

Technical Report 1424

**An Assessment of Leader Duties and Responsibilities
in a Decisive Action Training Environment**

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**United States Army Research Institute
for the Behavioral and Social Sciences**

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14. ABSTRACT This research is a continuation of a longstanding collaborative research project with members of the Joint Readiness Training Center (JRTC) Warrior Leadership Council. The present iteration of the project involved an assessment of leader duties and responsibilities during decisive action training rotations at JRTC. Additionally, we investigated whether a <i>Guide for Leader Duties and Responsibilities</i> would improve unit performance. The guide was a brief reference for leaders on critical behaviors pertinent to planning, preparation, and execution. The performance of units that received the <i>Guide for Leader Duties and Responsibilities</i> (the experimental group) was compared to the performance of units that did not receive the guide (the control group) based on checklists completed by Observer/Coach/Trainers (OCT) at JRTC. Broadly, the results indicated that the guide had little to no effect on the performance of units. Further analysis revealed that regardless of whether or not they received the guide, units that established a Tactical Standing Operating Procedure (TACSOP) outperformed those that did not. In addition, Active Component units consistently outperformed Reserve and National Guard Component units.					
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AN ASSESSMENT OF LEADER DUTIES AND RESPONSIBILITIES IN A DECISIVE ACTION TRAINING ENVIRONMENT

EXECUTIVE SUMMARY

Research Requirement:

The research described in this report was conducted by the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) in collaboration with the Joint Readiness Training Center (JRTC) Warrior Leadership Council (WLC). The primary goal of this research was to evaluate unit leaders' knowledge of their primary duties and responsibilities during JRTC rotations. A brief guide was developed in accordance with Army Field Manual 6-22 (FM 6-22, U.S. Department of the Army, 2015), *Leader Development*, Army Doctrine Reference Publication 7-0 (ADRP 7-0, U.S. Department of the Army, 2012), *Training Units and Developing Leaders*, and Army Doctrine Publication 6-22 (ADP 6-22, U.S. Department of the Army, 2019), *Army Leadership and the Profession*. The guide was developed to improve leader performance. Unit performance was assessed via a *Leader Duties and Responsibilities Checklist* developed by ARI and the WLC as a means for Observer/Coach/Trainers (OCTs) to collect data on how well unit leaders accomplished their duties and responsibilities at JRTC.

Procedure:

The OCTs completed checklists to assess units in four areas: Planning, Preparation, Execution, and Overall Performance. The checklists were collected at the end of each rotation. Data were collected from 786 checklists over 10 training rotations, with five rotations in the control group and five rotations in the experimental group. Based on the performance of five initial/baseline rotations, a *Guide for Leader Duties and Responsibilities* was developed and distributed to the remaining five rotations (the experimental group). The effectiveness of the guide was evaluated based on differences between the performance of units in the control condition and units in the experimental condition.

Findings:

The *Guide for Leader Duties and Responsibilities* had little to no significant effect on unit performance, as rated by OCTs. The size of the differences between the control and experimental groups on various indicators of their performance were small in most cases, and nonexistent in others. However, additional analyses indicated that units that established a Tactical Standing Operating Procedure (TACSOP) outperformed those that did not. Active Component units also outperformed Reserve and National Guard Component units, regardless of whether or not they received the guide.

Utilization and Dissemination of Findings:

Research personnel from ARI provided the WLC with periodic summaries of unit performance according to the *Leader Duties and Responsibilities Checklist*. The *Guide for Leader Duties and Responsibilities* appears to have minimal to no effect on improving unit

performance on the measured behaviors. Nevertheless, the primary impact of this collaborative research effort is in providing the WLC and OCTs with information about how rotational units are performing at JRTC, with the ultimate aim to improve that performance.

AN ASSESSMENT OF LEADER DUTIES AND RESPONSIBILITIES IN A DECISIVE ACTION TRAINING ENVIRONMENT

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AN ASSESSMENT OF LEADER DUTIES AND RESPONSIBILITIES IN A DECISIVE ACTION TRAINING ENVIRONMENT

The Joint Readiness Training Center (JRTC) is a Combat Training Center (CTC) that prepares units for combat deployment through various individual-level and unit-level training events. The primary aim of the JRTC Warrior Leadership Council (WLC)¹ is to measure operational unit performance during those exercises and to enhance that performance (Dasse, Vowels, Daniels, & Volino, 2017; Dasse, Vowels, Fair, & Boyer, 2017; Scroggins et al., 2018, 2019; Vowels et al., 2014; Vowels et al., 2017). The present research is a continuation of a longstanding collaboration between the JRTC WLC and the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI), consisting of two primary components. First, this collaboration involves the development of checklists, distributed to, and completed by Observer/Coach/Trainers (OCTs), to measure rotational unit performance at JRTC. The second aspect of this collaboration is an effort to improve that performance by developing a guide that is distributed to units ahead of their JRTC rotation. The respective checklist and guide focus on a specific topic of interest, determined by the WLC as paramount to rotational unit performance.

Previous iterations of this ongoing collaborative research effort included the development of checklists and guides on force protection, sustainment operations, defensive operations, and command post operations (Dasse, Vowels, Daniels, & Volino, 2017; Dasse, Vowels, Fair, & Boyer, 2017; Vowels et al., 2017). A review of previous studies indicates that the first aim to develop checklists of rotational unit performance has been largely successful. The WLC in collaboration with ARI has developed various checklists that are interpretable to OCTs and offer nuanced information about rotational unit performance. However, improving on that performance through the use of brief guides is a challenge. There is little empirical evidence to suggest that units that receive a given guide outperform those that do not, which is understandable given the many factors that contribute to unit performance at JRTC.

Leader Duties and Responsibilities

The present research encompasses the same two broad aims of this ongoing collaboration, with leader duties and responsibilities as the focal topic of interest, in accordance with Army Field Manual 6-22 (FM 6-22, U.S. Department of the Army, 2015), *Leader Development*, Army Doctrine Reference Publication 7-0 (ADRP 7-0, U.S. Department of the Army, 2012), *Training Units and Developing Leaders*, and Army Doctrine Publication 6-22 (ADP 6-22, U.S. Department of the Army, 2019), *Army Leadership and the Profession*. The core duty of Army leaders is to inspire and influence Soldiers through (a) purpose, (b) direction, and (c) motivation (ADP 6-22, U.S. Department of the Army, 2019; FM 6-22, U.S. Department of the Army, 2015). More specifically, Army leaders communicate the broader purpose of their individual actions and leaders also communicate the purpose of subordinate actions as well. Army leaders provide direction by clearly communicating the desired end state of a mission or task to their subordinates. Army leaders motivate their subordinates through both their external

¹Led by the Deputy Commander and Command Sergeant Major of the Operations Group, the council consists of representatives from each Operations Group division, as well as the 1st Battalion (Airborne) 509th Infantry, and ARI (U.S. Army Research Institute for the Behavioral and Social Sciences, 2005).

influence (e.g., feedback) and by setting a personal example. Leaders are assessed by the extent to which they effectively maximize each of those core duties.

There are a variety of more specific behaviors subsumed in those broad categories that are expected of successful leaders in the Army (ADP 6-22, U.S. Department of the Army, 2019; ADRP 7-0, U.S. Department of the Army, 2012; FM 6-22, U.S. Department of the Army, 2015). Leaders who inspire and influence communicate a clear task and purpose, apparent when Soldiers and leaders understand their mission (ADRP 7-0, U.S. Department of the Army, 2012; FM 6-22, U.S. Department of the Army, 2015). Leaders also offer direction by providing timely and accurate information to higher echelons and to their subordinate units (ADP 6-22, U.S. Department of the Army, 2019). Relatedly, successful leaders ensure that subordinate units have timely access to a decision maker (ADP 6-22, U.S. Department of the Army, 2019). To communicate a clear purpose, leaders need to understand how to employ their units to accomplish the mission (FM 6-22, U.S. Department of the Army, 2015). Finally, leaders motivate their subordinates by enforcing discipline in themselves and in their Soldiers (ADP 6-22, U.S. Department of the Army, 2019; ADRP 7-0, U.S. Department of the Army, 2012; FM 6-22, U.S. Department of the Army, 2015).

The purpose of the present research was to develop a checklist to assess rotational unit performance pertinent to leader duties and responsibilities and to evaluate a guide designed to improve unit leaders' understanding of their primary duties and responsibilities. The *Leader Duties and Responsibilities Checklist* was created by the WLC based on the aforementioned doctrine as a means for JRTC OCTs to collect data on how well leaders successfully accomplished their duties and responsibilities. The WLC created a guide to leader duties and responsibilities, based primarily on the associated checklist and doctrine. The purpose of the guide was to articulate the core duties and responsibilities of Army leaders at JRTC. We evaluated the effectiveness of that guide by comparing the performance of units that received the guide (treatment group) to units that did not receive the guide (control group). Consistent with previous iterations of this project, we expected that units in the experimental group would outperform units in the control group.

Method

Sample

This research was conducted during rotational unit exercises at JRTC for 10 Brigade Combat Teams (BCTs). The OCTs completed 786 *Leader Duties and Responsibilities Checklists* at the echelon in which they were embedded, over the course of the 10 rotations. A majority of the checklists were from Active Component units (498 checklists), but checklists were also completed for National Guard Component (116 checklists) and Reserve Component units (seven checklists). The OCTs did not report the type of component that they observed on 165 checklists.

The sample of 786 *Leader Duties and Responsibilities Checklists* included five rotations each for the control (371 checklists) and treatment (415 checklists) groups (Table 1). The most common units in the control group were Active Component (66%), platoons (30%) or companies (22%), Infantry or Cavalry (13%), and were observed completing Decisive Action Training

Environment (DATE) rotations (70%) and during multiple rotational phases (62%; e.g., offensive operations and defensive operations). Likewise, the most common units in the treatment group were Active Component (61%), platoons (29%) or companies (28%), Infantry (33%) or Cavalry (11%), and were observed completing DATE rotations (62%) and during multiple rotational phases (60%; e.g., offensive operations and defensive operations).

Table 1

Crosstabulations of Rotation, Component, Size, and Type of Units in the Control and Treatment Group

		Control group		Treatment group	
		<i>n</i>	%	<i>n</i>	%
Rotation Type	Mission Readiness Exercise (MRE)	19	5%	29	7%
	Decisive Action Training Environment (DATE)	260	70%	257	62%
	Hybrid (MRE & DATE)	7	2%	5	1%
	Command Post Exercise (CPE)	–	–	1	<1%
	Other/Missing	85	23%	123	30%
	Component	Active	245	66%	253
	Reserve	4	1%	3	1%
	National Guard	47	13%	69	17%
	Other/Missing	75	20%	90	22%
Unit Size	Squad	1	<1%	1	<1%
	Section	5	1%	1	<1%
	Platoon	133	36%	149	36%
	Company	97	26%	132	32%
	Battalion	58	16%	45	11%
	Brigade	6	2%	5	1%
	Other/Missing	71	19%	82	20%
Type of Unit	Artillery	14	4%	20	5%
	Aviation	40	11%	39	9%
	Brigade support battalion	4	1%	–	–
	Cavalry	48	13%	45	11%
	Chemical	4	1%	3	1%
	Engineering	20	5%	20	5%
	Field artillery	19	5%	29	7%
	Infantry	102	27%	138	33%
	Logistics	8	1%	2	<1%
	Medical	1	<1%	–	–
	Military intelligence	2	1%	2	<1%
	Military police	4	1%	5	1%
	Ordinance	9	2%	4	1%

Quartermaster	15	4%	9	2%
Religious affairs	–	–	1	<1%
Reconnaissance, surveillance, and target acquisition	–	–	1	<1%
Signal	6	2%	4	1%
Security force assistance brigade	–	–	29	7%
Sustainment	–	–	1	<1%
Transportation	2	1%	4	1%
Other	4	1%	4	1%
Multiple	36	10%	31	7%

Note. The OCTs often failed to provide the pertinent rotation and unit characteristics, evident by missing data for many of the crosstabulations, which raises the possibility of imputing those missing data (Tanner & Wong, 1987). However, we chose not to impute the missing data because the primary comparison was between units in the control and treatment group, which did not suffer from that issue.

Leader Duties and Responsibilities Checklist

The *Leader Duties and Responsibilities Checklist* was developed by ARI and the WLC for this research effort in order to examine leaders' understanding and execution of their duties and responsibilities across and within rotational units². The checklist is available in its entirety in the Appendix. Major areas of interest included specific aspects of planning, preparation, and execution of leader duties and responsibilities. The first section of the checklist was composed of general information about the unit, mission, and rotation. The second, third, and fourth sections of the checklist were composed of specific questions about the unit leaders' planning (e.g., "During planning, how well did Leaders demonstrate that they understood the duties and responsibilities of their position?"), preparation (e.g., "Did preparation maximize time? And resources?"), and execution (e.g., "Did the Leaders provide timely and accurate information to higher and subordinate units?"). The fifth and final section of the checklist included overall ratings of planning, preparation, and execution.

The *Leader Duties and Responsibilities Checklist* included both dichotomous (Yes/No) and continuous (scaled) items. For dichotomous items, OCTs reported whether or not the unit leaders performed the duties and responsibilities in question. For the continuous (scaled) items, OCTs reported the degree to which unit leaders accomplished their duties and responsibilities on a scale from 0 (*Unsatisfactory/not at all*) to 4 (*Exceeds standard/performed all tasks and prepared for contingencies*). The continuous (scaled) items are especially informative as they provide a more nuanced understanding of performance and allow for the use of more

²A reviewer raised the possibility of examining the psychometric qualities of the checklist by following traditional approaches to assess test score reliability (e.g., Kuder & Richardson, 1937). However, the primary purpose of the checklist was to assess specific aspects of rotational unit performance relevant to leader duties and responsibilities. Our aim was not to measure underlying psychological constructs nor to develop a checklist that would be applicable beyond the specific context of interest. In this instance, the construct validity of the checklist and test score reliability necessary to support that validity is not applicable. Accordingly, the analytic approach to examine differences in the performance of units based on the checklist data encompassed each respective item; that is, we did not attempt to combine any of the checklist items as an assessment of a distinct construct.

sophisticated statistical analyses to test for potential differences between conditions (Hays, 1994; Vowels et al., 2014).

Guide for Leader Duties and Responsibilities

The *Guide for Leader Duties and Responsibilities* was developed by members of the WLC as a training aid to enhance leaders' understanding of their duties and responsibilities. The content of the leader's guide was developed based on observations of rotational unit exercises during the first five (control condition) rotations. The guide was designed such that at 5.5 inches by 4.25 inches, it could fit in the pocket of leaders for easy access and reference during exercises.

The topics covered in the guide were based on issues and challenges identified in initial rotations, as observed by OCTs, and feedback and input from WLC members and researchers at ARI. The guide provided specific information broadly relevant to planning, preparation, and execution, which followed from considerations in the associated checklist. For instance, the *Planning* section noted the importance of enforcing discipline, understanding, and using subordinates according to their duties and responsibilities, providing subordinates with timely access to a decision maker, and communicating the purpose of subordinates' action. The *Prepare* section included an acknowledgement of leader duties relevant to maintaining accountability of personnel, weapons, and equipment, emplacing, and directing security measures, coordinating with adjacent units, and conducting rehearsal. The *Execute* section directed leaders to provide timely and accurate information, communicate a clear task and purpose, continuously coordinate with adjacent units, and communicate an understanding of the mission to their subordinates.

Procedure

The JRTC Operations Group divisions issued *Leader Duties and Responsibilities Checklists* to the OCTs prior to each rotation. The WLC division leaders were responsible for ensuring that the OCTs completed the checklists correctly and for collecting the checklists at the completion of each rotation. The guide was issued to company/platoon/squad leaders in the treatment condition approximately one month ahead of their JRTC rotation. Only those units in the latter five rotations of this research received the guide (i.e., experimental group), so the units from the first five rotations were in the control group. Given the constraints of rotational unit exercises at JRTC, we were unable to confirm that every unit leader in the experimental group was issued a guide, or how often the leaders referenced the guide if they received one. The OCTs were aware of the purpose of this research, including which rotations were in the control and treatment conditions as well as the aim of the leader's guide.

Results

The *Leader Duties and Responsibilities Checklist* data were analyzed to assess the potential effect of the *Guide for Leader Duties and Responsibilities* on rotational unit performance at JRTC. Additional analyses were conducted to examine potential differences in performance based on comparisons of units with and without a Tactical Standard Operating Procedure (TACSOP), units that had and had not completed a Field Training Exercise (FTX) in

the past 12 months, and Active Component versus Reserve Component and National Guard Component units (see also Scroggins et al., 2018, 2019; Vowels et al., 2017).

The analyses described in this report followed the same structure to examine potential differences between groups for each of the *Leader Duties and Responsibilities Checklist* items. Differences in dichotomous items (Yes or No responses) were assessed using chi-square tests, which are used for categorical variables (Pearson, 1900). We report the *phi coefficient* as the effect size estimate for these tests, which reflects the relationship between conditions and the respective dichotomous item (Kotrlík & Williams, 2003). Differences in continuous items (0-4 responses) were assessed using Mann-Whitney *U* tests because the continuous items did not meet the assumption of normality based on the Shapiro-Wilk normality test ($W = 0.91, p < .01$). We report the standardized mean difference (Cohen's *d*) as the effect size estimate for these comparisons (Cohen, 1988). The chi-square tests and Mann-Whitney *U* tests were deemed statistically significant using an alpha level of $p < .01$. A more conservative alpha level was used in this case to reduce possible Type I errors, which is of particular concern in this study due to a large number of checklists gathered from the rotations and considering factors about our design and methodology that we could not control (e.g., how the guide was introduced to leaders and the extent to which the guide was used).

Control versus Treatment Condition

The primary comparison in this research is between rotational units in the control and treatment conditions on each of the *Leader Duties and Responsibilities Checklist* items. The findings from these comparisons are consistent with analogous previous research of rotational unit performance at JRTC (Scroggins et al., 2018, 2019; Vowels et al., 2017). None of the chi-square tests comparing the control and treatment units on each of the 45 dichotomous items were statistically significant (Table 2). Moreover, the *phi coefficients* for some of the comparisons reflected a pattern of results that was opposite of expectation, such that leaders in the control condition were more likely to task subordinates according to their duties and responsibilities ($\chi^2[1] = 6.59, p > .01, \phi = -.10$), and operate with a digital common operational picture (COP) ($\chi^2[1] = 5.18, p > .01, \phi = -.10$). However, there is some evidence to suggest that units in the treatment condition more frequently conducted liaison activities, $\chi^2(1) = 5.69, p > .01, \phi = .12$.

Table 2

Non-Parametric Tests of Dichotomous Items: Control versus Treatment Condition

Checklist Item	Sample Size	Pearson's χ^2	Phi Coefficient
Section II – Planning			
II 2 METT-TC	749	0.09	.01
II 3 Employ	780	0.74	-.03
II 4 Subordinates	774	3.85	-.07
II 5 Subordinates Tasked	770	6.59	-.10
II 6 Establish Priorities of Work	763	0.76	-.03
II 7 Sketches	711	2.39	-.06

II 8 Update Running Estimate	681	0.20	-.02
II 9 Plan Refined	749	0.94	.04
II 10 Functional Command Post (CP)	682	1.55	-.05
II 11a Digital Common Operational Picture (COP)	571	5.18	-.10
II 11b Analog COP	680	1.82	-.05
II 12 CP Manned	631	3.61	-.08
II 13 Subordinate Access	736	0.36	.03
II 14 Subordinate mission critical (MC) node	693	0.14	-.02
II 15 Communication	775	0.02	-.01
II 16 Primary, Alternate, Contingency, and Emergency (PACE) plan	768	0.76	-.03
II 18 TACSOP	732	1.75	-.05
II 19 Discipline	774	4.67	-.08

Section III – Preparation

III 1a Time	510	0.14	-.02
III 1b Resources	676	0.26	-.02
III 2 Adjust for Threat	710	0.82	-.04
III 3a Emplace Security	465	0.18	-.02
III 3b Direct Security	714	3.69	-.07
III 4a Survivability Prepared	464	3.10	-.09
III 4b Survivability Improved	638	2.68	-.07
III 5a Liaison	435	5.69	.12
III 5b Coordinate	650	0.20	-.02
III 6 Rehearsal Exercises (RXLs)	743	0.33	-.02
III 6b Battle Drills	719	2.17	-.06
III 6c Identify and Rehearse	697	0.42	.03
III 6d Rehearse Enablers	672	1.28	.05
III 7a Pre-Combat Checks (PCC)/Pre-Combat Inspection (PCI)	485	0.31	.03
III 7b Vehicular Load	697	0.03	-.01
III 8 Accountability	766	2.38	.06

Section IV – Execution

IV 1 Situational Understanding	758	0.05	-.01
IV 2 Information	751	0.82	-.04
IV 3 Adjust Security Posture	724	0.79	-.04
IV 4 Evaluate Situational Awareness	545	0.18	.02
IV 5 Maneuver Synchronized	625	0.59	.03
IV 6a Enabler Available	526	1.98	.07
IV 6b Enabler Depicted	625	0.00	-.00
IV 7 Clear Task and Purpose	755	1.07	.04
IV 8a Leaders Understand Mission	626	1.52	.05
IV 8b Soldiers Understand Mission	743	0.35	.02
IV 9 Coordinate with Adjacent Units	733	1.80	-.05

Note. *Phi* coefficients range from .00 to .01 for negligible associations, .02 to .19 for small associations, .20 to .40 for moderate associations, and .80 to 1.00 for very strong associations (Kotrlík & Williams, 2003). A positive *phi* coefficient indicates that the treatment condition performed better than the control condition. METT-TC – Mission, Enemy, Terrain & Weather, Troops, Time Available, Civilian Considerations.

* Indicates a statistically significant relationship ($p < .01$).

Comparisons of units in the treatment and control condition on the continuous checklist items based on Mann-Whitney *U* tests were more supportive of the expected differences (Table 3). Specifically, units in the treatment condition were rated as having better executed their leader duties and responsibilities ($M = 2.37, SD = 0.98$), compared to units in the control condition ($M = 2.18, SD = 0.97$), $U = 59494, p < .01, d = 0.20$. A similar pattern of difference was observed for overall ratings of preparation, and a direct comparison of the treatment and control conditions on that checklist item was significant, $U = 60770, p < .01, d = 0.18$.

Table 3

Non-Parametric Tests of Continuous Items: Control versus Treatment Condition

Checklist Item	Group	<i>N</i>	Mean	<i>SD</i>	<i>U</i>	Cohen's <i>d</i>
II 1 Duties in Planning	Control	364	3.23	1.09	72528	-0.05
	Treatment	393	3.17	1.18		
III 6a RXL Effectiveness	Control	239	2.84	1.11	36168	-0.12
	Treatment	286	2.71	1.10		
Overall Ratings						
Planning	Control	343	2.17	2.06	61713	0.05
	Treatment	398	2.25	0.96		
Prepare	Control	342	2.03	1.03	60770*	0.18
	Treatment	398	2.21	0.97		
Execute	Control	343	2.18	0.97	59494*	0.20
	Treatment	398	2.37	0.98		

Note. For Cohen's *d*, 0.20 = small effect, 0.50 = medium effect, and 0.80 = large effect (Cohen, 1988).

* Indicates a statistically significant difference ($p < .01$).

Additional Analyses

TACSOP versus No TACSOP

Previous research has identified Tactical Standing Operating Procedure (TACSOP) as a primary consideration in the performance of units at JRTC (Scroggins et al., 2018, 2019; Vowels et al., 2017). These studies used similar checklist performance measures and training guides and observed that units summarily performed better when they have a TACSOP emplaced, regardless of whether or not units received a training guide (Scroggins et al., 2018, 2019; Vowels et al.,

2017). We likewise examined potential differences in *Leader Duties and Responsibilities Checklist* performance between units with and without a TACSOP.

The findings in this research for these comparisons are consistent with previous research; that is, units with a TACSOP performed better than units without a TACSOP on nearly every checklist item (Tables 4 and 5). Thirty-seven (37) of the 45 comparisons on the dichotomous checklist items were statistically significant, and the strongest effect was observed for evaluating the situational awareness of liaison personnel, $\chi^2(1) = 50.22, p < .01, \phi = .31$. This pattern of results was also summarily observed for the continuous checklist items. Units with a TACSOP were comparatively most effective in ratings of their overall preparation, $U = 67069, p < .01, d = 0.52$.

Table 4

Non-Parametric Tests of Dichotomous Items: TACSOP versus No TACSOP

Checklist Item	Sample Size	Pearson's χ^2	Phi Coefficient
Section II – Planning			
II 2 METT-TC	709	30.71*	.21
II 3 Employ	727	13.67*	.14
II 4 Subordinates	722	23.00*	.18
II 5 Subordinates Tasked	720	25.82*	.19
II 6 Establish Priorities of Work	718	35.90*	.23
II 7 Sketches	672	28.11*	.21
II 8 Update Running Estimate	647	28.07*	.21
II 9 Plan Refined	702	11.61*	.13
II 10 Functional CP	642	32.16*	.23
II 11a Digital COP	538	6.08	.11
II 11b Analog COP	642	16.11*	.16
II 12 CP Manned	590	20.24*	.19
II 13 Subordinate Access	690	20.03*	.17
II 14 Subordinate MC node	654	11.79*	.14
II 15 Communication	724	14.27*	.14
II 16 PACE plan	724	15.16*	.15
II 19 Discipline	726	15.68*	.15
Section III – Preparation			
III 1a Time	478	5.19	.11
III 1b Resources	636	25.90*	.21
III 2 Adjust for Threat	671	17.83*	.17
III 3a Emplace Security	445	21.78*	.23
III 3b Direct Security	680	22.64*	.19
III 4a Survivability Prepared	437	2.35	.08
III 4b Survivability Improved	606	16.23*	.17
III 5a Liaison	417	7.28*	.14
III 5b Coordinate	627	21.40*	.19

Checklist Item	Sample Size	Pearson's χ^2	Phi Coefficient
III 6 RXLs	698	33.78*	.22
III 6b Battle Drills	677	40.17*	.25
III 6c Identify and Rehearse	656	25.62*	.20
III 6d Rehearse Enablers	635	28.36*	.21
III 7a PCC/PCI	453	5.04	.11
III 7b Vehicular Load	661	15.45*	.16
III 8 Accountability	716	5.44	.09
Section IV – Execution			
IV 1 Situational Understanding	710	6.23	.10
IV 2 Information	702	14.36*	.15
IV 3 Adjust Security Posture	685	29.12*	.21
IV 4 Evaluate Situational Awareness	521	50.22*	.31
IV 5 Maneuver Synchronized	587	23.96*	.21
IV 6a Enabler Available	497	12.16*	.16
IV 6b Enabler Depicted	591	21.16*	.19
IV 7 Clear Task and Purpose	706	19.61*	.17
IV 8a Leaders Understand Mission	583	0.45	.03
IV 8b Soldiers Understand Mission	696	5.30	.09
IV 9 Coordinate with Adjacent Units	690	8.25*	.11

Note. Phi coefficients range from .00 to .01 for negligible associations, .02 to .19 for small associations, .20 to .40 for moderate associations, and .80 to 1.00 for very strong associations (Kotrlík & Williams, 2003). A positive phi coefficient indicates that units with a TACSOP performed better than units without a TACSOP. METT-TC – Mission, Enemy, Terrain & Weather, Troops, Time Available, Civilian Considerations.

* Indicates a statistically significant relationship ($p < .01$).

Table 5

Non-Parametric Tests of Continuous Items: TACSOP versus No TACSOP

Checklist Item	Group	N	Mean	SD	U	Cohen's d
II 1 Duties in Planning	No TACSOP	237	2.95	1.22	65943*	0.36
	TACSOP	474	3.35	1.06		
III 6a RXL Effectiveness	No TACSOP	136	2.39	1.17	29406*	0.46
	TACSOP	351	2.89	1.04		
Overall Ratings						
Planning	No TACSOP	234	1.90	1.05	64976*	0.30
	TACSOP	455	2.38	1.80		
Prepare	No TACSOP	233	1.79	1.04	67069*	0.52
	TACSOP	454	2.29	0.93		
Execute	No TACSOP	233	2.02	1.05	65501*	0.43
	TACSOP	455	2.42	0.90		

Note. For Cohen's *d*, 0.20 = small effect, 0.50 = medium effect, and 0.80 = large effect (Cohen, 1988).

* Indicates a statistically significant difference ($p < .01$).

FTX versus No FTX

An additional comparison in this study is between units that had and had not completed a Field Training Exercise (FTX) in the past 12 months, which is consistent with previous research on unit performance at JRTC (Vowels et al., 2017). This is a pertinent consideration because the purpose of FTXs is to prepare units for CTC rotational training through similar exercises at their home station. FTXs offer an opportunity for units to practice tactics, techniques, and procedures (TTP) ahead of testing these TTPs in a CTC environment.

The findings offered some support for FTXs in preparing units to perform at JRTC, but most of the effect sizes for these comparisons were small and not statistically significant (Tables 6 and 7). The strongest effects on the dichotomous items indicated that leaders in units with a FTX were more likely to conduct initial assessments ($\chi^2[1] = 8.35, p < .01, \phi = .11$), enforce discipline ($\chi^2[1] = 8.32, p < .01, \phi = .11$), and understand how to employ their unit to accomplish the mission ($\chi^2[1] = 7.73, p < .01, \phi = .10$). Similarly, although none of the independent sample's t-tests for the continuous items were significant, there is some indication that leaders in units with a FTX demonstrated better understanding of their duties and responsibilities during planning ($t[755] = -2.30, p > .01, d = 0.19$) and execution ($t[739] = -2.09, p > .01, d = 0.17$).

Table 6

Non-Parametric Tests of Dichotomous Items: FTX versus No FTX

Checklist Item	Sample Size	Pearson's χ^2	Phi Coefficient
Section II – Planning			
II 2 METT-TC	749	8.35*	.11
II 3 Employ	780	7.73*	.10
II 4 Subordinates	774	5.51	.09
II 5 Subordinates Tasked	770	6.00	.09
II 6 Establish Priorities of Work	763	3.17	.07
II 7 Sketches	711	0.13	-.02
II 8 Update Running Estimate	681	0.65	.03
II 9 Plan Refined	749	1.43	.05
II 10 Functional CP	682	0.28	.02
II 11a Digital COP	571	0.04	-.01
II 11b Analog COP	680	0.11	.02
II 12 CP Manned	631	0.00	.00
II 13 Subordinate Access	736	0.94	.04
II 14 Subordinate MC node	693	0.27	-.02
II 15 Communication	775	0.00	.00
II 16 PACE plan	768	0.85	.04

II 18 TACSOP	732	0.00	.01
II 19 Discipline	774	8.32*	.11
Section III – Preparation			
III 1a Time	510	1.60	.06
III 1b Resources	676	0.00	.00
III 2 Adjust for Threat	710	1.89	.05
III 3a Emplace Security	465	0.00	.01
III 3b Direct Security	714	0.54	-.03
III 4a Survivability Prepared	464	0.37	.03
III 4b Survivability Improved	638	0.56	.03
III 5a Liaison	435	0.45	.04
III 5b Coordinate	650	0.52	.03
III 6 RXLs	743	0.02	.01
III 6b Battle Drills	719	0.42	.03
III 6c Identify and Rehearse	697	0.06	-.01
III 6d Rehearse Enablers	672	0.69	-.04
III 7a PCC/PCI	485	0.06	.02
III 7b Vehicular Load	697	0.02	.01
III 8 Accountability	766	3.88	.08
Section IV – Execution			
IV 1 Situational Understanding	758	0.01	.01
IV 2 Information	751	0.59	.03
IV 3 Adjust Security Posture	724	0.13	.02
IV 4 Evaluate Situational Awareness	545	1.83	-.06
IV 5 Maneuver Synchronized	625	0.05	.01
IV 6a Enabler Available	526	1.23	-.05
IV 6b Enabler Depicted	625	3.38	-.08
IV 7 Clear Task and Purpose	755	0.97	.04
IV 8a Leaders Understand Mission	626	0.00	.01
IV 8b Soldiers Understand Mission	743	0.85	.04
IV 9 Coordinate with Adjacent Units	733	1.00	.04

Note. Phi coefficients range from .00 to .01 for negligible associations, .02 to .19 for small associations, .20 to .40 for moderate associations, and .80 to 1.00 for very strong associations (Kotrlík & Williams, 2003). A positive phi coefficient indicates that units with a FTX in the past 12 months performed better than those units that did not have a FTX in the past 12 months. METT-TC – Mission, Enemy, Terrain & Weather, Troops, Time Available, Civilian Considerations.

* Indicates a statistically significant relationship ($p < .01$).

Table 7*Non-Parametric Tests of Continuous Items: FTX versus No FTX*

Checklist Item	Group	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>U</i>	Cohen's <i>d</i>
II 1 Duties in Planning	No FTX	558	3.14	1.14		0.19
	FTX	199	3.35	1.09		
III 6a RXL Effectiveness	No FTX	386	2.77	1.13		-0.02
	FTX	139	2.76	1.04		
Overall Ratings						
Planning	No FTX	545	2.21	1.73		0.01
	FTX	196	2.23	1.00		
Prepare	No FTX	545	2.12	1.00		0.01
	FTX	195	2.14	0.99		
Execute	No FTX	546	2.24	1.00		0.17
	FTX	195	2.41	0.93		

Note. For Cohen's *d*, 0.20 = small effect, 0.50 = medium effect, and 0.80 = large effect (Cohen, 1988).

* Indicates a statistically significant difference ($p < .01$).

Active Component versus Reserve Component and National Guard Component

A final comparison in this research is between Active Component units versus Reserve Component and National Guard Component units³. Preliminary comparisons of these component units suggests that they differed in their checklist performance, with Active Component units typically performing better than Reserve Component and National Guard Component units. These results are understandable given that by their very nature, Reserve and National Guard Component units have less opportunity to practice the TTPs that are tested in the CTC training environment.

Direct comparisons of Active Component to Reserve Component and National Guard Component units on each of the *Leader Duties and Responsibilities Checklist* items supports the aforementioned rationale (Tables 8 and 9). Specifically, a vast majority of the chi-square tests of the dichotomous items (40 of 45 comparisons) indicated that Active Component units performed better than Reserve Component and National Guard Component units. This was most strongly reflected in OCTs' ratings of enforcing discipline, $\chi^2(1) = 58.62$, $p < .01$, $\phi = .31$. Comparisons of the continuous items were also consistent with these findings, and each of the independent sample's t-tests was statistically significant. Active Component units displayed their largest

³The checklist results could ostensibly be examined according to other subsets of unit characteristics, beyond those three additional considerations included here. However, without a guiding theoretical or empirical basis for doing so, there are a plethora of potential combinations of unit characteristics to potentially examine (see Table 1). Including an assessment of all those potential combinations is beyond the scope of this study. The additional analyses included here follow from considerations identified in previous iterations of this project (Dasse, Vowels, Daniels, & Volino, 2017; Dasse, Vowels, Fair, & Boyer, 2017; Scroggins et al., 2018, 2019; Vowels et al., 2014; Vowels et al., 2017).

comparative effectiveness on ratings of leader duties and responsibilities during planning ($t[600] = -8.43, p < .01, d = 0.95$) and execution ($t[589] = -6.11, p < .01, d = 0.72$).

Table 8

Non-Parametric Tests of Dichotomous Items: Active Component versus Reserve Component and National Guard Component

Checklist Item	Sample Size	Pearson's χ^2	Phi Coefficient
Section II – Planning			
II 2 METT-TC	593	34.16*	.24
II 3 Employ	615	29.81*	.22
II 4 Subordinates	611	30.09*	.23
II 5 Subordinates Tasked	607	32.96*	.24
II 6 Establish Priorities of Work	601	33.65*	.24
II 7 Sketches	561	6.97*	.12
II 8 Update Running Estimate	532	32.51*	.25
II 9 Plan Refined	593	13.18*	.15
II 10 Functional CP	536	13.18*	.16
II 11a Digital COP	454	9.55*	.15
II 11b Analog COP	538	6.03	.11
II 12 CP Manned	493	8.02*	.13
II 13 Subordinate Access	587	15.57*	.17
II 14 Subordinate MC node	554	31.57*	.24
II 15 Communication	612	24.74*	.21
II 16 PACE plan	604	22.27*	.20
II 18 TACSOP	574	33.63*	.25
II 19 Discipline	611	58.62*	.31
Section III – Preparation			
III 1a Time	417	11.37*	.17
III 1b Resources	529	37.24*	.27
III 2 Adjust for Threat	554	35.38*	.26
III 3a Emplace Security	382	24.99*	.26
III 3b Direct Security	564	41.13*	.27
III 4a Survivability Prepared	382	1.59	.07
III 4b Survivability Improved	503	19.24*	.20
III 5a Liaison	351	9.05*	.17
III 5b Coordinate	509	25.77*	.23
III 6 RXLs	589	21.04*	.19
III 6b Battle Drills	567	4.44	.09
III 6c Identify and Rehearse	546	4.74	.10
III 6d Rehearse Enablers	531	3.34	.08
III 7a PCC/PCI	402	24.28*	.25
III 7b Vehicular Load	546	15.87*	.18

Checklist Item	Sample Size	Pearson's χ^2	Phi Coefficient
III 8 Accountability	605	16.28*	.17
Section IV – Execution			
IV 1 Situational Understanding	596	29.03*	.23
IV 2 Information	592	44.02*	.28
IV 3 Adjust Security Posture	567	22.85*	.21
IV 4 Evaluate Situational Awareness	418	18.82*	.22
IV 5 Maneuver Synchronized	488	23.11*	.22
IV 6a Enabler Available	426	7.29*	.14
IV 6b Enabler Depicted	488	13.10*	.17
IV 7 Clear Task and Purpose	594	20.47*	.19
IV 8a Leader Understand Mission	508	6.69*	.12
IV 8b Soldiers Understand Mission	584	24.88*	.21
IV 9 Coordinate with Adjacent	576	15.89*	.17

Note. Phi coefficients range from .00 to .01 for negligible associations, .02 to .19 for small associations, .20 to .40 for moderate associations, and .80 to 1.00 for very strong associations (Kotrlík & Williams, 2003). A positive phi coefficient indicates that Active Component units performed better than Reserve Component and National Guard Component units. METT-TC – Mission, Enemy, Terrain & Weather, Troops, Time Available, Civilian Considerations.

* Indicates a statistically significant relationship ($p < .01$).

Table 9

Non-Parametric Tests of Continuous Items: Active Component versus Reserve Component and National Guard Component

Checklist Item	Group	N	Mean	SD	t	Cohen's d
II 1 Duties in Planning	Active	484	3.41	1.03	-8.43*	0.95
	Other	118	2.40	1.20		
III 6a RXL Effectiveness	Active	364	2.85	1.09	-2.18	0.29
	Other	57	2.54	0.98		
Overall Ratings						
Planning	Active	473	2.35	1.78	-5.30*	0.39
	Other	117	1.70	0.98		
Prepare	Active	473	2.27	0.94	-6.41*	0.69
	Other	117	1.62	1.00		
Execute	Active	474	2.41	0.91	-6.11*	0.72
	Other	117	1.73	1.13		

Note. For Cohen's d, 0.20 = small effect, 0.50 = medium effect, and 0.80 = large effect (Cohen, 1988).

* Indicates a statistically significant difference ($p < .01$).

Discussion

This research is embedded in a longstanding collaboration between the JRTC WLC and ARI to track and potentially improve rotational unit performance. The primary topic of interest for the present iteration of this collaboration was leader duties and responsibilities, according to a variety of existing doctrine on the topic (i.e., ADP 6-22; U.S. Department of the Army, 2019; ADRP 7-0; U.S. Department of the Army, 2012; FM 6-22; U.S. Department of the Army, 2015). The aim of this research was to develop a *Leader Duties and Responsibilities Checklist* and an associated guide aimed at improving leaders' successful accomplishment of those duties and responsibilities at JRTC.

The results from the present research replicate the findings from prior iterations of this collaboration (Dasse, Vowels, Daniels, & Volino, 2017; Dasse, Vowels, Fair, & Boyer, 2017; Scroggins et al., 2018, 2019; Vowels et al., 2014; Vowels et al., 2017). The *Leader Duties and Responsibilities Checklist* was largely successful in that it was well received and interpretable by OCTs at JRTC. However, also consistent with prior studies, the guide developed by the WLC to improve leaders' understanding of their duties and responsibilities had little to no effect on unit performance. Rather, other considerations were more impactful, specifically, the establishment of a TACSOP and the type of unit, with Active Component units outperforming Reserve Component and National Guard Component units.

At its broadest level, whereas the results from the present study do not offer empirical support for the impact of a guide on unit performance, the ultimate benefit of this research is providing a structured approach at measuring and tracking rotational unit performance at JRTC. Effectively measuring unit performance is a first step toward improving on that performance.

Limitations

The primary limitations in the present study are consistently noted in previous versions of this project (Scroggins et al., 2018, 2019; Vowels et al., 2017). Specifically, there are some inherent confounds affecting the conduct of this research. First, although units in the treatment condition were given a copy of the leader guide, we were unable to confirm that the guide was distributed to all unit leaders or the extent to which those leaders spent time (if at all) reviewing it. Previous attempts at better tracking who receives and reviews a respective guide have been largely unsuccessful, due to the inherent fluidity of this type of training environment (Scroggins et al., 2018). Another possible approach might involve a more direct assessment of leaders' perceptions of a given guide, based on a usability scale (e.g., Brooke, 1996).

The second and related consideration is that unit performance is influenced by a variety of complex factors (Mathieu et al., 2017). The advantage of focusing on a single topic area of interest is in offering a nuanced assessment of the behaviors that are pertinent to that performance. However, focusing on a single aspect of performance is a disadvantage when attempting to measure and improve unit performance more broadly because of the confluence of factors that influence that performance. So, a guide that is aimed at improving on one specific aspect of unit performance might be indeed helpful but have a negligible effect on the overall performance of units. Simply put, any effects of a guide might have been nullified by other factors.

Third, the checklist and guide were developed based on existing Army doctrine, which includes a plethora of behaviors that are expected of Army leaders (ADP 6-22; U.S. Department of the Army, 2019; ADRP 7-0; U.S. Department of the Army, 2012; FM 6-22; U.S. Department of the Army, 2015). The practical constraints of those products necessitated that subjective decisions were made about what information to include and what to leave out. The WLC has the knowledge and experience to make those subjective decisions. But it is possible that there are other critical aspects of leader duties and responsibilities relevant to unit performance that were not captured in the checklist or guide. Relatedly, the limited empirical support for the guide might be due to its indirect effects on leader and unit behavior. The guide might have a more proximal impact on leaders' confidence in their preparation; however, the checklist in its current form does not capture those perceptions.

Future Research Directions

The findings from this research in combination with previous iterations of this project support the conclusion that rotational unit performance is influenced by many considerations; understandably, a guide that focuses on only a specific aspect of that performance is likely to be ineffective. Consequently, it would seem that addressing the plethora of factors that contribute to rotational unit performance necessitates a different approach. An alternative way to meet the complex needs of rotational units might involve a systems approach (Gleick, 1987; Morgeson et al., 2015; von Bertalanffy, 1950). Addressing the myriad challenges that rotational units face would seem to necessitate an analogous approach that is understood not as a single independent event, but as a system of events that occur over time. Such an approach would involve the development of distinct interventions, each of which address unique challenges faced by units, and that combine over time to influence unit performance. Certainly, Army units rely on a variety of trainings that are used as a system (e.g., after-action reviews), yet the empirical basis for organizational training broadly and for specific types of training therein is largely based on singular independent events (Bell et al., 2017; Keiser & Arthur, 2021).

The primary benefit of this longstanding collaboration between the WLC and ARI is in providing a systematic basis for measuring and tracking rotational unit performance according to those OCTs who are in a unique position to observe nuanced aspects of that performance. A clear direction for future research is to integrate the plethora of OCT checklist data across the many versions of this project to date. Although each respective study focused on a specific aspect of unit performance, all the checklists included common questions about units (e.g., Active Component versus Reserve Component and National Guard Component), and overall assessments of their planning, preparation, and execution. Accordingly, those common questions provide an opportunity for a longitudinal assessment of unit performance at JRTC. Such an assessment would also offer an empirical basis for those considerations that are crucial to rotational unit performance, again as a preliminary step toward improving on that performance.

References

- Bell, B. S., Tannenbaum, S. I., Ford, J. K., Noe, R. A., & Kraiger, K. (2017). 100 years of training and development research: What we know and where we should go. *Journal of Applied Psychology, 102*(3), 305–323. <https://doi.org/doi/10.1037/apl0000142>
- Brooke, J. (1996). SUS: A quick and dirty usability scale. In P.W. Jordan, B. Thomas, B. A. Weerdmeester & I. L. McClelland (Eds.), *Usability Evaluation in Industry* (pp. 189-194). Taylor & Francis.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed). Lawrence Erlbaum Associates.
- Dasse, M. N., Vowels, C. L., Daniels, K. T., & Volino, P. M. (2017a). Measuring command post operations in a Decisive Action Training Environment. (Research Report 2001). U.S. Army Research Institute for the Behavioral and Social Sciences.
- Dasse, M. N., Vowels, C. L., Fair, A. J., & Boyer, D. D. (2017b). Assessing sustainment operations in a Decisive Action Training Environment. (Research Report 1994). U.S. Army Research Institute for the Behavioral and Social Sciences.
- Gleick, J. (1987). *Chaos: Making a new science*. Penguin Books.
- Hays, W. L. (1994). *Statistics*. Harcourt Brace Jovanovich.
- Keiser, N. L., & Arthur, W., Jr. (2021). A meta-analysis of the effectiveness of the after-action review (or debrief) and factors that influence to its effectiveness. *Journal of Applied Psychology, 106*(7), 1007–1032. <https://doi.org/10.1037/apl0000821>
- Kotrlik, J. W., & Williams, H. A. (2003). The incorporation of effect size in information technology, learning, and performance research. *Information Technology, Learning, and Performance Journal, 21*(1), 1-7.
- Kuder, G. F., & Richardson, M. W. (1937). The theory of the estimation of test reliability. *Psychometrika, 2*(3), 151-160. <https://doi.org/10.1007/BF02288391>
- Mathieu, J. E., Hollenbeck, J. R., van Knippenberg, D., & Ilgen, D. R. (2017). A century of work teams in the Journal of Applied Psychology. *Journal of Applied Psychology, 102*(3), 452–467. <https://doi.org/10.1037/apl0000128>
- Morgeson, F. P., Mitchell, T. R., & Liu, D. (2015). Event system theory: An event-oriented approach to the organizational sciences. *Academy of Management Review, 40*(4), 515-537. <https://doi.org/10.5465/amr.2012.0099>

- Pearson, K. (1900). On the criterion that a given system of deviations from the probable in the case of a correlated system of variables is such that it can be reasonably supposed to have arisen from random sampling. *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science*, 50(302), 157-175.
<https://doi.org/10.1080/14786440009463897>
- Scroggins, W. A., Vowels, C. L., Herger, J. M., & Perry, C. J. (2018). Offensive Operations in a Decisive Action Training Environment. (Research Report 2021). U.S. Army Research Institute for the Behavioral and Social Sciences.
- Scroggins, W. A., Vowels, C. L., Herger, J. M., & Perry, C. J. (2019). Force Protection in a Decisive Action Training Environment. (Research Report 2020). U.S. Army Research Institute for the Behavioral and Social Sciences.
- Tanner, M. A., & Wong, W. H. (1987). The calculation of posterior distributions by data augmentation. *Journal of the American statistical Association*, 82(398), 528-540.
<https://doi.org/10.1080/01621459.1987.10478458>
- U.S. Army Research Institute for the Behavioral and Social Sciences (2005). ARI opens two new liaison offices. *ARI Newsletter*, 15(1), 15.
- U.S. Department of the Army (2012, August). *Training Units and Developing Leaders* (Army Doctrine Reference Publication, ADRP 7-0). Author.
- U.S. Department of the Army (2015, June). *Leader Development* (Field Manual, FM 6-22). Author.
- U.S. Department of the Army (2019, July). *Army Leadership and the Profession*. Army Doctrine Publication, (ADP 6-22). Author.
- von Bertalanffy, L. (1950). An outline of general system theory. *British Journal for the Philosophy of Science*, 1(2), 134–165. <https://doi.org/10.1093/bjps/I.2.134>
- Vowels, C. L., Dasse, M. N., Ginty, I. M., & Emmons, R. H. (2014). Examining squad capabilities at the Joint Readiness Training Center. (Research Report 1976). U.S. Army Research Institute for the Behavioral and Social Sciences.
- Vowels, C. L., Scroggins, W. A., Daniels, K. T., & Volino, P. M. (2017). Defensive Operations in a Decisive Action Training Environment. (Research Report 2003). U.S. Army Research Institute for the Behavioral and Social Sciences.

Appendix A

Leader Duties and Responsibilities Checklist

LEADER DUTIES AND RESPONSIBILITIES CHECKLIST	
<p>Disclosure: Data collected with this form will be used for routine research purposes only. Information will not be used in whole or part in making any determination about an individual or unit. Information gathered will be used for statistical control purposes only and will not be disclosed to any unit undergoing rotations at the Joint Readiness Training Center.</p>	
<u>SECTION I: GENERAL INFORMATION</u>	
<p>DATES OBSERVED: FROM _____ TO _____ ROTATION NUMBER: _____</p> <p>ROTATION TYPE: MRE DATE HYBRID CPX COMPONENT: AC RC NG</p> <p>SIZE UNIT OBSERVED: _____ TYPE UNIT OBSERVED: IN AR SF MARSOC CAV FA EN OD ADA AVN SC MI MP MS RSTA CHEM QM TC CA PSYOP SFAB</p> <p>COMPOSITION: LIGHT/WHEELED/STRYKER/BRADLEY/ABRAMS/OTHER _____</p> <p>ROTATION PHASE: FE DEF OF LF</p> <p>SCALE: 0 = <i>Unsatisfactory/Not at all</i> 1 = <i>Sub-standard/Performed some tasks/50%</i> 2 = <i>Minimum Standard/Performed most tasks/60%</i> 3 = <i>Standard/Performed all tasks/70%</i> 4 = <i>Exceeds Standard/Performed all tasks and prepared for contingencies/80%</i> 5 = <i>90%</i> N/A = <i>Not applicable</i></p>	
<u>SECTION II: PLANNING</u>	
1. During planning, how well did leader demonstrate that they understood the duties and responsibilities of their position?	0 1 2 3 4 5 N/A
2. Did the unit conduct initial assessments (METT-TC)?	YES NO N/A
3. Did Leaders understand how to employ their unit to accomplish the mission?	YES NO N/A
4. Did Leaders command/lead through subordinates?	YES NO N/A
5. Were subordinates tasked according to their duties and responsibilities? If no how were they utilized _____	YES NO N/A
6. Were priorities of work established?	YES NO N/A
7. Was security established with sector sketches?	YES NO N/A
8. Did the unit continuously update their running estimate?	YES NO N/A
9. Was the plan refined?	YES NO N/A
10. Did the unit maintain a functional CP?	YES NO N/A
11. Did the unit operate with a digital COP? YES NO N/A Analog COP:	YES NO N/A
12. Was the CP properly manned?	YES NO N/A
13. Did subordinate units have timely access to a decision maker?	YES NO N/A
14. Did subordinate units understand which MC node controls the fight?	YES NO N/A
15. Was communication effective?	YES NO N/A
16. Did the unit have a PACE plan?	YES NO N/A
17. If no where did it break down SQD__PLT__CO__BN__BDE__	
18. Does the unit have a TACSOP?	YES NO N/A
19. Did Leaders enforce discipline?	YES NO N/A
<u>SECTION III: PREPARE</u>	
1. Did preparation maximize time YES NO N/A and resources?	YES NO N/A
2. Did the unit adjust for threat level changes?	YES NO N/A
3. Did the unit emplace YES NO N/A and direct security measures?	YES NO N/A
4. Were survivability positions prepared YES NO N/A and improved?	YES NO N/A
5. Did the unit conduct liaison YES NO N/A and coordinate with adjacent units?	YES NO N/A
6. Did the unit conduct RXLs?	YES NO N/A
6a. How effective were their RXLs?	YES NO N/A

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| 6b. Did the unit conduct Battled Drills? | YES | NO | N/A |
| 6c. Did the unit identify and rehearse specialty teams? | YES | NO | N/A |
| 6d. Did the unit train/rehearse with attachments/enablers? | YES | NO | N/A |
| 7. Did the unit conduct PCC/PCI Soldier YES NO N/A and vehicular load plans? | YES | NO | N/A |
| 8. Did Leaders maintain accountability of personnel, weapons, and equipment? | YES | NO | N/A |

SECTION IV: EXECUTE

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|--|-----|----|-----|
| 1. Did Leaders/Soldiers maintain and express situational understanding?
Which echelon is the breakdown in situational understanding occurring?
PLT: YES NO N/A EXPLAIN: _____
CO/BTR/TRP: YES NO N/A EXPLAIN: _____
SQDN/BN: YES NO N/A EXPLAIN: _____ | YES | NO | N/A |
| 2. Did the Leaders provide timely and accurate information to higher and subordinate units? | YES | NO | N/A |
| 3. Did Leaders continue to adjust their security posture? | YES | NO | N/A |
| 4. Did the unit evaluate the effectiveness of liaison personnel for situational awareness during execution? | YES | NO | N/A |
| 5. Was maneuver synchronized with other Wffs? | YES | NO | N/A |
| 6. Did Leaders understand what enabler or higher level assets were available? YES NO N/A Were they depicted on a sync matrix? | YES | NO | N/A |
| 7. Did Leaders give a clear task and purpose? | YES | NO | N/A |
| 8. Did the unit understand their mission? Leaders: YES NO N/A Soldiers: | YES | NO | N/A |
| 9. Did Leaders continually coordinate with adjacent units? | YES | NO | N/A |

SECTION V: OVERALL

Rate (Circle) how well the unit executed Leader Duties and Responsibilities during the following phases?

Planning:

Unsatisfactory Sub-standard Minimum Standard Standard Exceeds Standard

Prepare:

Unsatisfactory Sub-standard Minimum Standard Standard Exceeds Standard

Execute:

Unsatisfactory Sub-standard Minimum Standard Standard Exceeds Standard

How Many SQD SECT PLT CO Field Training Exercises in which Duties and Responsibilities were deliberately integrated into training did the unit conduct in the last 3 months? ____ 6 months? ____

OCT Initials _____ OCT Call sign _____ Division/Task Force _____

Number of rotations OCT has observed _____

OCT COMMENTS: