat
  - artillery from enemy danger
- : could see far, engage
- : good hull downs
- : scout force (screening force) in front
  - no obstacles can be used cause scouts have to come back through
- : could have chosen better positions but maneuvering in open, (artillery danger)
- : only holding the position until main force (friendlies) sets up
  - only 1 platoon against a battalion, we're outnumbered
- : when enemy is fired on, they'll go into bounding, and have to slow down
- : we were in bounding yesterday and took 4.5 hours to go 3000 m
  - if enemy slows down, can set up a deliberate defense against them

TCI

- : time was limited, only 1/2 hour to get established (no time for deliberate occupation—deliberate occupation takes at least 1 hour, hustling)
- : common went out on platoon leader tank, had to switch (some confusion)
- : covering force will engage enemy, screening force will not)
- : intelligence report, armored column moving in this direction
- : an OP already withdrawing
- : would have done everything AOB did but a little quicker

Day 3  
DP 3.52

Formation at Battle Position (platoon coverage positions for engagement area)

AOB

- : thought had 4 tanks in platoon, planned to drop off 2, go to position and wing tank to go on, positioning on platoon leader
- : platoon sergeant section already on line when I pulled into position
  - didn't know platoon leader wing tank down, until TCI said
- : was looking at trails, for good positions for platoon
  - didn't care which tank was where at this point
- : still thought had 2 tanks on right
- : hasty defense - only 40, 50 minutes to get all established
- : platoon down low enough, could fight from there

TCI

- : pull up in center, don't choke platoon
  - give hand and arm signals to place rest of platoon
- : ridgeline was our battle position
  - further east, ridge gets lower and into woods
- : road on west side is boundary
- : further east, goes down into valley--don't want to put tanks down in low ground (far left tank could cover part of battle position from a position in valley, but don't want to do that because of limited field of fire)
- : past road on west, dense woods. Don't want a tank on far side of road. If displacing this tank would have to come over top of road and be exposed
- : the width of battle position determines position
  - if no good position in center, move to right or left of center

Day 4

DP 4.3P

Response to Delay in Requested Indirect Fire

AOB

- : first report of enemy was fleeting, didn't get a good look at them
- : knew enemy was out there, couldn't get a good shot at them.
- : enemy was moving
- : artillery was not too chancy (wasting direct fire, giving away position)
- : could have called for it sooner, quicker
- : artillery would make enemy button up.

TCI

- : could have coordinated with fire support to get indirect "at my command" beforehand
- : if platoon waited longer, would have to fight longer, and
- : terrain to cross when leaving that position was open - possible loose 1 or 2 tanks from platoon sergeant section to enemy fire
- : because he waited for indirect, enemy moved all the way to breakpoint without being engaged
- : "Rule": if you can't get indirect fire then use direct fire."

Day 4  
DP 4.4P

Actions on Displacement (Timing)

AOB

- : was concerned with engaging one enemy tank seen
  - was trying to formulate platoon fire commands to do this
- : enemy moving through, about to roll over primary battle position
- : going to call for smoke to cover displacement

TCI

- : waited too long to request displacement
- : enemy was already at breakpoint when call was made - should have called when enemy was 100 meters in front of breakpoint
- : should start moving before commander gives permission
- : enemy was moving quickly, would have called earlier (saying enemy was at breakpoint, while enemy was in front of it)



Day 4  
DP 4.5P

Use of Indirect

AOB

- : vehicles in a stalemate, enemy vs friendlies
- : friendlies in good defensive position; enemy not moving enemy and pinned down--can't move without going in open
- : can't get a clear shot (MILES obscured)
- : having trouble getting artillery
- : could see 1 enemy very clearly, but can't engage (MILES obscured)
- : wanted to defeat enemy, take some out (main gun)

TCI

- : at battle position
- : 3 friendlies available
- : enemy location
- : 2 enemy destroyed, engaging 2 more
- : continue to call for artillery
  - indirect, then
  - adjust fire shift (quicker)

Day 4  
DP 4.11

Avenue of Advance (choice of Route)

AOB

- : map recon showed east route better
  - more covered and concealed
  - could sneak up on enemy
- : looked over terrain
- : was in this general terrain couple days ago (in gunner's seat)
- : terrain for enemy
  - good position on a hill for a defense, a side of a hill
  - only 2 good areas where the enemy could set up well
  - and both positions covered more of the middle of axis of advance, not sides
- : terrain: west side boundary was a road, too open
- : control of tank rules: "  
Leadership teaches, gunner and loader run the tank so platoon leader can take care of platoon

TCI

- : center was wide open
  - could only use it if being chased by another tank
- : from enemy direction, terrain passable if wooded, not too close
- : enough low ground to work west
  - use tree lines to screen movement — cut of part of battlefield
- : expect wing position his tank in relationship to platoon leader — in this case, not enough room
- : taking westside, would obscure S. part of batt. field
- : enemy could put platoon on enemy side, but unlikely — too open
- : would never have taken center route
- : road out there (on w.) natural obstacle, could be mined
  - also, enemy could overwatch it, I would have to go overtop
- : highest terrain on enemy's side
- : Known enemy op's location, gave limited view to the W (treeline)
- : if unknown enemy strength, then go W through trees
  - But enemy has 2-T62's, so go enemy for better fields of fire
- : platoon was not dispersed behind platoon leader--were told to do so
- : platoon was easily seen

Day 4  
DP 4.12

#### Action on Contact

##### AOB

- : wingman spotted tank, gave spot report
- : report relayed to commander
- : terrain: looked but platoon leader had different engagement area sector
- : gunner picked up tank
  - platoon leader moved main gun himself
- : enemy came across ridge and skylined himself
  - platoon leader gave platoon fire command
- : op-order: 2 tanks in engagement area
  - platoon leader rejected first thought to fire, only one tank seen
  - reconsidered, enemy tanks will not be solitary
  - must be more out there
- : platoon leader was in middle of platoon, could see every platoon tank
  - had good command and control could see who was backing up, moving to hide
  - if commo jammed, could give hand and arm signals
- : terrain: flanks covered by woodland, front gave clear shot at enemy, only avenue was straight over hill (skyline) IF enemy that close, platoon would be displacing
- : indirect fire: called for immediate suppression
  - could/should have used fire for effect

##### TCI

- : trigger point is 2 enemy tanks in engagement area
- : should have prepped platoon to fire anyway
  - once enemy in engagement area, should commence fire as a platoon; 1 tank alone firing would give away position
- : from map, know where engagement area extends,
- : know range of main guns
- : engagement area in this case went beyond visual contact from this position
- : when enemy was sighted, enemy was somewhere in middle of engagement area. Fire immediately, stop advance
- : if more enemy then platoon could engage, get spot report to commander to move from this position
- : IF spot report sent instead of engaging enemy first, gives enemy time to advance on position
- : terrain: enemy can get into east woodland, stay covered and concealed all the way to platoon position. Once enemy sighted, time for action

Day 4  
DP 4.21

Avenue of Approach (choice of route)

AOB

a first right

- : route gave good view to center
- : enough trees to break up tank outline, not enough to obscure field of view
- : going further into woods would cut off sight of battle field
- : wanted to come out of woods and not be got off guard
  - wanted good distance FOV
- : from National Guard unit: don't go over boundaries (further into woods)
- : didn't think of calling commander to request permission to go across boundaries
- : thought: training was to see what you could do with what you had

b second right

- : wondered if this was correct direction
  - should I go around
- : don't want to crest hill
- : thought I could go around
- : terrain: rolling hills (forward)
  - thought could cut across road quickly, work way back through valleys
- : hope to cut quickly over road
- : terrain smooth in this area, need to move quickly
- : TCI turned down route (90 degrees) (depression, throw track)

TCI

A and B 180 degree turn in woods

- : to get out of woods, you can
  - go straight (E side)
  - go angled (W side)
- : going 45 degree (angled) would lead to edge of woodline
- : terrain channelized movement
  - all ducks in row
  - couldn't use staggered column
- : got to keep going forward (south)
- : keep platoon informed (from map)
- : cut through woods, to enemy side and cross road
  - only op's, not that much firepower
  - knew general location of op's, so could watch for them
- : know what would be good positions for enemy tanks --
  - enemy positions not good on east, probably not there
- : trees would cover part of the move
- : after crossing would stay to west, trees would cover

Day 4  
DP 4.22

Actions on Contact (maneuvering to alternate fire positions)

AOB

- : were assigned this position, "not much choice"
- : pulled up too high first time, (TCI: "back down" suggestion)
- : present position: clear shot for 3000 meters EXCEPT for little valley, big enough to hide tanks
  - enemy tried to use this valley to approach
  - NOT going to engage over 3000 meters anyway
- : entire position covered
- : terrain: flanks covered by trees, lake and trees
  - only access to rear
- : platoon formation real close, 25-30 meters apart
  - supposed to be 100-150 meters apart
- : battle position not large enough to spread tanks out
- : each platoon tank had berm to front
- : road on left
  - open area, enemy could engage tanks using road
- : couldn't see platoon tanks across road
- : priorities were making sure commander informed, using artillery, giving platoon fire commands

TCI

- : after first engaged, move to alternate
  - good enemy gunner could destroy platoon leader tank if no move made
- : no movement at all on battle position
  - wasn't engaged yet but no reason to sit and watch
- : can't see entire engagement area, don't know where enemy is
  - don't know if enemy ready to engage
- : could use indirect but danger of obscuring own platoon vision
- : when not moving, tank becomes a pillbox
  - no better target than a pillbox
- : should move around so many times enemy would think multiple tanks there
- : not much terrain on position to move around on, but 2 or 3 other spots to move to
- : have to back up
  - give enemy idea tank moved from that spot
  - then can move back up to engage
- : could give signature from main gun, and still effectively engage
- : if (platoon leader was enemy) on offense, then think opponent dug in somewhere - most likely on high ground to overwatch
- : platoon on high ground
  - Rule: whoever gets to high ground first has advantage over adversary
- : enemy expects platoon to be on high ground

Day 4  
DP 4.32

Actions on Displacement (choice of Route)

AOB

- : from recon, routes chosen for platoon, self
  - never saw road finally taken
- : road taken obscured from battle position
- : hill in front, road went to right around it
  - didn't know where it went, could see far enough around it that it could have extended to second battle position
- : there were 4 roads from present battle position to second battle position
  - far left, 2 in middle, far right
  - far left goes higher
  - middle routes bumpy, will need driver to go slow
- : planned to take right middle path. Both left and right middle routes were parallel
- : wing tank (of platoon leader) followed on the platoon leader's displacement
  - lucky, platoon could not have seen route once platoon leader had gone far along it (wing original position was directly behind, screened by trees)
- : platoon leader left at 30 seconds ahead of everybody in platoon
- : enemy was about 10 kilometers away
  - from scouts' report, marked enemy location and movement
- : commander called, 'enemy moving along (planned) axis'
- : platoon leader thought platoon had at 20 minutes before enemy arrival,
  - can set up platoon sectors of firing
- : platoon sergeant section would have to take far right lane, no other choice route
  - section would be exposed going over top

TCI

- : use smoke to cover displacement
  - good, cause enemy so close
  - bad, if enemy further away (not this case) because smoke would tell enemy the platoon was moving from this location
- : smoke would - slow enemy advance
  - obscure vision
  - can't engage
- platoon on movement
- : coordinate route choice with other AOBs
- : either East route pretty good, using gunner for surveillance, and terrain depression for maneuvers
- : driver would select route, in general direction of tank commander choice
- : only enemy sighted had maneuvered to west
  - platoon leader section should go East
- : platoon leader section already on east side
- : wouldn't worry about low ground as much, just move quickly
  - more covered and concealed west, still would use east for speed

Day 4  
DP 4.51

Avenue of Approach (choice of route)

AOB

- : heard report of enemy op ( no location given/recalled)
- : thought of calling for smoke, but couldn't get through to FIST
- : east side was a good covered and concealed route
  - did a visual recon and choose this route
- : decided to just "jet across", move quickly without smoke
- : report of enemy OP was the MAJOR reason to take enemy route

TCI

- : west route is treelines, good cover and conceal, good high ground
- : east is low ground, gives good cover (trees)
  - can sneak through trails there but don't know where enemy is "could lose or gain"
- : lay smoke to cover the move across open ground before hit east route
- : can advance further with enemy route then west (have to come out in open on west)
- : got to know where you expect the enemy to be (on or near far ridgeline)

Day 4  
DP 4.52

Avenue of Advance (choice of route)

AOB

- : had reconned, moved through this terrain
  - had found routes 14 days previous in "Mounted Land Navigation" exercises
- : had been pouring rain last 4-5 days, did not think of rain impact on terrain
  - thought terrain would be same
- : if terrain route okay for platoon leader tank, good enough for platoon
- : good covered and concealed from LD/LC
  - would cross road (on initial route chosen) behind enemy battle position
  - all the way to west side was covered and concealed
- : first west turn, after backing down, channelized routes
  - more difficult to get back east UNLESS went completely back behind LD and turned around
- : one other trail to left (east)
- : "hoping maybe further down to the west trail would be able to get back east"
- : did not notify commander of est trail movement of platoon
  - commander could have switched missions, so no change in overall company plan

TCI

- : should notify commander of down tank (that blocked first route)
- : tell commander 'cannot maneuver east at this time'
- : terrain layout - should have backed up and gone East
- : if stay on original route and try to cut east around down tank, would throw a track
- : if stay on more west route
  - route chosen by AOB - an alert defense (enemy) would kill the platoon coming across (over top) of hills on that route
- : have to cross hill on west route and get back down to low ground to advance
- : East route, after stream, is low ground, lowest point in that area to cross to other side of road without being seen
  - enemy on top of hill cannot see platoon going across
- : terrain - ridgeline of trail AOB first choice. platoon is high up, stuck up there
- : difficult to tell from map that more east route existed
  - mostly tank trails down through there, tank trails not usually on map



Day 4  
DP 4.61

Choice of Formation during Movement

AOB

- : it's "SOP"
- : pretty much automatic, go into bounding upon contact with enemy
- : terrain: in woods, tight maneuvering
  - lost sight of 1 tank
  - lost a little bit of command, cause if you can't see you can't direct
- : platoon sergeant wing was fired on
- : have to fight platoon first
- : ridgeline to southeast--good cover and conceal position (to bound to, for platoon leader section)
- : (platoon leader did bound first)

TCI

- : terrain: hills, deadspace and low ground in front
  - would make me bound at point
  - really can't go much further this way (without bounding or having an overwatch)
- : good avenue of approach for enemy this way--straight down middle
- : ridgeline would be a key overwatch position for friendlies--also prevent enemy from getting there
- : have to see who's in better position to overwatch the bound
  - could call platoon for fix

Day 4  
DP 4.62

#### Action on Contact

#### AOB

- : were driving along, saw puff of smoke, heard a "bang" and saw puff of smoke
  - we were being fired upon
- : should have given "contact, action front" and started to send spot reports
- : all this time, loader was looking, saying "there's a tank"
  - I was trying to lay main gun on it
- : gunner fired didn't get a hit
- : big ridge ahead and road leads up to it
  - ridge not final objective, only a checkpoint, final objective @ 1-1/2 kilometers beyond ridge
- : platoon leader section ran into heavy section of enemy on east side
  - enemy was pointing west
  - platoon had slight advantage of flank shots on enemy
- : saw 2 of 3 enemy tanks on East, eventually the one west
  - 2 eastside of road, one westside of road
- : enemy on ridgeline platoon had set up on that morning, but on other side of road
- : don't understand why enemy set up there
  - west side has higher ground, more dominating view
- : concentrated on platoon duties vs. tank duties
  - don't want to lose control of platoon like other AOBs going through this class,
  - knew had to give contact before action drill
  - had "a laundry list of things to do that other people weren't doing"
- : taking route after down tank "screwed up" my perspective

- : looking at map, knew enemy would be on hill 69
  - so would bound platoon around enemy to get to objective
- : heard 1 spot report, then another - thought this was enemy force
  - first thought enemy had moved cause they had seen platoon, didn't expect enemy there

#### TCI

- : fight tank first
- : commo was down, so ignore for now and engage enemy
- : gunner scanning too high, need to pull main gun down
- : when first see enemy, give contact report
  - it commo out, then platoon would need to key off my actions (where pointing and shooting)
  - when a break in action, then try to fix radio and inform commander
- : enemy too close, no time to switch tanks (with wing tank to use radio)
- : mission was movement to contact
  - platoon had an opportunity to destroy the enemy, cause enemy oriented wrong way, opposite the platoon. Such opportunity only comes once in a while
- : all enemy gun tubes pointed away from us, so kill enemy; make up for radio another time
  - enemy were in cross fire pattern toward west
- : platoon in traveling overwatch,
  - 2 tanks in front side x side
  - 2 tanks in back side x sideanyone in platoon can give contact report, to get platoon in a firing position

Day 4  
DP 4.71

Use of Indirect Fire (pre-plan for fire on schedule)

AOB

- : call ahead of time, so smoke dissipates well enough to cover move
- : wind direction was east, so call for drop on west a little
  - a minute or 2 before you get there
- : have specific times to get to certain places
  - have to make those times

TCI

- : don't have to call for smoke and don't need arti, cause we gotta go through there
- : when smoke is dropped, a give away for movement in the area
- : If you don't drop smoke and enemy is in good defensive position then can pick off each tank
- : happened a while back, an AOB did not call for smoke and
- : enemy picked off each tank

Day 5  
DP 5.21

Reaction to Contact (obstacle)

AOB

- : give spot report
- : get platoon in good hull downs
- : get engineers to blow bridge
- : knew obstacle was a choke point
- : just wandered up into the kill zone right in front of it
- : had already coordinated with white for smoke

ICI

- : hilly terrain,
- : scanning head each time crest a hill
- : saw flank of tank
  - facing direction we came, gun tube over tack deck, light flashing
- : white had reported and killed vehicle
  - would call my platoon's attention to it
  - sometimes when you see one dead tank maybe more around
- : by not noticing dead tank, possible for first 2 platoon tanks being killed
- : as crest a hill, go into a mini-hulldown--slow down a little
  - take time to look around from turret down
  - don't go straight up and over
  - have gunner scan real quick
- : enemy tank must have been killed during displacement
  - didn't expect enemy tank right there
- : have to spread platoon out for better fields of fire
- : back down into hulldowns
- : call for engineer support

Day 5  
DP 5.22

Actions on Displacement (formation and route)

AOB

- : mission to defend the position, then ordered to fall back
  - didn't have commander authenticate, was a mistake
- : went ahead and moved out, with no idea of where we would be setting up on next battle position
- : this is platoon's third time through area, other AOB's had same idea of direction to move
  - before, I was mainly the gunner, so didn't pay much attention to terrain
- : didn't give order to displace right away, was looking at map trying to locate platoon
  - commander called back, anxious to get platoon moving
- : radio reports kept coming in, didn't know what to do
  - reports about enemy movement and location, which impacts on displacement routes
- : commander called, wanted platoon to move now,
  - so just told platoon to move, needed to get moving
- : spot reports of screening force withdrawing
  - scouts reported enemy movement but didn't know how to incorporate this information into a unit movement plan
- : got everybody moving, same time
  - no overwatch
  - wanted to withdraw in sections, with platoon leader first and platoon sergeant covering that section
  - If enemy there, they could've "overrun" the platoon because no overwatch
- : was hoping that, after seeing 1 platoon tank following, others would follow
  - terrain didn't look the same coming from the other direction
  - didn't look back to see if platoon following

TCI

- : needed map recon
- : get platoon altogether and give same plan and overlay
- : had plenty of time to do a hasty occupation, didn't use it
  - could look for alternate positions
- : 2 other platoons in the area and in position
  - commander informed platoon leader that the others were withdrawing
  - platoon must overwatch other platoons withdrawal
- : need to pass on information to platoon that "2 platoons moving, we're overwatching. On order, displace 'sidecar'."
  - if platoon doesn't know about other platoons moving, may open fire on them by accident
  - OR, if platoon did move out and other 2 platoons saw the tanks, may have opened fire on the platoon
  - platoon sergeant on the radio net but he may not understand commander, have to inform platoon of correct information
- : need to be conscious of other platoons, or where they are with respect to one's own platoon

Day 5  
DP 5.31

Avenue of Approach (choice of route)

AOB

- : had visual contact with sister platoon (white)
- : farther west too open to enemy view
  - could be seen and could be engaged
- : had made this movement before, was platoon sergeant that trip--used exact same route
- : in op-order, to move east and that white would overwatch

TCI

- : on map, noticed objectives were in middle
  - could come around,
  - on low ground
  - end up on big hill
- : move any further west, would run into white
- : have to make sure white doesn't shoot us by mistake (might think it's enemy on flank)
- : East route canalizes platoon
- : platoon has to come back across from W to E
- : have to keep checking forward view
  - don't crest hills so fast
  - use thermal sights to scan for enemy, if there, could zap
- : call white, let them know I'm moving
  - so white gunners don't shoot me
  - I'm changing directions, heading their way
- : platoon a little bunched up
- : look for antennae, trees about the size of a tank sticking out, muddy ground or
  - a whole lot of trees and something not in the right area
  - sometimes glare

Day 5  
DP 5.32

#### Formation on Battle Position

##### AOB

- : platoon leader tank in good position,
  - could observe enemy forward
  - had clear engagement area access
  - but poor maneuverability (mud on the hillside caused sliding)
- : 1 tank facing west
  - our unit came through west on attack before. IF only 1 tank were there, enemy could overrun and pick off the platoon flanks
  - could have put 2 tanks facing west and shift fire of rest of platoon to support
- : let other tank commander's pick battle position locations
  - platoon had been through here 3 times before, so relied on what they learned.
  - had to speed things up, cause platoon was behind schedule
- : during terrain walk planning, positions looked okay. But when tanks moved up to the positions, muddy ground and hillslope made maneuvering difficult
- : could have moved platoon leader tank to right for better traction
- : terrain a little too hilly, bad mud traction
- : platoon sergeant and wing were to the left, good hull downs--but few trees--might get silhouetted
- : platoon were a little too close--indirect fire damage
- : didn't occupy whole battle position
  - left the east (right) area open, because lots of trees
- : an OP out, to survey engagement area
- : 1 tank on far left had best position to overwatch entry/exit into the engagement area
- : shifting to other positions might expose whole platoon

##### TCI

- : don't do a deliberate occupation with just a screening force in front
  - screening force too small to repel any sizeable enemy force
- : assign supplemental fighting positions
  - concerned about flanks cause of wooded area up there
- : tank dispersion was ok, fairly good
- : could request permission to turn hasty into deliberate occupation. Against doctrine when only screening force in front.
- : platoon positioned on dominant terrain in this area
- : Put OP's out, if time

Day 5  
DP 5.41

Avenue of Approach (displacement Route)

AOB

- : concerned about blowing bridge
- : didn't know where enemy was
- : wanted to get to subsequent battle position and get est'd
- : platoon and driver knew where to go
  - had pointed out route in recon
- : didn't track tank movement, till we were way out in center
  - was getting grid coordinate for engineers
- : terrain marshy ahead
  - can't go straight
  - have to left (east)
- : enemy not on my trail, won't be shot
  - thought enemy not at bridge
  - thought enemy not over ridge (yet), still behind it
  - nobody there
- : move quickly to covered and concealed route 50 meters away

TCI

- : called, "bridge to be blown"
- : if enemy out there, they could see across the highway
  - bridge just slows them down, it's only way to cross
  - can still see and fire over bridge
- : take East route--best covered and concealed all way down to battle position
- : terrain all fairly low ground and wooded - enemy couldn't recognize positions
- : during recon, could see over bridge from first battle position
  - enemy had to come over this battle position, so they could see too



Day 5  
DP 5.51

Reaction to Contact

A08

- : nothing but smoke (from East)
  - tank thermal sights broken
- : artillery came in, had to mask
- : jumped back up, saw 2 tanks,
- : tried to get gunner to engage
  - he wasn't hooked up yet
  - tried to get gunner to engage, tapped him on shoulder
- : tried to get driver to back down
  - he wasn't hooked up yet
- : looked up, one puff of smoke from enemy tank - we were dead
- : been in this defensive position this morning
  - had platoon leader and platoon sergeant 50 meters apart
  - called in artillery and smoke this morning

TCI

- : were in fairly good hulldowns,
  - most of turret exposed
- : 2 enemy tanks moved into position on far ridge - zeroed in on this tank
  - both fired (saw flash)
- : would have driver back down, go left or right
- : already made contact with enemy earlier, so knew they were out there
- : gun tubes (of 2 enemy tanks) are on my present position
  - need to change
- : could see diesel of enemy tanks moving into position

Day 5  
DP 5.52

### Avenue of Approach (choice of route)

#### AOB

Route had been used before (we) held a defense there and enemy used that route, seemed pretty effective

- : terrain - only way to get to position trying to reach, only route low enough in whole battlefield to cross without being seen that much
- : had to get from East to West
- : terrain had good cover and concealment
- : knew the area pretty well
  - when got to bottom in real low part, had to look around and decide (if road above taken, would be too high)
- : was looking for low ground, that was important thing at the time
  - move out fast, get to other side without casualties
- : started out with 5, dropped to 4, then finally just 3 tanks for exercise
  - only (platoon leader section - 1 tank) + platoon sergeant by himself
  - formation was SOP (platoon sergeant on left, platoon leader in middle, platoon leader wingman on right)
- : platoon leader wingman was in command in this area before
  - wanted him in middle when in column
- : mission - move by bounds, but altered this to move more quickly (more like traveling overwatch), no time to shoot, just move
- : day before, students mentioned seeing parts of tanks through the trail
  - the probability of enemy seeing 1 of the 3 tanks on the trail was being seen high
- : terrain - no left route, trail too muddy, would toss a track
  - left trail better, lower, leads to opening at end
  - commander said, don't use (had to reevaluate route selection)

#### TCI

- : terrain: route was in a deep depression, high ground on all sides
- : call for smoke at end, to cover move from east to west
- : enemy on defense on hill 53
- : keep maneuvering (AOB stopped to look around)
  - can see low ground before you enter trail
- : if area looks good to maneuver, use it EVEN IF no tank trails lead through it
- : don't know what's up ahead in either direction (side, front)
  - keep momentum this helps maintain command/control, messes up plans for enemy to engage from their positions
- : after LD, have to go East
  - use traveling overwatch
  - keep covered and concealed
- : terrain ridge before route chosen is open - move quickly through it
  - high ground, could use smoke to obscure enemy vision even though this would let enemy know I was coming
  - if enemy, they're watching these type of areas
  - enemy would expect platoon to use this area
- : after LD, know enemy contact possible
- : ridge high enough to look for enemy, but, enemy would be watching, shooting
  - go deep into woodline
  - trails exist through there
- : offense: find enemy first, not let enemy shoot first
- : IF there were infantry in front, they would clear woods to allow tanks to move through

Day 5  
DF 5.61

### Actions on Displacement

#### AOB

- : too much confusion
- : had to redirect
  - used radio
- : platoon was set up too far forward, wrong battle position
- : had already plotted platoon placement at second battle position
  - the position was in op-order
- : stopped tank, be sure platoon understood

#### TCI

- : would have used radio to contact platoon
- : would not have stopped
  - when displacing, objective is to get to secondary as fast as possible
  - to set up for enemy approach
- : IF bridge not blown, then enemy would have been even closer if platoon leader stopped
- : pulling up in wrong battle position could throw the whole company operations out of sequence
- : it's also possible that not enough time to get all way back to second battle position, have to get hull down wherever, fight from there
- : the platoon's position was near pre-plot
  - could call for artillery on themselves by accident
- : knew platoon was in wrong position, from their distance to McCracken Springs
  - needed to be 3-400 meters away

Day 5  
DP 5.62

Avenue of Approach (choice of route)

AOB

- : wanted to use earlier ridge for cover,
  - tank moving too quick
  - wanted to turn right (after ridge) but depression too big (TCI "NO")
- : other side of route has high ground behind
- : present route leads to open area in front
  - after leaving woods and popping out like that, enemy needs time to move gun, acquire platoon
- : if enemy watching, moving quickly prevents acquisition
  - low ground cover (small ridge in front)
- : if continue on original route, more continuous low ground, leads out to marshy area
  - dropping down to low ground keeps front armor towards enemy
- : had to direct driver: stopping, slowing down
  - not supposed to stop (but platoon in low ground, so it was okay)
  - keep offense momentum
- : moving so quickly, little direction given to platoon
  - platoon knows where/what platoon mission is
- : ridgeline cover deceiving, not as good as route through the low ground
- : far ridgeline still could see platoon, could engage
- : this morning, AOB's came straight down, didn't use routes (east - west), got killed
  - platoon got this far without being killed, felt good
- : enemy probably still could see
  - thought enemy would be sneaking around; waited for them
  - enemy is OPFOR, not classmates: would not be on line on battle position (won't be able to see them)

- would be in good hull downs, maneuvering around
- thought they'd be further north

TCI

- : low ground between ridges to use, heads west
- : platoon has to come back north and swing west to use it
  - exposes part of platoon, maybe just tank commander or loader's head
  - need to keep main gun oriented toward enemy
- : must be concerned about flanking during this move but not forget about enemy location
- : this next route was only route available from trail the platoon was presently on
- : must use speed
- : watch battlefield to front (south)
- : enemy not on west flank

Day 5  
DP 5.72

Actions on contact (failed to  
continue to engage)

AOB

- : saw enemy tank moving along  
ridgeline (left of center)
- : jeep parked along side platoon  
tank on left
  - don't know why, maybe tank dead
  - main gun not traversing on this  
enemy tank to engage it
- : try not to get flanked
  - by allowing enemy to get by  
would create hole in company  
formation
- : engaged enemy tank, one round,
  - immediately turned gun back to  
hilltop (right of center), my  
"primary position"
- : enemy kept moving, then the jeep  
came over to platoon leader's  
tank
- : would not have engaged if left  
tank were alive
  - concerned about fording area in  
front, low ground
  - thought enemy were in there,  
and on right-center front
- : third platoon of this company  
formation were sweeping on left  
side, first platoon on right
  - not concerned about enemy  
movement that way. should be  
covered by third platoon fire  
zone
  - also, tank on left should have  
engaged
- : enemy were moving on ridgeline in  
the open for a little while
  - had time to see it, look at  
platoon leader wing, look back  
and engage
  - platoon leader wing had given  
spot report about the enemy  
tank

TCI

- : spotted BMP moving on ridgeline
- : by time engaged, BMP was on way  
off ridgeline
- : BMP only @ 200 m away
- : gunner engaged - then said BMP  
dead
  - but BMP was still moving
- : should shift platoon leader and  
wing backdown, use low ground  
to move back
  - to cover side where BMP was  
and far ridgeline,
  - watch for that BMP
- : need to keep high ground to the  
south, reorient the platoon  
both East and North
- : use speed, movement should be  
quick
- : leave platoon sergeant in  
position,
  - had picked up enemy earlier,  
leave him to engage enemy in  
that direction

Day 5  
DP 5.82

### Movement to Objective

#### AOB

- : needed traveling overwatch for protection
  - only 1 tank exposed at a time, 2 others covering; all 3 not hit at once
- : terrain higher than other side (where the platoon came from)
- : traveling overwatch quicker than bounding overwatch but still safe
- : contact possible
  - in instructions, "if no contact by checkpoint #11, then stop"
  - no contact, so I stopped
- : terrain (on way to position): was hilly--don't know if getting skylined or not
- : thought front was higher ground
- : once in that direction, cannot see behind because of trees
- : tank moving very fast
  - hard to react, "by time I thought of something, I was in a different location and it didn't apply"
  - if moving slower, can plan ahead (wasn't planning ahead 'cause of speed)
  - no time to look head 200 meters (was already past that range 'by time told driver "go here" or "go here")
- : on 2 previous attacks, was gunner
  - couldn't see much
  - don't remember if other AOBs as platoon leader were stopping ("course, we died on the other one(s) too")
- : by stopping in a depression, couldn't be seen--make enemy think platoon is turning around going back other way
- : also, stopping would allow me time to think

- : just a screening force in front, was withdrawn already
- : this platoon (platoon leader's) was first in company movement of 3 platoons
  - needed to be safe
- : need to get there as fast as you could because the faster you're moving, the less likely you're going to be hit

#### TCI

- : ensure platoon in traveling overwatch
- : make sure trail section knows what platoon leader is maneuvering against
  - must overwatch sweep up to checkpoint #11, depression is on that way
- : moving first would give time to look position over
  - deploy platoon to provide security over ridges, which were all around
- : use good speed

Day 5  
DP 5.92

Formation on checkpoint (Battle  
Position)

AOB

- : platoon come up on line and got into good overwatch position
- : platoon leader wanted to scan
  - know where enemy was
- : "we had been working together 5 or 6 days
  - everybody knows people on left watch left, on right watch right
  - unless like yesterday, tank on right watched across and front cause we couldn't see over the hill"
- : "all these guys have good heads on their shoulders, I assumed they know to keep eyes on their respective areas"
- : everybody was looking at far hill
  - "tunnel vision"
  - enemy came up on flank and destroyed platoon
- : only 3 tanks in platoon, can't spread them out far enough to cover same area as a platoon of 5
- : thought enemy was on short slope in front of hill, that's where I was watching

TCI

- : was supposed to secure depression at checkpoint #11
- : horse shoe depression, with open side towards woods
- : move in fast, have to come across a ridge to get to it
- : need to move to hull down once in the depression (NOT into a hide position)
- : need to have trail sections overwatch move into depression
- : have to prevent enemy from coming up on flank
  - need to tell other tank commanders to overwatch east on east and west flank on west
- : on east, enemy can use woodline to advance
  - platoon tank on east flank is not in a good position to overwatch
- : terrain: many ridges, dead spaces behind, in front
  - enemy could use to maneuver in
  - could come from flank or rear, using covered and concealed terrain

Day 6  
DP 6.11

Actions on Advance (choice of covered and concealed position)

AOB

- : while elements on hill, not engaging
- : platoon wasn't engaging
- : big depression to left
  - looked like good hulldown
- : wanted to put platoon position there
- : could see white
- : vegetation not supporting a move on line with them
- : moved to depression, turned around to look and platoon was gone
  - they turned right, didn't follow
  - "totally lost control"
- : in Arizona terrain is different, tanks can spread out maybe 3/4 mile apart
  - never been in a forest before, as platoon leader

TCI

- : poor room to maneuver, poor overwatch
- : 2 platoon tanks had gone far enough ahead that contact would be harder to coordinate
- : depression was a crater, about 50-60 feet deep
- : on hill, enemy could pick them off
  - platoon leader gave up a flank shot, then showed grill doors when moving to the crater
- : platoon was in hulldowns, farther up--never got on line with platoon leader
- : if platoon leader killed, firepower down to 75%
- : should have called for 4 element report (one tank of the platoon)
  - find out where platoon is
- : should have moved east, maintaining good contact with platoon
- : didn't know where 1 tank was
- : didn't know where enemy was, want to be aggressive
- : would have tried to find that tank
- : it's better to go towards enemy than away
- : might have called Wingman, to find out what happened to 4 element
- : didn't see smoke or fire, don't know if 4 is alive/dead



Day 6  
DP 6.12

Avenue of Advance

AOB

- : enemy was not right there
  - if so, would be exposing self needlessly
  - enemy was further removed and orders received "was in line with that"
- : had a bumpy ride before this point
- : many tank trails, need to orient oneself on the map
  - map vegetation isn't that accurate
- : terrain - in a depression, can't see more than the hill in front
- : started to go straight up over hill
  - thought "no danger, or very little contact there because commander said move to next displace point".
  - move in most direct manner
- : didn't think about it, direct route my first inclination
- : kept platoon behind me on the trails
  - at one point, platoon was going to pass me to take a higher route
- : had lost some momentum earlier, got turned around
  - but were moving in the right direction

TCI

- : ridge in front high enough to be engaged from (by enemy)
- : have an overwatch element
- : low routes exist
- : should back down, use as much speed as possible, use low routes
- : know where next checkpoint is
- : was already 200 m in front of checkpoint #4--which is 500-600 meters in front of #9
  - if he was further south, he'd be behind #4 and 5-600 meters in front of #9
- : was a mine field at #9
  - if enemy sets mine field, some enemy there to watch it and direct fire into it
  - mine field slows advance, stops platoon
  - terrain supported the enemy to engage tanks in the mine field
- : if tank pulls straight over top, the enemy can see--know platoon is coming
- : use low lying routes to sneak up on enemy

Day 6  
DP 6.21

Use of Indirect (HE and smoke as pre-plot)

AOB

- : knew more than likely where enemy was
- : had defense exercise there 3 days ago
- : terrain: ridge behind hill was lower, "only place enemy could be"
- : HE/smoke artillery calls pretty standard
  - no DPIC, hangs in trees and platoon needs to go that way
- : can goof up "call for fire" at NG unit, nobody knows how to use it

TCI

- : got call from commander to cover white's move w/indirect
- : quickest way is fire for effect
  - 2 rounds from 6 guns, burst radius of 300 meters
- : want to make enemy button up and screen white's move
- : shouldn't have waited 5 minutes to plot white's move
- : white's location only 600 meters from where they were going
  - maybe 2 minutes
- : white called back in 30 seconds, "at position" so white wasn't where they said they were
- : couldn't use direct fire, would be ineffective to cover white's move
  - be sides, no smoke rounds left in the tank
- : good overwatch positions

Day 6  
DP 6.22

Technique of Movement (reject 1 checkpoint, move on to next)

AOB

- : came up through woodline, first stop was at first open area (ridge)
  - saw better position one ridgeline further and moved to it
- : new position overwatched a broader open area
- : didn't get lost getting there
- : looked at map, saw a few ridgelines
  - can't tell (what they were like) until you get there
- : weren't supposed to be at checkpoint #3
  - but platoon were bounding
  - always better to send platoon in sections (this case, platoon sergeant section)
  - platoon sergeant section may otherwise just keep moving, perhaps come up short of position platoon leader wants them to be at
- : first ridge position could see some of the area wanted to overwatch
  - also a dip in front, and another ridge ahead
  - might as well get closer, if not giving up protection
- : after TCI prompt, sent platoon sergeant section all the way to checkpoint #2
- : tanks move pretty quick, crew gets bounced around a lot
  - before you know it, you cover a set of hills
  - hills, as termed in this area, are sometimes pretty small
- : time stops; any movement is forward movement
- : point on ridge chosen, had no clear trails leading to it
  - other positions have trails, can recognize best route

TCI

- : white (sister platoon) destroyed at bridge
  - platoon must provide own overwatch
- : pick covered and concealed route on east side
- : rolled through checkpoint #11, to get to next ridge, tried to get hulldown on top of ridge
- : cannot get hulldown on that ridge
  - need to back up
- : out of position, past checkpoint
  - can't establish an overwatch from that position
- : should stay at #11, pull platoon sergeant section through to checkpoint #3
- : in current position--possible enemy destruction of platoon leader which leaves platoon leaders section open to attack
- : enemy would have to know the hulldown positions between #11 and #3

Day 6  
DP 6.31

Actions in Advance (platoon control: formation)

AOB

- : road, vegetation to left
- : too open on right
- : road going straight across, but wanted to go left
- : wanted rest of platoon to move behind me (TCI "no", vegetation too thick)
- : road meant platoon sergeant might have followed in that direction --terrain too tight
- : didn't use radio
- : my NG unit: radios don't work, get used to hand and arm signals
- : thought of going 1 terrain feature to the right--if whole platoon could be pulled in there
- : present position "super concealed" (AOB stopped in this position, to put platoon on line)

TCI

- : AOB pulled on line with platoon sergeant, went from offense to defense
- : where first pulled up, were in open
- : pulled backdown, for cover and concealment
- : rest of platoon (only 2 other tanks) were already in hulldowns they chose
- : platoon leader not controlling platoon
- : road in front, bends around and disappears
- : trees, bushes to the flanks
  - forward to right open area
  - depression in front of road
- : would not have come down this way--30-50 meters back could have cut to right,
  - more room to maneuver, cover more in this right sector
- : saw enemy displacing (tanks not dead, gun tube over back deck because enemy is in that direction)
  - knew enemy was going this way, just not how far
  - sometimes, enemy will pull up, wait, and shoot when friendlies come into range

Day 6  
DP 6.32

Platoon Control During Bounding  
(sent platoon sergeant section, did  
not check progress)

AOB

- : part of overwatch technique
  - get set first, ready to overwatch and protect other units
  - other units move up. using covered and concealed routes
- : other moving units have responsibility for choice of routes
  - "can't drive their tanks for them"
  - "sometimes, can give direction e.g. 'bound along river'" but they say should not use radio too much
- : thought platoon sergeant section took same routes as platoon leader
  - that east area too open
  - could see from map
- : platoon sergeant section took some time to do the movement
- : platoon leader thought they were jockeying for position
- : play the problem as platoon leader does something, platoon sergeant does a related action which they're supposed to know how to do

TCI

- : In op-order, platoon sergeant should know what mission is
- : platoon leader told platoon sergeant section to move without telling them where
- : should have had platoon sergeant section come up to platoon leader position
  - had platoon leader go on to next position
- : had platoon sergeant section on the move
  - the platoon sergeant had to come through the underpass, past mine field with no direction
  - platoon sergeant could continue down to white's position (sister platoon)
- : need to control platoon movement
  - halt platoon leader section on #3, push platoon leader section on to #2
- : IF enemy sighted while platoon leader on #3, would push platoon sergeant through on west down to #2 while platoon leader engaging enemy
  - would allow platoon sergeant section a flank shot on enemy
- : platoon leader wing sitting higher on ridge, good overwatch position
  - this lets platoon leader backdown to move west (down to #2) while being covered

Day 6  
DP 6.42

Actions on Contact (misidentified  
sister platoon, tried to engage)

AOB

- : thought the tanks were M60's
  - only got a glimpse of a gunbarrel
  - only time to react
- : had no idea white was in area
  - thought they were farther up ahead
- : had heard on radio white having problems
  - but platoon was following white and had given white enough time to move up
  - white was supposed to pass further over
- : "Given fraction of a second, I thought better safe than sorry .. when you're told to go into sector where enemy is, anything you see could be considered the enemy cause you don't have time to sit there and figure it out."

TCI

- : trail chosen to move on put grill doors toward OP (and enemy)
- : had to direct driver which route to take
  - driver was waiting for directions
- : terrain: trail bent around back and went up a hill
  - this exposes tank
- : terrain: low ground on the trail to orient towards front
- : going up the hill, saw vehicles in front
  - identified as white
  - had just made radio contact with white, telling them to push through to #2
  - white had to roll back to get into route to push to #2
- : have to make contact with white, give them directions, let them know (who you are)
  - could be mistaken as enemy by white as well
- : white should have radioed that he was coming back toward platoon's area

Day 6  
DP 6.51

Avenue of Approach (choice of route)

AOB

- : wanted to stay far left as possible
- : low ground this way
  - came this way as driver before, saw general layout
- : not a lot of room to maneuver
- : knew this route existed, from AOB class talking among themselves
- : one route to right would've gone too far into woods, could get channelized there
- : route would lead out into center of approach to overpass, with good cover--bushes and stuff

TCI

- : good speed and orientation on route
- : knew which holes to go in and out of
- : platoon was slow in following platoon leader
  - lost time 2 times, waiting for platoon (2 minutes in each area each time)
- : another platoon was overwatching the move, so could use good speed
- : no enemy contact made so not supposed to use radio
  - would have anyway, to tell platoon to move more quickly
- : other trails, but not with same cover and conceal as this one
- : very seldom will an AOB move as quickly as this
- : trail would allow coming out within firing distance of enemy,
  - enemy defense all set-up, no chance to pick up tank until platoon was right on top of them
- : really good covered and concealed, all the way up to enemy position
- : good recon, use of jeep, allowed platoon leader sight of these trails, possible enemy access points

Day 6  
DP 6.52

Actions on Contact

AOB

- : was coming up on a terrain feature "I know"
- : I knew I was moving platoon in right direction
  - when I saw the hill, it was expected
- : there was somebody on the hill
- : was a non-tank vehicle (HMMV or jeep)
  - thought it was a controller vehicle
  - then thought the hill was an observation point and the orders were to suppress fire (there) or determine if nobody there
- : had a clear view of vehicle, was in a clearing an open view spot from platoon position
- : knew that nothing was supposed to be there
  - knew white wasn't in area
- : gave order to engage

ICI

- : spotted vehicle
  - immediately put tank into hulldown and put main gun on target
- : give action drill and engage
- : give contact report to commander,
- : destroy vehicle
- : get set on checkpoint #4
- : would be faster, (speed) keeps you alive
- : didn't waste time
  - know friendlies aren't supposed to be there
  - enemy have M60's, main gun (on '60s) can take a tank out



Day 6  
DP 6.61

Avenue of Approach (choice of route)

AOB

- : knew red elements (sister platoon) was to right
- : didn't worry bout enemy, but still a possibility
- : speed urgency
  - a left turn was hidden by dirt, would be slower using that cover
- : should let driver choose route
  - hard to control platoon and choose route
- : platoon was on-line, good command and control
  - if we had to stop
  - if we had a breakdown,
- : platoon was still covered

TCI

- : used good speed
- : look ahead, (see where you're going to)
- : terrain--road was steep, went straight down, looked formidable but still passable
- : platoon still slow in following, had to wait for them to catch up
- : very seldom does AOB use this route. I've never seen AOB use it, North to South. The other way, South to North, I've seen
- : would have waited for platoon
  - a critical turn coming up
  - if AOB went over the hill without rest of platoon in sight, would have lost someone for sure
- : platoon was being overwatched on East
- : (Red) also sent a spot report about obstacle
- : could see red position in front
  - could have:
    - gone through
    - : --gone up to
    - : --gone around
- red position
- : since red in lead, enemy was probably keying on them already
  - by using extreme East route, become a surprise to enemy
- : smoke was out front, only going to be effective for so long
  - need good speed
  - route would allow getting there on time to take advantage of the smoke

Day 6  
DP 6.62

Preparation of Battle Position (no recon of second battle position)

AOB

- : didn't think I had enough time to properly scout out my 2 back-up positions
  - the other AOB tank commanders had gone over the same terrain with me earlier and they were in the same status I was
- : left the assembly area a little after 3, had to be on position by 3:45
  - had to prepare 3d position and recon the second on the way
- : drove through the first one on the way--was less familiar with this position,
  - wanted the other tank commanders to have the opportunity to see the position
- : were real familiar with second battle position so drove past it, so that
  - could get to primary battle position with plenty of time to get into a good defensive position by 15:45, commander's orders
- : got to first battle position @ 15:31 or :32, which left 15 minutes to get set

TCI

- : time problem - had to compensate by just skimming the positions while pushing through
- : operation was basically simple,
  - sounded more complicated than it was
- : coordinate the platoon, make sure everyone has the same map and overlays
- : assume enemy is there
  - have to insure semi-hasty occupation at each battle position. to check disposition of tanks on battle position
- : insure that there are routes back from each battle position to the subsequent positions
  - must make tank commanders rehearse routes back
- : continue to secondary position, establish a hasty occupation
- : let commander know "have completed preparations"
  - so that commander can send scouts forward
- : scouts will screen platoon movement forward
- : coordinate with guard at obstacle, let platoon know what the password or signals were
  - you never know which tank is going to be first back to the obstacle depends on difficulty of route back from primary
- : move up to primary battle position, do a hasty occupation, then call "established" to the commander
- : most important is terrain, then enemy actions
- : can "war game" enemy options, but cannot take for granted enemy will do what you thought of
- : need total dispersion on battle position, have to depend on entire front
  - if somebody next to me falls apart because of the situation then enemy will flank me

Day 6  
DP 6.71

Avenue of Approach (technique of movement)

AOB

- : have to back down from position to cut East
- : was quicker to back down six feet instead of ten feet
  - enemy was out of area
- : thought I was on checkpoint, but was too far west (TCI prompt)
- : depression behind, with trees
- : was 99% sure enemy was gone
- : thought could take the short route and be set up quickly
- : backing further down would take platoon leader section same way but take longer
- : kinda know where enemy is
- : couldn't see wingman, asked for fix
  - when wing "popped his head up", knew platoon leader wing was in good position

TCI

- : first position wasn't bad
  - could call commander and inform him about position
- : commander called, said establish platoon on west of hill and in form when done
- : red might have come through this position
- : when backing done, gave flankshot cause he stopped in a flank position
  - should use more speed
- : was on friendly side of slope of hill
  - could use speed to get established
- : enemy situation changed
  - can't locate enemy anymore to front
  - have to back completely done
- : use low ground behind, to back down, to get west
- : platoon sergeant section could overwatch this move
- : don't know if enemy is to west
  - moving west would not allow bypass of any enemy there
- : would take about same amount of time to back completely done and move

Day 6  
DP 6.72

### Formation at Battle Position

#### AOB

- : after passing under bridge, knew what was on east side
  - so wanted platoon to bear that way
- : got up to ridgeline, deployed platoon online
  - platoon leader in middle, platoon sergeant on left and platoon leader wingman on right
- : about 3 days ago, went back and forth across the same terrain 3 times
  - was pretty familiar with it
- : platoon had good fields of fire
  - gunner knew where his sector was and what we were covering
- : from commander's suggestion, had platoon use cross-fire sector engagement pattern
- : picked center position to have good field of fire down the middle (thought could cover engagement area from here)
  - section on left had good positions and far right tank had good positions
  - tank (wing) to the immediate right did not
- : put platoon online, directed platoon sergeant section to where I wanted them--they could easily see my directions, were 2 closest tanks
- : did not direct platoon leader wingmen, it was their decision where to be positioned
- : small ridge and vegetation semi-obscured rightmost section field of fire
- : this was my sector of responsibility (we were the second platoon of the company operations)
  - 2 other platoons covering flanks but
  - expected (an armored company) enemy to come down middle (our position)
- : enemy has to come over this road, will be exposed while doing so
  - can get clear shot at them
- : could pick up enemy before road and on the road
  - no other access route

- woodline access, but platoon has good fire zone there

#### TCI

- : road access by enemy had been done before, AOB's had never seen the enemy go to other side (west)
- : platoon leader anticipated where enemy would come
- : no control of platoon, platoon leader just moved into a hulldown on the battle position and let other tanks get into their own positions
- : need to back down into hulldown in a hasty
  - 2 platoon tanks did not
- : suppose to come in behind position
- : need to observe the battlefield, to pick platoon positions
- : platoon position only covered 1/3 of total battle position
- : platoon position was more an ambush on the road, rather than a hasty occupation
  - fields of fire directed west and eastern woodline
- : platoon leader wingman should let platoon leader know "no field of fire in this position"
  - platoon leader can still override the wingman anyway
- : platoon leader was set up for frontal contact--instead,
  - would want flank shots on enemy, so
  - should move further west
- : should move platoon sergeant section much further west (to cover the entire engagement area)
- : a smarter enemy would have destroyed platoon in its original position
  - here, the enemy are students so they constantly do the expected
- : from the original position, the platoon may get 1 or 2 kills
  - not enough to slow enemy down
  - latest, pick up enemy on the road
  - this was far into engagement area
  - thought would be able to get them before enemy moved across
- : terrain--good berm to front, woods around

Day 6  
DP 6.72

Formation at Battle Position

ICI continued:

- when platoon backed down, would take thermal sights to pick up tank signatures
- : creek and cliff to east, limits
- placement area for platoon leader wingmen
  - platoon leader moved into position for own tank, left wing tanks squeezed
  - platoon leader right wing only 30-40 feet away ("too close")
  - Unit SOP, platoon leader wing has to be there
- : in woods, can be closer; in open area can be further apart
- : major concern was to be on time and in position
- : didn't know when enemy was coming
- : started out 20 minutes behind, just got into position and "everyone else go off me"

Day 6  
DP 6.81

### Actions on Contact

#### AOB

- : were in a column and made contact with enemy
- : gave platoon fire drill and engaged
- : platoon leader tank in good position but platoon was behind
- : terrain did not support putting platoon online (to engage)
  - flanks all high ground but none to front
- : only platoon leader tank could engage
  - only 1 or 2 enemy tanks, so platoon leader engaged
- : backing down, after firing, noticed platoon position
  - couldn't move platoon
  - up to individual tank commander to make best of their positions
  - terrain wouldn't support 4 tanks forward
- : saw 1 enemy tank, "kinda got tunnel vision"
- : couldn't go around
  - high ground, would be open
- : couldn't go right
  - would give flanks shot after platoon leader engaged and backed down
- : knew enemy was displacing south
  - possible that enemy was just backing down but knew
- : enemy was AOB class
  - knew how FTX was run

#### TCI

- : platoon leader maintained too much visual contact with own platoon
  - watching where/how they were moving
  - only need to check (a second or so)
- : need to keep watching enemy, steadily engage
  - to get good enemy information to commander
  - platoon was moving into position, from action drill
- : (by backing and watching platoon) gave time to enemy to look up and pick off a tank
- : position was poor to spread platoon out
- : should have been quicker
- : keep firing, regardless of whether enemy is in target access range
  - put rounds down range to make enemy button up, duck. This gives time to get better platoon hulldowns
  - would have used tank commander override to fire main gun, not wait for gunner
  - then move into hulldown, check platoon position
  - then send spot rep to commander
- : move up and keep fighting
- : platoon leader had a good hulldown
  - move anywhere else, be shot
- : terrain prevented platoon dispersal

Day 6  
D<sup>r</sup> 6.82

Action on Contact (failed to breakoff contact)

AOB

- : difficult to coordinate fighting the tank and fighting the platoon
  - spot reports
  - getting platoon to do something
- : sometimes gunner could not see target and platoon leader did not lay gun on for him
  - tank is in danger
- : had previously shifted platoon sergeant section west, had just gotten into position when enemy attacked
  - platoon sergeant section no good routes back (3 tanks)
- : first report from platoon leader wing
  - M60's seen and am engaging
- : platoon leader did not expect M60's
- : saw some M1's in hulldowns
  - must be covering enemy advance
  - called into commander spot reports
- : saw more and more tanks rolling over ridges
  - were real close, coming toward platoon
  - gave platoon fire order
- : picked up 2 M1's and engaged them before they fired
- : kept engaging, enemy just kept coming, got too close
- : commander order "not to get decisively engaged"
- : called "displacement"
  - but enemy at 5-600 meters in front, moving toward platoon
  - not enough time to displace, get into covered and concealed to second battle position routes before enemy can reach a fire position
- : need time to turn tanks around, and head back out of range
- : saw enemy coming down road in middle

ICI

- : enemy did attack on road as anticipated but advanced quickly too far south
  - had passed platoon breakpoint, had no alternative but to become decisively engaged as a matter of survival
- : if dispersion on battle position were better (more west), then earlier engagement possible
  - make displacement automatic
- : operation was "space for time", a delaying action
  - poor observation allowed enemy to get almost on top of platoon
- : the occupation itself indicated:
  - engagement at greatest distance then
  - breakpoint automatic
- : position had limited observation
- : terrain: was a bowling alley
  - only logical enemy advance route
- : over to east, visibility (trees) so limited that if enemy, would be bayonet time
- : if enemy on that east side,
  - no way to get platoon off position - enemy would still overrun platoon
- : heard radio reports of west flank platoon displacing
  - would leave west flank open for enemy
  - even if platoon could stop enemy attack, enemy on west could attack the flanks (heard reports of enemy in west)
- : had to leave
- : first reaction was "here comes the enemy, let's fire him up, see how many we can get" instead of "each tank fire 2 rounds, then displace"

Day 6  
DP 6.82

Action on Contract (failed to breakoff contact) continued-

- : map: road is 1000 meters away,  
knew early part of road is fading  
quick traveling
- : could see enemy outnumbered  
platoon heavily  
- kept coming
- : platoon fighting a good battle,  
inflicting casualties



Day 6  
DP 6.91

Use of Indirect (call for smoke for sister platoon)

AOB

- : had already coordinated this call, pre-planned with sister platoon (red)
- : knew underpass was chokepoint, only access across highway
- : talked to sister platoon, asked to be informed when they were near overpass
  - platoon leader would call for smoke
- : heard radio report of sister platoon at obstacle, was probably a minefield at overpass
  - commander callback "need more specific grid"
- : sister platoon did not call platoon leader, no warning or time to get coordinates for smoke
- : knew sister platoon there,
  - better get some smoke out to cover them
  - better get some smoke to cover breaching operations
- : sister platoon leader having trouble with map coordinates to commander
- : was afraid sister platoon too close to overpass (for smoke artillery rounds)
  - but smoke not that dangerous and
  - no HE called for to blow bridge so
  - probably okay to call for smoke
- : heard sister platoon location as 500 meters before bridge
  - called for smoke 400 meters after bridge so not to blind the tank commanders there
  - put smoke as a screen

TCI

- : thinking about commander, not just own platoon
- : platoon in overwatch
  - saw red hit obstacle location
  - knew red's situation
- : when commander told red to back down into hulldowns, knew red in trouble
- : have to get something out there to help red
- : can't use direct fire
  - red in Line of Sight (LOS)
- : need to cover red's move to hulldown
- : would do same as AOB
- : this is first AOB I know of to do this support and quickly
- : red was scurrying to get into hulldown
- : underpass is deadly location for anyone there
  - enemy has sights on anyone in that area, will destroy
- : red is exposed there
  - would be caught trying to get to underpass
  - high ground on both sides of underpass
  - backing up to another hulldown there is another 150-200 meters

Day 6  
DP 6.92

### Actions on Displacement

#### AOB

- : displacement went well, but didn't check if platoon sergeant's section was following
- : "was concerned with getting platoon leader section back"
  - assumed platoon sergeant would follow directions
  - assumed platoon sergeant had heard the displacement command
- : thought platoon sergeant section was using covered and concealed routes
  - so it was okay not to see the section moving on covered and concealed routes
- : gave command to displace by sections (sidecar - platoon move not covered)
  - was at 50 meters away from first battle position when gave platoon sergeant section command
  - knew enemy was close to them also
- : displaced all way back to obstacle (1000 meters)
  - heard platoon sergeant wing call, "asking to displace"
- : was trying to get my tank to choose a route, watch platoon leader wing, watch for enemy, get ready to go through obstacle, call commander with reports
- : didn't think about platoon sergeant section until got through to second battle position and nobody there

#### ICI

- : good use of low ground
- : gave "side car"
- : after obstacle, gave up covered and concealed and took high route (open to acquisition) for speed
  - should use treeline on east side
- : had to displace under pressure
  - enemy close
  - platoon vulnerable, need to maintain covered and concealed have to assume enemy still on platoon heels
- : going through underpass (Engineer obstacle), don't know about enemy position
  - have to maintain covered and concealed go east through woods
- : if enemies were slowed down earlier in engagement area, then could take high speed low cover route
- : little communication with rest of platoon
  - expect them to use covered and concealed routes NOT necessarily same ones as platoon leader

Day 6  
DP 6.101

Actions on Contact

AOB

- : as soon as I rolled up, saw enemy tank next to trees
  - just looked at that 1 tank
- : put gunner on it, fired 2 rounds before enemy could respond
- : gave platoon fire command
- : backed down, come back up
  - TCI said "look around"
  - then saw another tank next to first
- : shot second tank
- : first enemy tank near a tree and a rim of earth
  - good position, good camouflage
  - but was out of the ordinary, against background
- : did not direct own platoon
  - other AOBs to use own judgement
  - would take too long to direct them
  - wouldn't be able to perform other platoon leader functions
- : don't remember much else
  - was working on map for enemy location grid coordinates
- : never looked up to see where platoon was
  - knew someone to left
  - don't know if any to right

TCI

- : move tank around, make sure enemy tanks do not put the crosshairs on my tank
- : initially, only platoon leader on position to engage, rest of platoon not there yet
- : the tank fired, backdown to get spot rep to commander
- : would have done same as AOB plus
  - use artillery, call for indirect
  - since only platoon leader there for a short while, need to get enemy to duck, get heads down so platoon leader could sneak another look at enemy position and numbers and pick next spot to move to
- : could only observe western section of objective
- : terrain (trees) prevent full access to east
  - need other platoon members for observation there
  - enemy seemed to be there
- : platoon still behind platoon leader, maybe 500 meters, trying to catch up

Day 6  
DP 6.111

Action on Displacement (choice of route)

AOB

- : hard to keep oriented when traveling backwards, keeping main gun towards enemy
  - see enemy come up over ridge
- : route had good ear-marks
  - from what could be seen, good cover through the trees
  - good cover from artillery
- : trail ran all way back to subsequent battle position
- : another fork on trail existed but immediately forgot it
  - "because of heat of battle"
- : was in the tail of the column
  - whole platoon was ahead of platoon leader
- : other AOBs had tried other routes, this seemed best from discussion at time of op-order
- : was surprised at how close trees were

TCI

- : commander told platoon leader to displace
- : whole platoon took same route
  - more than 1 route out there
- : platoon got bogged up, slowed down
- : enemy on trail
- : need to get established
- : sometimes have to trade covered and concealed routes for fields of fire
- : sometimes have to realize this route doesn't work
  - still have to get battle position established
- : knew we were bogged up
  - would set battle position up right there, then
  - locate my platoon
  - call platoon sergeant, inform that platoon leader field of fire limited
- : platoon sergeant was in good position for fields of fire and observation
  - would have to keep platoon leader informed of enemy movement
- : platoon leader had intercom (radio) keyed, couldn't hear platoon sergeant transmissions (spot reps)
- : with information from platoon sergeant info, would direct platoon, pull them into position
  - get platoon fired up to shoot
- : maybe never get to battle position
- : were 2 routes, one open, other covered and concealed
- : covered and concealed route probably the same one the enemy would take
  - I would go that way
  - looked at terrain while traveling that way

Day 6  
DP 6.111

Action on Displacement (choice of route) continued:

TCI

- : enemy past breakpoint, not enough time to get back to battle position and set-up
- : enemy had 4 tanks, saw diesel and dust
  - no smoke to obscure movement
- : gunner could use 10x (as in: scope with a magnification factor of 10) scope to help identify enemy; has also thermal sights

Day 6  
DP 6.121

Choice of Formation (technique of movement)

AOB

- : wanted more fields of fire
  - present position didn't offer much opportunity for suppression
- : move quickly
  - didn't waste much time
  - good movement
- : couldn't see platoon, where they were
  - didn't know if platoon could see me
  - if you can't see, can't guide
- : can't use radio to find platoon
  - have to listen for commander, others higher
- : worried about avenue chosen to move up, it was open
  - knew had to move fast
- : another platoon member in front of platoon leader stopped, motioned for platoon leader to go back
  - have to move fast
- : looked at him to see if he changed his mind--but he was still looking away
  - had to keep moving
- : came down trail, thought my tank was too high (skylining)
  - so backed down to small group of bushes "for a little concealment"
- : thought enemy would come around this way
  - didn't want to move over the hills here (up and down, might silhouette self, be engaged)
- : one route led to a clearing, not secure from rear attack
- : heard platoon fire, trying to engage enemy
- : maybe heard some spot reps
- : thought enemy was getting closer
  - need to engage them now
  - chose to move up there instead of keeping maneuvering

TCI

- : enemy on trail
  - need to get established but never oriented platoon
- : if AOB looked to the right, could see some tanks of own platoon
- : AOB too occupied with own tank
- : never move forward in a battle position
- : went straight over top of a hill to a hulldown,
  - saw enemy, but never engaged
  - backed down
  - never gave fire command to crew
- : moved tank back up, saw enemy and vice versa
  - enemy shot and killed platoon leader
- : platoon leader masked whole platoon by moving forward, they couldn't engage over his head
- : platoon leader never knew where enemy was
  - pulled within 100 meters and died
- : if position bad, call platoon sergeant
  - tell platoon sergeant to keep platoon leader informed
- : platoon sergeant called, did try to do this but platoon leader wasn't listening
- : enemy would use some trail as platoon leader (it is covered and concealed--I would)
- : intel reps from commander gave approx enemy location
- : could see diesel and dust, parts of tanks
  - have to orient platoon that way
- : 4 enemy tanks coming North to South

APPENDIX C  
REVIEW OF ANALOGUES

### Review of Analogue Use

Day	Code	Analogue and Value
3	3.4P	Used previous day's platoon bounding exercise to hypothesize enemy's reactions to being fired on from a distance, and was right. The analogue facilitated.
3	3.41	Used previous day's mission to determine when to fire on enemy and then fall back. But the previous day was advance to contact (an offensive mission) whereas new mission was ambush and displace. The AOB became disoriented and allowed enemy to maintain contact during the fallback action. Analogue disrupted performance.
4	4.1	AOB remembered terrain from exercise a few days earlier, knew which was best cover and concealment route, and how enemy would be advancing. Analogue helped.
4	4.2	AOB used National Guard experience to resist crossing platoon sector boundaries despite the TCI's urging. Moved platoon into an open area where they were killed. Analogue failed.
4	4.5	AOB remembered terrain from earlier exercise, remembered best route. But it had rained, best route had become impassible, one tank lost. Analogue failed.
4	4.6	AOB remembered position from morning exercise using same terrain, knew where enemy would be, best uses of terrain by the enemy. Analogue facilitated.
4	4.6	AOB remembered classmates failing in radio protocol. Made sure to follow a "laundry list" of procedures, but became so engrossed he forgot to engage his tank and platoon. Analogue disrupted.
5	5.31	AOB had used route before, analogue facilitated.
5	5.51	AOB had been in same defensive position that morning. Analogue facilitated.
5	5.52	Other AOBs had been through area before, so cadet used them as a committee to plan route. Worked well, but failed when new requirement reached for leaving battle position. Analogue value was mixed.
5	5.32	AOB remembered area from before, when he had been attacking. Now on the defensive he placed a tank in the right spot to block an attack. Analogue facilitated.
5	5.32	AOB remembered terrain from 3 separate exercises. To save time he did not bother specifying specific positions for platoon. Analogue hurt him. The AOB needed to coordinate the <u>routes</u> to the positions, to improve safety and



communications, and to continuously assign sectors of fire. Analogue disrupted.

- 5 5.52 AOB remembered terrain from a defensive maneuver, remembered a successful route through. Now on the offensive he selected that route and it worked. Analogue facilitated.
- 5 5.52 AOB remembered the general terrain layout from prior exercise, that certain dips did not offer good cover and concealment. He stopped the platoon to re-evaluate where the dips were. Analogue mixed. It helped in recognition but hurt because he should not have stopped.
- 5 5.52 AOB knew wingman was familiar with terrain from a prior exercise, solicited his judgment, used it to advantage. Analogue helped.
- 5 5.52 AOB remembered a classmate's discussion of a route chosen that had afforded 'glimpses' of tanks during movement. Something to be avoided during the advance. Analogue facilitated.
- 5 5.6 AOB remembered the morning exercise, where the previous cadet platoon leader chose a straight route that failed, and platoon killed. He chose a route to the side, and it worked. Analogue facilitated.
- 5 5.7 AOB remembered prior attacks, where AOB had stopped to get orientation and were killed. Analogue facilitated because cadet did not look further but pressed on.
- 5 5.9 AOB used prior drills where other platoon members set up good overwatch for each other without being instructed. Analogue mixed. Initial placement worked, but the cadet failed to cover their flanks. Platoon killed.
- 6 6.6 AOB remembered terrain from prior runs. The platoon movement to placement was behind schedule. Analogue mixed. Time pressure did make it unfeasible to do total reconnaissance, but AOB failed to point out some routes while on the move.
- 6 6.7 AOB remembered terrain from earlier exercise. Analogue mixed. AOB remembered his use of terrain, failed to consider other possibilities for enemy use of terrain, did not cover entire sector, prematurely settled on one enemy route as most likely.
- 6 6.8 AOB knew from prior use of terrain that enemy would advance quickly at one point. Analogue facilitated.
- 6 6.12 AOB remembered from National Guard experience that radios were unreliable and chose to use hand and arm signals. Analogue hurt. Only platoon members in visual range could read signals. Platoon formation became disorganized.
- 6 6.22 AOB remembered prior experiences in spacing platoon.

Analogue hurt. Prior experiences were in Arizona desert, and AOB lost control of platoon in the forests of Kentucky.

- 6 6.32 AOB remembered prior exercise 3 days earlier, and identified probable enemy actions. Analogue facilitated—hypothesis was right.
- 6 6.32 AOB remembered National Guard experience where radio protocol not so important. Knew things were different in Regular Army, and concentrated on protocol. Analogue hurt. AOB concentrated on protocol, did not listen carefully to the content of the messages, received inconsistent information and did not realize it.
- 6 6.52 AOB remembered hearing others talk about a possible route in the advance and selected it, sight unseen. It worked, analogue facilitated.
- 6 6.92 AOB solicited comments from others in platoon about experiences with different routes through terrain. Analogues facilitated, selected an effective route.