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Joint Readiness Training Center

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Improving Troop Leading Procedures at the Joint Readiness Training Center

Kenneth L. Evans U.S. Army Research Institute

Major Eric A. Baus Joint Readiness Training Center

April 2006

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U.S. Army Research Institute for the Behavioral and Social Sciences

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IMPROVING TROOP LEADING PROCEDURES AT THE JOINT READINESS TRAINING CENTER

EXECUTIVE SUMMARY

Research Requirement:

The need to investigate troop leading procedures (TLPs) at the Joint Readiness Training Center (JRTC) was first recognized by members of JRTC's Warrior Leadership Council. Operating under the direction of the Deputy Commander of the Operations Group, the Council consists of representatives from each Operations Group division, the 1st Battalion (Airborne) 509th Infantry, the Center for Army Lessons Learned, the U.S. Army Soldier Systems Center (Natick), and the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI). The primary purpose of the Council is to leverage JRTC's observer/controller (O/C) expertise to identify and prioritize the most serious small unit leader deficiencies found across rotations.

A frequent topic of discussion in After Action Reviews (AARs) of small unit performance, TLPs were one of the most common and widespread of all leader problems identified by the Council. The identification of this need led to the present investigation, the purpose of which was twofold. First, we wanted to measure the quality of TLPs being performed by small unit leaders during JRTC missions. Second, we wanted to determine if a job performance aid could improve the TLP performance of those leaders.

Procedure:

The TLPs Checklist was developed as a measurement tool for O/Cs to use in gauging the TLPs performance of leaders. The TLPs Guide was then developed as a job performance aid that leaders could easily carry and use during their JRTC missions. The TLPs performance of small unit leaders who were given the TLPs Guide, the experimental group, was compared to the TLPs performance of small unit leaders who had not been given a job performance aid, the baseline group. Baseline performance data were drawn from 327 checklists collected by O/Cs during five consecutive unit rotations in 2005. Experimental performance data were drawn from 396 checklists collected during three later rotations that year. Each checklist represented the observations of one leader by one O/C during one mission.

Findings:

Although they spent a smaller percentage of their available time actually conducting TLPs, leaders in the experimental group had better TLPs performance than leaders in the baseline group on 34 of 39 measures. Group differences were found to be statistically significant on 8 of those measures. The efficacy of the TLPs Guide was most apparent when leaders made a tentative plan. Generally, leaders were found to have sufficient time in which to conduct TLPs at JRTC, at least for the majority of missions. In particular, two factors of TLPs performance were strongly associated with a higher level of perceived mission effectiveness. The first factor was related to whether or not someone from higher headquarters attended unit rehearsals. The

EXECUTIVE SUMMARY (continued)

second was related to whether or not leaders spot checked the pre-combat checks and pre-combat inspections of subordinates.

Utilization and Dissemination of Findings:

Findings were briefed to members of the JRTC Warrior Leadership Council in January of 2006. Based on the results obtained, both the TLPs Checklist and the TLPs Guide were recommended for further use. Some Operations Group divisions have indicated they will continue to use the TLPs Checklist as an effective means of gathering supporting material for use in AARs. Instructors in institutional training courses could also benefit from using the TLPs Checklist to measure leader performance in field training exercises. The Council also thought a job performance aid for TLPs should be introduced to small unit leaders during institutional leader development courses. There they can use it as a memory jogger, a course reference, and a tool they can take to their first unit assignment. Electronic versions of both the TLPs Guide and TLPs Checklist are available through ARI's public website at http://www.hqda.army.mil/ari.

IMPROVING TROOP LEADING PROCEDURES AT THE JOINT READINESS TRAINING CENTER

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Introduction

Troop leading procedures (TLPs) are an eight-step process used by small unit leaders to plan and prepare for operations (Department of the Army, 2004). The need to investigate TLPs at the Joint Readiness Training Center (JRTC) was first recognized by members of JRTC's Warrior Leadership Council. Operating under the direction of the Deputy Commander of the Operations Group, the Council consists of representatives from each Operations Group division, the 1st Battalion (Airborne) 509th Infantry, the Center for Army Lessons Learned, the U.S. Army Soldier Systems Center (Natick), and the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI). The primary purpose of the Council is to leverage JRTC's observer/controller (O/C) expertise to identify and prioritize the most serious small unit leader deficiencies found across rotations (U.S. Army Research Institute for the Behavioral and Social Sciences, 2005). A frequent topic of discussion in After Action Reviews (AARs) of small unit performance, TLPs were one of the most common and widespread of all leader problems identified by the Council. In particular, Council members viewed five steps in the TLPs process (i.e., Steps 1, 2, 3, 7, and 8) as more troublesome than the other three.

It was unclear what caused the TLPs of some small unit leaders to be problematic at JRTC, given TLPs are taught in the Army's institutional leader development and training programs. Speculation among members of the Warrior Leadership Council centered on the belief that while small unit leaders are exposed to TLPs in a classroom environment, many leaders may not have received enough supervised training opportunities to completely master and effectively apply TLPs in the field. Thus, inexperienced leaders who have yet to master TLPs may be more likely to forget some important aspects of this procedurally complex process.

When O/Cs asked small unit leaders why they did not conduct TLPs properly, they were typically told there was insufficient time available. Although some Council members doubted the veracity of this oft-heard explanation, it was clear to most Council members that better data needed to be collected on the issue. Thus, one purpose of the present investigation was to gather information on the prevalence of TLPs during three different kinds of JRTC missions: live fire, situation training exercise (STX), and force-on-force. Specifically, we wanted to know what parts of the TLPs process were being performed well, what parts caused leaders to struggle, and how much actual time was available to conduct TLPs at each echelon.

A second purpose of the investigation was to determine if a job performance aid could be developed to improve the TLPs performance of small unit leaders. Job aids have a rich history of organizational application, particularly in the military (see Department of the Army, 1999; Schultz & Wagner, 1981; Swezey, 1987). One of their foremost advantages is their ability to reduce the need for human retention of complex procedures and references (Department of the Army, 1999; Swezey, 1987). The Combat Leader's Guide was the first comprehensive job performance aid developed specifically for small unit leaders (Salter, 1995; Winn & Evenson, 1988; U.S. Army Research Institute Fort Benning Field Unit, 2004). In a large-scale survey of its perceived usefulness in the field, it was found to have a relatively high level of leader acceptance (Evenson, Winn, & Salter, 1988).

The 2003 version of the Combat Leader's Guide summarized many of the planning topics we thought should be included in a job performance aid for TLPs, including the steps of the TLPs process, warning order format, mission analysis, course of action (COA) development, COA analysis, operation order format, and fragmentary order format (U.S. Army Research Institute Fort Benning Field Unit, 2004). In addition, two graphic training aids (GTAs) in the Army's publication system contain some information on TLPs. The first is the Infantry Leaders' Reference Card (GTA 07-01-038). Although this GTA lists the TLPs steps, it does not provide any detailed or explanatory information about them (see Department of the Army, 1995). The second is the Small Unit Leader's Card (GTA 07-10-003). While it provides TLPs information that is more detailed than that in the Infantry Leaders' Reference Card, the Small Unit Leader's Card primarily focuses on the development and format of the operation order (see Department of the Army, 2003).

Compared to the Combat Leader's Guide and the two existing GTAs, there were three major differences in our approach to developing and evaluating a job performance aid for TLPs. First, we wanted to focus solely on TLPs. We did not want to include general material on the numerous additional tasks that small unit leaders perform. Second, we wanted to provide information about TLPs that was more detailed than that provided in the Combat Leader's Guide and the Infantry Leaders' Reference Card (e.g., a more in-depth presentation about how to perform a mission analysis, additional guidance about reconnaissance operations, as well as more information about unit rehearsals and mission preparation). Finally, we wanted to evaluate the effectiveness of a job performance aid for TLPs in a field environment. By maintaining a precise focus on TLPs, we thought it would be possible to accurately measure the degree to which a relatively simple job performance aid might affect this one aspect of leader performance in a complex field environment.

Research Approach

The TLPs Checklist was developed as a measurement tool for O/Cs to use in gauging the TLPs performance of leaders at JRTC. The TLPs Guide was then developed as a job performance aid that leaders could easily carry and use during their JRTC missions. We sought to compare the TLPs performance of small unit leaders who were given a TLPs Guide, the experimental group, with the TLPs performance of small unit leaders who had not been given a job performance aid, the baseline group.

Sample

Baseline performance data were drawn from 327 checklists collected by O/Cs during five consecutive unit rotations at JRTC in 2005. Experimental performance data were drawn from 396 checklists collected during three later rotations that year. The data gathered from each checklist were based on one O/C observing one small unit leader during one mission. Because each leader participated in a number of different missions across the course of a single rotation, and because we did not track the performance of individual leaders throughout each rotation, it can be assumed that the actual number of leaders involved in our research was less than the number of checklists received. Though the typical leader was probably the subject of more than

one checklist, those checklists were most likely completed by different O/Cs assigned to different Operations Group divisions.

About 54.1% of the checklists involved observations of platoon leaders, while 29.1% involved company commanders and the remaining 16.8% involved leaders at other echelons (i.e., detachments, sections, squads, and teams). The baseline and experimental groups did not differ significantly by echelon $[\chi^2(5, N = 701) = 5.12, p = .402]$. However, the two groups were found to be significantly different in terms of the types of units observed $[\chi^2(16, N = 683) = 99.73, p = .001]$. For example, leaders of infantry units made up 46.4% of the baseline group and 28.2% of the experimental group. In contrast, leaders of armor, engineer, and quartermaster units made up 35.6% of the experimental group and 6.2% of the baseline group.

Another way of looking at unit differences between groups was to compare the relative percentages of Combat, Combat Support, and Combat Service Support units that were observed. Combat units were observed in 64.2% of the baseline group checklists and in 51.3% of the experimental group checklists. In contrast, Combat Support units were observed more frequently in the experimental group (35.8%) than in the baseline group (25.8%), as were Combat Service Support units (12.8% in the experimental group versus 9.9% in the baseline group). Overall, these unit differences were statistically significant, $\chi^2(2, N = 676) = 11.42$, p = .003.

Troop Leading Procedures Checklist

The quality of TLPs performed by each small unit leader was measured by O/Cs using the TLPs Checklist (see Appendix A for an enlarged view). Printed on the front and back of a card that was 18 cm tall and 12 cm wide, the TLPs Checklist was organized into ten sections. Mission preparation was an area of special concern to members of the Warrior Leadership Council. For that reason, it was made a separate section on the checklist. The section on mission execution was not part of the original checklist. It was added, beginning with the third baseline rotation, to investigate the relationship between TLP performance and mission accomplishment. Most checklist sections had space in which O/Cs could make optional remarks. Space for overall remarks was also included at the end of the checklist.

Most items on the TLPs Checklist asked O/Cs for a Yes or No response. A Yes/No response scale was chosen for two reasons. First, we thought a Yes/No format would be easier to use, recognizing the need to minimize the data collection burden on the part of O/Cs. In fact, early versions of the TLPs Checklist were reviewed by members of the Warrior Leadership Council to better insure O/C usability. Second, we sought to minimize the amount of response subjectivity in our data, by simply asking O/Cs whether or not particular leader behaviors occurred during a mission, instead of asking them to judge how good those behaviors were.

Troop Leading Procedures Guide

The TLPs Guide was developed as a job performance aid to be used by small unit leaders during the mission planning process (see Appendix B for an enlarged view). It contained six laminated pages in a trifold layout and measured approximately 13 cm tall and 9 cm wide when folded. The first four pages summarized and highlighted the doctrinal material on TLPs contained in Chapter Four of Field Manual 5-0, *Army Planning and Orders Production* (Department of the Army, 2004). The eight TLPs steps were printed in red, while supporting substeps were printed in blue. Supplemental information below the substep level was printed in black. Overviews of the TLPs process and the COA statement format were presented in yellow text boxes. Page 5 of the TLPs Guide contained a time management worksheet encouraging leaders to give two thirds of their available time to subordinate echelons (i.e., the "one third/two thirds" rule). Page 6 presented the framework for a projected timeline that leaders could complete using actual mission milestones.

Procedure

Through their JRTC Operations Group divisions, O/Cs were issued blank TLPs Checklists prior to each baseline and experimental rotation. Completed checklists were then collected at several centralized locations at the end of each rotation. An interim analysis of the TLPs findings for each rotation was completed and presented to members of the Warrior Leadership Council prior to the beginning of the next rotation.

Approximately 3,400 TLPs Guides were distributed to small unit leaders across the three experimental rotations, down to the team leader level. During the first experimental rotation, O/Cs distributed the guides directly to leaders at the beginning of the rotation. In subsequent rotations the guides were distributed through unit channels prior to the rotation.

Results

The organization of this section closely parallels the general layout of the TLPs Checklist (see Appendix A). Each analysis was based on the maximum sample size available for that analysis; thus, sample sizes varied somewhat across analyses due to missing checklist data. Again, one purpose of our investigation was to gather information on the general prevalence of TLPs during different kinds of JRTC missions. A second purpose was to determine if the TLPs performance of small unit leaders in the experimental group differed from the performance of small unit leaders in the baseline group.

Type of Mission

Overall, 62.6% of the checklists were based on observations of small unit leaders during force-on-force missions, 27.0% were based on STX missions, and 10.3% were based on live fire missions (N = 629). However, the baseline and experimental groups were significantly different in terms of the types of missions performed [$\chi^2(2, N = 629) = 6.31, p = .043$]. Most of this difference was related to the relative percentages of live fire and STX missions found between groups. Specifically, 29.8% of experimental group observations were based on STX missions, compared to 23.6% in the baseline group. Further, 8.0% of experimental group observations were based on structure and structure based on live fire missions, compared to 13.2% in the baseline group.

Time Availability

Overall, the average company had 18 hr 56 min available to conduct TLPs (N = 650), based upon the elapsed time from their receipt of a mission to their planned departure time from a Forward Operating Base (FOB). Likewise, the average platoon had 10 hr 29 min to conduct TLPs (N = 552) and the average squad had 8 hr 3 min (N = 459). Compared with the baseline group, the experimental group had significantly less time available for TLPs at each echelon. The average baseline company had 23 hr 10 min, while the average experimental company had 15 hr 36 min [F(1, 648) = 15.61, p = .001]. Similarly, the average baseline platoon had 13 hr 51 min, while the average experimental platoon had 8 hr 3 min [F(1, 550) = 15.50, p = .001]. Lastly, the average baseline squad had 11 hr 3 min, while the average experimental squad had 5 hr 44 min [F(1, 457) = 13.53, p = .001].

Overall, the amount of time available for companies to conduct TLPs also varied significantly by type of mission [F(2, 566) = 4.87, p = .008]. The largest amount of available time occurred during live fire missions, where companies had an average of 29 hr 13 min in which to conduct TLPs. In contrast, companies had an average of 18 hr 59 min of available time during force-on-force missions and 17 hr 13 min during STX missions. The relatively lower amount of time available in the experimental group appeared to be largely due to the lower prevalence of live fire missions and the higher prevalence of STX missions in that group (see preceding section).

Time Management

Overall, the average unit spent 49.3% of their available time conducting TLPs (N = 609). The average baseline unit used 52.0% of their available time for TLPs, while the average experimental unit used 47.3% of their available time for TLPs. This difference was statistically significant, F(1, 607) = 4.18, p = .041. In delegating their available time to lower echelons, the average company gave 51.8% of its time to platoons (N = 523) and the average platoon gave 66.9% of its time to squads (N = 401). These percentages did not vary significantly between the baseline and experimental groups [F(1, 521) = .37, p = .540, and F(1, 399) = 1.44, p = .231, respectively].

The percentage of available time devoted to the conduct of TLPs was found to differ significantly by the type of unit observed [F(2, 570) = 6.77, p = .001]. In fact, Combat Service Support units spent 38.6% of their available time conducting TLPs, compared to 50.7% for Combat Support units and 51.9% for Combat units.

Some Warrior Leadership Council members had anecdotally observed that the TLPs performance of small unit leaders in live fire and force-on-force missions often dropped over the course of a unit's JRTC rotation. To investigate these anecdotal observations empirically, the checklists from live fire and force-on-force missions were sorted into three groups of similar size according to mission date (i.e., early, middle, and late groups). Indeed, leaders of early missions spent the highest percentage of available time on TLPs (53.1%), while leaders of middle missions spent the lowest (42.4%). Leaders of late missions fell between these two extremes

(49.4%). These temporal group differences were found to be statistically significant, F(2, 371) = 4.32, p = .014.

Warning Order

The TLPs Checklist had three items relating to the warning order. Although small unit leaders in the experimental group tended to have better TLPs performance than leaders in the baseline group, the magnitude of group differences was not found to be statistically significant for any of these checklist items (p < .05). Warning order results are summarized in Table 1.

| Table 1 |
|-------------------------------------------------------|
| Percentage of Baseline and Experimental Group Leaders |
| Who Performed Three Warning Order Actions |

| | Group Percentage | | | 1 110 | | |
|------------------------------------------|------------------|--------------|----|-------|----------|------|
| Action Performed | Baseline | Experimental | df | N | χ^2 | р |
| Warning order issued. | 86.3 | 88.1 | 1 | 715 | .50 | .478 |
| Situation, mission, & timeline included. | 72.1 | 77.3 | 1 | 702 | 2.50 | .114 |
| Disseminated to everyone in unit. | 57.1 | 63.3 | 1 | 696 | 2.79 | .095 |

Tentative Plan

Nine checklist items focused on the development of a tentative plan. Compared to leaders in the baseline group, leaders in the experimental group had better TLPs performance on 8 of the 9 items. Group differences on four items were found to be statistically significant (p < .05). Tentative plan results are summarized in Table 2.

| Table 2 |
|-------------------------------------------------------|
| Percentage of Baseline and Experimental Group Leaders |
| Who Performed Nine Tentative Plan Actions |

| | Group Percentage | | | | | |
|-----------------------------------------------|------------------|--------------|----|-----|----------|------|
| Action Performed | Baseline | Experimental | df | N | χ^2 | р |
| Mission analysis conducted. | 65.5 | 71.5 | 1 | 708 | 2.89 | .089 |
| - Had task, purpose, intent, & concept. | 52.9 | 60.3 | 1 | 704 | 3.88 | .049 |
| - Limitations & constraints identified. | 55.0 | 60.9 | 1 | 697 | 2.54 | .111 |
| - Tentative decisive point identified. | 39.7 | 39.9 | 1 | 681 | .01 | .953 |
| Recon conducted. | 86.9 | 89.9 | 5 | 715 | 7.91 | .161 |
| Additional support requested (if required). | 51.1 | 49.0 | 2 | 697 | 1.21 | .547 |
| Operational overlay/sketch developed. | 47.2 | 56.9 | 1 | 701 | 6.59 | .010 |
| Coordinated/synchronized with higher hq. | 67.2 | 75.1 | 1 | 697 | 5.32 | .021 |
| Coordinated with other units (if applicable). | 49.1 | 61.0 | 2 | 700 | 12.73 | .002 |

Issue Order

Leaders in the baseline group issued their orders in an average of 41 min 48 s, while leaders in the experimental group took an average of 40 min 18 s. This difference was not found to be statistically significant, F(1, 491) = .35, p = .55. The TLPs Checklist had seven additional items relating to the completeness of issued orders. Compared to leaders in the baseline group, leaders in the experimental group had better performance on 6 of the 7 items. Group differences on two items were found to be statistically significant (p < .05). Issued order results are summarized in Table 3.

| | Group Percentage | | | | | |
|--------------------------------------|------------------|--------------|----|-----|----------|------|
| Action Performed | Baseline | Experimental | df | N | χ^2 | р |
| Situation defined in the order. | 67.8 | 68.1 | 1 | 668 | .01 | .939 |
| Mission described. | 77.5 | 83.9 | 1 | 676 | 4.37 | .037 |
| Execution of operation explained. | 68.7 | 80.2 | 1 | 667 | 11.54 | .001 |
| Service support requirements stated. | 59.2 | 64.6 | 1 | 662 | 1.99 | .159 |
| Command and signal plans included. | 64.0 | 68.2 | 1 | 666 | 1.26 | .262 |
| Visual aids used. | 77.6 | 77.5 | 1 | 672 | .01 | .957 |
| Order/overlay disseminated. | 54.5 | 59.1 | 1 | 660 | 1.42 | .234 |

| Table 3 |
|-------------------------------------------------------|
| Percentage of Baseline and Experimental Group Leaders |
| Who Performed Seven Issue Order Actions |

Rehearsal

Six checklist items related to the conduct of rehearsals. Compared to leaders in the baseline group, leaders in the experimental group had better rehearsal performance on all six items, although group differences were found to be statistically significant in only one instance (p < .05). Rehearsal results are summarized in Table 4.

Table 4Percentage of Baseline and Experimental Group LeadersWho Performed Six Rehearsal Actions

| | Group | | | | | |
|----------------------------------------|----------|--------------|----|-----|----------|------|
| Action Performed | Baseline | Experimental | df | N | χ^2 | р |
| Rehearsal conducted. | 68.6 | 74.2 | 1 | 706 | 2.77 | .096 |
| Backbrief conducted. | 29.9 | 39.7 | 5 | 672 | 12.18 | .032 |
| One or more rehearsal techniques used. | 73.3 | 77.3 | 6 | 666 | 3.25 | .777 |
| All personnel elements included. | 53.0 | 56.6 | 1 | 670 | .87 | .352 |
| Attended by someone from higher hq. | 13.1 | 17.1 | 1 | 660 | 2.06 | .151 |
| Appropriate for the assigned mission. | 58.0 | 61.9 | 1 | 653 | 1.04 | .308 |

Refine/Supervise

Four checklist items dealt with plan refinement or general supervision. Leaders in the baseline group made changes to their tentative plan more often than those in the experimental group, based on either the rehearsal or new intelligence. They were also more likely to disseminate those changes. In contrast, leaders in the experimental group showed better general supervision, as their units were more likely to depart the FOB at the planned time. Nevertheless, none of these four group differences were found to be statistically significant (p < .05). Plan refinement and general supervision results are summarized in Table 5.

| | Group | Group Percentage | | | | |
|-----------------------------------------|----------|------------------|----|-----|----------|------|
| Action Performed | Baseline | Experimental | df | N | χ^2 | р |
| Plan changed based on rehearsal. | 43.0 | 41.3 | 2 | 695 | .98 | .613 |
| Plan changed based on new intelligence. | 44.8 | 41.3 | 2 | 686 | 3.17 | .205 |
| Changes (if made) were disseminated. | 63.3 | 61.1 | 2 | 688 | 4.01 | .135 |
| Unit departed FOB on time as planned. | 68.2 | 74.2 | 1 | 635 | 2.80 | .056 |

| Table 5 |
|-------------------------------------------------------|
| Percentage of Baseline and Experimental Group Leaders |
| Who Performed Four Refine/Supervise Actions |

Mission Preparation

Eight checklist items focused on mission preparation activities and the supervision of those activities. Although performance on each item was better in the experimental group than in the baseline group, only one difference was found to be statistically significant (p < .05). Mission preparation results are summarized in Table 6.

| | Group Percentage | | | | | |
|----------------------------------------|------------------|--------------|----|-----|----------|------|
| Action Performed | Baseline | Experimental | df | N | χ^2 | p |
| Preparations began at warning order. | 81.2 | 85.8 | 1 | 700 | 2.73 | .098 |
| Mission preparation supervised. | 60.3 | 68.2 | 1 | 702 | 4.74 | .029 |
| PCCs/PCIs were conducted. | 75.0 | 76.0 | 1 | 703 | .09 | .766 |
| PCCs/PCIs were spot checked. | 42.2 | 47.5 | 1 | 690 | 1.80 | .180 |
| 1SG/PSG assisted with or checked TLPs. | 52.7 | 54.8 | 1 | 698 | .30 | .582 |
| BN CDR/XO/CSM checked TLPs. | 9.7 | 13.5 | 1 | 660 | 2.24 | .135 |
| Attached unit TLPs checked/supervised. | 23.6 | 29.6 | 2 | 699 | 3.40 | .183 |
| TLPs appropriate for assigned mission. | 64.6 | 68.0 | 1 | 520 | .57 | .451 |

Table 6Percentage of Baseline and Experimental Group LeadersWho Performed Eight Mission Preparation Actions

Note. PCCs = pre-combat checks; PCIs = pre-combat inspections; 1SG = First Sergeant; PSG = Platoon Sergeant; BN CDR = Battalion Commander; XO = Executive Officer; CSM = Command Sergeant Major.

Mission Execution

Two checklist items asked O/Cs about unit mission execution and whether or not they believed it was influenced by the effectiveness of observed TLPs. Although the experimental group faired better than the baseline group on these two items, neither difference was found to be statistically significant (p < .05). Specifically, O/Cs reported effective TLPs enhanced mission execution in 60.1% of baseline missions and 65.5% of experimental missions [$\chi^2(1, N = 471) = 1.26, p = .261$]. They also reported ineffective TLPs degraded mission execution in 56.7% of baseline missions and 48.9% of experimental missions [$\chi^2(1, N = 470) = 2.40, p = .121$].

Two other factors, in particular, appeared to have a strong influence on perceived mission execution in the overall sample. The first factor related to whether or not someone from higher headquarters attended unit rehearsals. O/Cs reported effective TLPs enhanced mission execution in 90.5% of the cases where rehearsals were attended by someone from higher headquarters, but in only 57.8% of the cases where rehearsals were not attended by someone from higher headquarters. This difference was found to be highly significant statistically [$\chi^2(1, N = 441) = 28.46, p = .001$]. A second factor was related to whether or not leaders spot checked the PCCs and PCIs of subordinates. O/Cs reported effective TLPs enhanced mission execution in 83.4% of the cases where leaders spot checked PCCs/PCIs, but in only 44.2% of the cases where PCCs/PCIs were not checked. This difference was also found to be highly significant statistically [$\chi^2(1, N = 462) = 76.69, p = .001$].

Observer/Controller Remarks

Several general themes were apparent in the remarks O/Cs made on the TLPs Checklist. First, many remarks appeared to qualify or clarify a Yes/No response, particularly to multi-part questions (e.g., "no timeline in WARNO"; "no CASEVAC plan in order"; PCCs/PCIs were conducted, but not to standard"). Second, "N/A" was one of the most common remarks found, as some O/Cs were not in a position to observe and answer all checklist items or sections. Less common, but more extreme, situations regarding the availability of time seemed to elicit a third type of remark (e.g., "platoon given insufficient time to conduct any PCCs, PCIs, or rehearsals"; "had plenty of time for full force rehearsals, but none were done"). Finally, it appeared negative O/C comments were more common than either positive or neutral comments, though certainly all three types of comments were found.

Although we did not formally quantify the content of O/C remarks, we did record whether or not remarks were made on each section of the TLPs Checklist. Interestingly, O/Cs tended to consistently make more remarks on the checklists of baseline group leaders than on the checklists of experimental group leaders, as shown in Table 7. In fact, 4 of 9 group differences were found to be statistically significant (p < .05). Except for the Overall Remarks section, the Issue Order section had the highest percentage of O/C remarks for both groups. In the experimental group, the Tentative Plan section had the lowest percentage of remarks. The Mission Preparation section had the lowest percentage in the baseline group.

| | Grou | Group Percentage | | | |
|---------------------|----------|------------------|------|----------|------|
| Checklist Section | Baseline | Experimental | - df | χ^2 | р |
| Receipt of Mission | 31.5 | 29.0 | 1 | .51 | .473 |
| Warning Order | 32.1 | 24.7 | 1 | 4.81 | .028 |
| Tentative Plan | 29.7 | 22.2 | 1 | 5.21 | .022 |
| Issue Order | 52.0 | 51.3 | 1 | .38 | .846 |
| Rehearsal | 40.7 | 33.1 | 1 | 4.43 | .035 |
| Refine/Supervise | 27.5 | 23.2 | 1 | 1.75 | .186 |
| Mission Preparation | 26.6 | 25.8 | 1 | .07 | .796 |
| Mission Execution | 34.5 | 24.3 | 1 | 164.08 | .001 |
| Overall Remarks | 68.2 | 66.2 | 1 | .34 | .562 |

| Table 7 |
|------------------------------------------------------------|
| Percentage of O/Cs Making Remarks on Nine Sections of the |
| TLPs Checklist for Baseline and Experimental Group Leaders |

Note. N = 723.

Discussion

The results of the present investigation suggested small unit leaders were able to improve the quality of their TLPs performance by using a job performance aid. Although they spent a smaller percentage of their available time actually conducting TLPs, leaders with access to the TLPs Guide had consistently better TLPs performance than leaders who did not. As a group, their TLPs performance was better on 34 of 39 performance measures and they were significantly better on eight of those measures. Consistent with the findings of Swezey (1987), the efficacy of a TLPs job aid was particularly apparent in the third step of the TLPs process, making a tentative plan. In fact, half of all statistically significant group differences were related to that step, perhaps because more than 25% of the TLPs Guide layout was devoted to information about making tentative plans.

Our results also demonstrated that leaders had sufficient time in which to conduct TLPs, at least for the majority of JRTC missions. Though it was unclear why leaders spent only about half of their available time conducting TLPs, we learned this usage rate tended to drop substantially during the middle part of a rotation. One possible explanation for this finding may be that TLPs were not discussed as much during early AARs, because that was the time when TLPs performance was generally highest. During the middle part of a rotation, leaders may have focused on those aspects of unit performance that were emphasized during the early AARs, to the detriment of their TLPs. Because TLPs performance was generally lowest during the middle of a rotation, we can reasonably assume it was strongly emphasized by O/Cs in subsequent AARs. More O/C emphasis on TLPs in the middle of a rotation could then explain why TLPs performance tended to rebound somewhat during latter missions.

Overall, leaders allocated a sizeable portion of their available time to the conduct of TLPs at lower echelons. The average company gave over half of its available time to platoons. In turn, the average platoon gave two thirds of its available time to squads, which was fully

consistent with the "one-third/two-thirds" rule recommended in doctrine (Department of the Army, 2004).

The decision to collect experimental data after all baseline data had been collected was a pragmatic one, as the TLPs Guide was developed and printed during the period of baseline data collection. Although a design that alternated baseline and experimental rotations would have been methodologically superior, it could not be used as the TLPs Guide had not yet been completed. An unfortunate consequence of the present design was the possibility factors extraneous to the TLPs Guide may have contributed to the relatively higher level of performance found in the experimental group. For instance, one could argue TLPs performance became better over time simply because more leaders became aware their TLPs were being measured with a checklist. In actuality, no linear trends in TLPs performance were found, either within or across rotations.

There were many factors that influenced whether or not a unit had a successful mission, not just the TLPs performance of its leaders. Thus, it was difficult within the scope and design of the present investigation to precisely examine the relationship between a small unit leader's TLPs performance and the mission performance of their unit. Yet, we found two things leaders can do to dramatically improve the chances their TLPs will lead to mission success. First, they should attend the rehearsals being conducted at lower echelons. Although we found this to be a relatively infrequent occurrence (see Table 4), leaders who did attend those rehearsals had the opportunity to not only critique the TLPs performance of their subordinate leaders, but to revise their own tentative plan based on any problems they observed. Second, leaders should spot check the PCCs and PCIs being conducted by personnel within or attached to their unit. Because PCCs and PCIs were spot checked less than 50% of the time overall (see Table 6), there is certainly room for improvement in this area.

Based on the results obtained, we recommend the continued use of both the TLPs Checklist and a job performance aid like the TLPs Guide. Not only were O/Cs able to use the Checklist with little apparent difficulty, but some JRTC Operations Group Divisions have indicated they are continuing to use it as an effective means to gather supporting material for use in AARs. Instructors in institutional training courses could also benefit from using the TLPs Checklist as a way of measuring leader performance during field training exercises. Rather than distributing a job aid for TLPs just prior to JRTC rotations, it would probably be much more effective to introduce it to small unit leaders during institutional leader development courses. There they can use it as a memory jogger, a course reference, and a tool they can take to their first unit assignment. Electronic versions of both the TLPs Guide and TLPs Checklist are available through ARI's public website at http://www.hqda.army.mil/ari.

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Appendix A

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An Enlarged View of the Troop Leading Procedures Checklist

| TROOP LEADING PROCEDURES (TLPs) CHECKLIST Disclosure. Data collected with this form is to be used for routine research purposes only. Information will not part in making any determination about an individual or unit. Information gathered will be used for statistical co | be use | d in wi urpose | nole or is only |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|--------------------|
| and will not be disclosed to any unit undergoing Rotations at the Joint Readiness Training Center. Date: Type Unit: IN AR SF RSTA FA EN ADA AVN SC MI MP MS OD QM | TC C | AP | SYOPS |
| Unit Observed: Company Platoon Section Squad Team Detachment Rotation Phase | | | |
| RECEIPT OF MISSION (Time Management) 1. Time company had from receipt of mission to planned departure from FOB. HM | | | |
| 2. How much of the available time was used for TLPs? HM | | | |
| 3. Time company gave to platoon? HM Time platoon gave to squad/section HM Remarks: | /team? | ? | |
| WARNING ORDER | | | |
| 1. Did the Commander/Leader issue a warning order? | Y | Ν | |
| 2. Did the warning order include situation, mission and a timeline? | Y | Ν | |
| 3. Was the warning order disseminated to every Soldier in the unit to include attachments? Remarks: | Y | N | |
| TENTATIVE PLAN | | | |
| 1. Did the Commander/Leader conduct a mission analysis? | Y | Ν | |
| Task, Purpose, Intent, Concept up 2 Levels, Task, Purpose, Intent, Concept up 1 Level, Unit Task and Purpose? | Y | Ν | - |
| Limitations and Constraints. Specified, Implied, Essential Tasks, Analyze Troops, Terrain, Weather, Enemy, Time? | Y | Ν | |
| - Identify Tentative Decisive Point? | Y | Ν | |
| 2. Did the Commander/Leader conduct a recon? Map Air Ground | Y | N | |
| 3. Did the Commander/Leader request additional support and RFIs (if required)? | Y | N | NA |
| 4. Did the Commander/Leader develop a operation overlay/sketch? | Y | Ν | |
| 5. Did the Commander/Leader insure the plan was coordinated and synchronized with higher Hqs? | Y | N | |
| 6. Did the Commander/Leader make coordination with units in AO, adjacent and support units? Remarks: | Y | N | NA |
| ISSUE ORDER START TIME FINISH TIME | | | |
| Situation. a. Enemy: disposition, composition, strength, (MLCOA/MDCOA)? b. Friendly: higher mission, intent, adjacent units? c. Attachments and detachments? | Y | Ν | |
| 2. Mission. 5 Ws (task and purpose)? | Y | Ν | |
| Execution. a. Concept of operation? b. Maneuver (task and purpose)? c. Fires? d. Coordinating instructions? | Y | Ν | |
| 4. Service Support. a. Concept? b. Resupply? c. Recovery Operations? d. CASEVAC plan (military/civilian)? e. Detainee operations? | Y | Ν | |
| Command and Signal. a. Succession of Command and location of key leaders? b. Communication and signal plan? | Y | N | |
| - Were aids (map, sketch, terrain model) used to assist with order issuance? | Y | Ν | |
| - Was the order/overlay disseminated? Remarks: | Y | Ν | |

| REHEARSAL Company Platoon Squad/Section/Team Detachment 1. Did the Commander/Leader conduct a rehearsal? | Y | N | |
|------------------------------------------------------------------------------------------------------------------------|--------|---------|------|
| 2. What type of rehearsal was conducted? | Y | Ν | |
| 3. What rehearsal technique was used? | Y | Ν | |
| 4. Did the Commander/Leader include all elements in the rehearsal (leaders, attachments, supporting units)? | Y | Ν | |
| 5. Did anyone from the next higher Hqs attend the unit rehearsal? | Y | Ν | |
| 6. Was the rehearsal appropriate for the assigned mission? Remarks: | Y | N | |
| REFINE/SUPERVISE | | | |
| 1. Did the Commander/Leader make changes to the plan based on the rehearsal? | Y | Ν | NA |
| 2. Did the Commander/Leader make changes to the plan based on new intelligence from higher Hqs? | Y | Ν | NA |
| 3. Did the Commander/Leader disseminate changes to subordinate, attached, supporting units and individual Soldiers? | Y | Ν | NA |
| 4. Did the unit depart the FOB on time as planned/revised? Remarks: | Y | N | |
| MISSION PREPARATION | | | |
| 1. Did subordinate units/individual Soldiers start mission preparations upon receipt of the WARNO? | Y | Ν | |
| 2. Did the Commander/Leader supervise mission preparation? | Y | Ν | |
| 3. Did Leaders conduct PCCs/PCIs? | Y | Ν | |
| 4. Did the Commander/Platoon Leader spot check PCCs/PCIs? | Y | Ν | |
| 5. Did the 1SG/PSG check, assist, supervise Leaders TLPs? | Y | Ν | |
| 6. Did the Battalion Commander/XO/CSM check subordinate unit TLPs? | Y | Ν | |
| 7. Did the unit Commander check/supervise attached units TLPs? | Y | Ν | NA |
| 8. Did the Commander/Leader perform TLPs appropriate for the assigned mission? Remarks: | Y | N | |
| MISSION EXECUTION Did effective TLPs enhance unit mission accomplishment? | Y | N | |
| Did ineffective TLPs degrade unit mission accomplishment? | ' Y | N | |
| Remarks: | • | in in | |
| | | | |
| Overall TLPs Remarks: | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| O/C INITIALS O/C CALL SIGN O/C DIVISION Company Platoon Squ | ad/Se | ection/ | Team |

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Revised 3 March 05 (v. 6.0)

Appendix B

An Enlarged View of the Troop Leading Procedures Guide

Troop Leading Procedures (TLPs) Guide

Troop Leading Procedures consist of eight steps used by small unit leaders to analyze a mission, develop a plan, and prepare for an operation.

The sequence of steps is not rigid and should be modified to meet the mission, situation, and available time.

Troop Leading Procedures

- 1. Receive the mission.
- 2. Issue a warning order.
- 3. Make a tentative plan.
- 4. Initiate movement.
- 5. Conduct reconnaissance.
- 6. Complete the plan.
- 7. Issue the order.
- 8. Supervise and refine.

Normally the first three steps occur in order. However, the sequence of later steps is based on the situation.

Some steps may be repeated (for example, 4 & 5). The last step occurs throughout. See Chapter 4 of FM 5-0 for more detailed information.

STEP 1. RECEIVE THE MISSION

Perform an initial assessment.

mission enemy terrain and weather troops and support available time available civil considerations

Allocate the available time (see worksheet on Pages 5 and 6).

Use reverse planning to estimate time available to plan and prepare.

Use no more than a third of the available time for planning and issuance of the OPORD.

Allocate remaining two thirds of the time to subordinate echelons for their use.

STEP 2. ISSUE A WARNING ORDER

Immediately issue a WARNO as soon as you've made an initial assessment and have allocated available time.

Don't wait for more information.

Issue the best WARNO possible with information at hand.

Issue additional WARNOs as more information becomes available.

WARNOs follow the five-paragraph OPORD format:

mission or nature of the operation time and place for issuing the OPORD units or elements participating in the operation specific tasks not addressed by unit SOP time line for the operation

STEP 3. MAKE A TENTATIVE PLAN

Perform a mission analysis using the METT-TC format, supplementing your initial assessment in Step 1.

Mission

Determine higher headquarters mission and commander's intent.

Examine higher headquarters concept of operations to determine how your unit contributes to mission success.

From WARNOs and the OPORD, extract the specified and implied tasks assigned to your unit.

Identify any constraints placed on your unit (either requirements or prohibitions on action).

Restate the mission in a concise manner using the five Ws (who, what, when, where, & why).

Enemy

Obtain information about the enemy's composition, disposition, strength, recent activities, ability to reinforce, and possible COAs.

Enemy information can come from higher headquarters, adjacent units, recon patrols, or your own experience.

Identify intelligence gaps to higher headquarters or take action to obtain the necessary information.

Terrain and Weather (OAKOC)

Observation and fields of fire Avenues of approach Key terrain Obstacles Cover and concealment

Troops and Support Available

Determine the combat potential of your unit, including attached troops and troops in direct support.

Consider the status of unit morale, experience, and training, as well as strengths and weaknesses of junior leaders. Assess the strength and status of Soldiers and their equipment.

Time Available

View unit tasks and enemy actions in relation to time.

Consider how long it takes to prepare for each unit task under existing conditions.

Monitor the time available.

As events occur, assess their impact on the unit time line and advise subordinates of changes.

Civil Considerations (ASCOPE)

Areas Structures Capabilities Organizations People Events

Develop Courses of Action.

Analyze relative combat power.

Generate options and identify decisive point(s).

Array forces.

Develop the concept of operations.

Assign responsibilities.

Prepare a COA statement and sketch.

Don't wait for a complete order before beginning COA development.

Usable COAs are suitable, feasible, acceptable, distinguishable, and complete.

The COA statement contains the following information:

- Form of maneuver or defensive technique to be used.
- Designation of the main effort.
- Tasks and purposes of subordinate units.
- Tasks and purposes of critical battlefield operating system elements.
- Necessary sustaining operations.
- End state.

Analyze Courses of Action (War Game).

Compare each COA with the enemy's most probable COA.

Visualize what could go wrong and what decisions you might have to make as a result.

Compare COAs and make a decision.

Weigh the relative advantages, disadvantages, strengths, and weaknesses of each COA, as noted during the war game.

In comparing COAs, take into account the following factors:

mission accomplishment time to execute the operation risk results from reconnaissance subordinate unit tasks and purposes casualties incurred posturing the force for future operations

STEP 4. INITIATE MOVEMENT

Initiate any movement necessary to continue mission preparation or position the unit for execution (may sometimes occur before Step 3).

Movements may be to an assembly area, battle position, new AO, or attack position.

Movement will often be initiated based on the tentative plan, with the order being issued at the new location.

STEP 5. CONDUCT RECONNAISSANCE

When possible, personally observe the AO for the mission.

At a minimum, perform a thorough map reconnaissance, supplemented by imagery and intelligence products.

If necessary, use subordinates or other elements (such as scouts) to perform the reconnaissance while you perform other Troop Leading Procedures.

Use results of the war game to identify information requirements.

Reconnaissance operations seek to confirm or deny information that supports the tentative plan.

Focus first on information gaps identified during mission analysis.

This step may precede the tentative plan if there is not enough information available to begin planning.

STEP 6. COMPLETE THE PLAN

Incorporate reconnaissance results into your selected COA to complete the plan or order.

Prepare overlays, refine the indirect fire target list, coordinate combat service support, coordinate command and control requirements, and update the tentative plan based on reconnaissance.

If time allows, make final coordination with adjacent units and higher headquarters before issuing the order.

STEP 7. ISSUE THE ORDER

Small unit orders are normally issued verbally and supplemented by graphics and other control measures.

The order follows the standard fiveparagraph OPORD format.

Leaders below company level typically don't issue a commander's intent. Instead, they reiterate the intent of their higher or next higher commander.

The ideal location for issuing the order is a point in the AO with a view of the objective and other aspects of the terrain.

When it's not feasible to issue the order in the AO, use a sand table, detailed map, or other products to depict the AO and situation. **STEP 8. SUPERVISE AND REFINE**

The requirement to supervise, refine the plan, and monitor mission preparations of subordinates is continuous.

Conduct rehearsals to practice essential tasks, identify problems in the plan, coordinate subordinate element actions, improve Soldier understanding, and foster unit confidence.

Conduct different types of rehearsals, based on the time available (see Appendix F of FM 6-0 for more information on rehearsals):

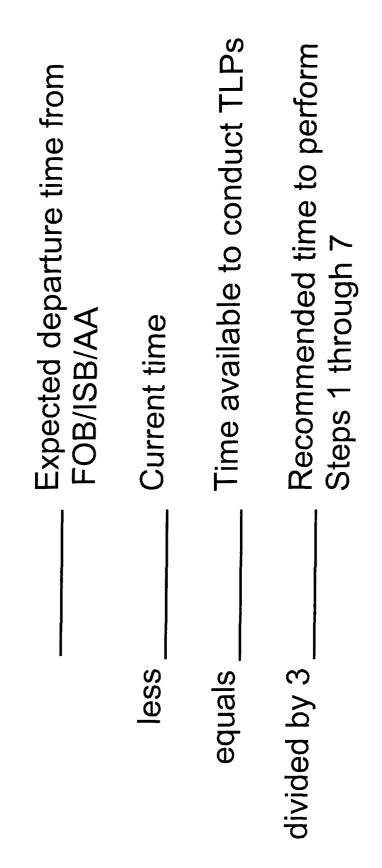
Confirmation brief Backbrief Combined arms rehearsal Reduced force rehearsal Rock drill Full dress rehearsal Support rehearsal Battle drills or SOP rehearsal

Oversee preparations for operations, including inspections (PCIs & PCCs), coordination, reorganization, fire support and engineer activities, maintenance, resupply, and movement.

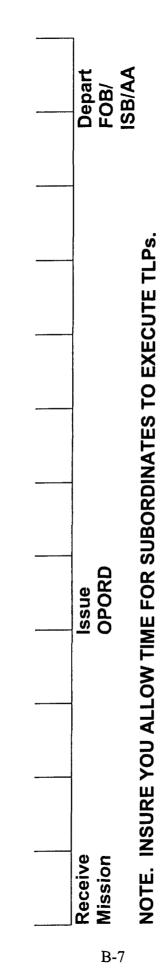
Remember to observe and evaluate the Troop Leading Procedures of your subordinate leaders.



TLPs Time Management Worksheet



Projected TLPs Timeline (fill in milestones)



Leader Notes: