Mechanized Infantry Experience and Lethality:

An Empirical Analysis

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In 2001, the U.S. Army Infantry Branch merged anti-armor specialists (11H) and mechanized infantry specialists (11M) into the general infantry military occupational specialty (MOS) 11B. The Infantry commandant at the time, MG John Le Moyne, declared that the transformation of Infantry specialties would create "an Infantry NCO corps that understands and applies all the great capabilities our Infantry brings to the battlefield."[1] While the Infantry transformation certainly created well-rounded NCOs with experience across light, Stryker, and Bradley formations, we must remain aware of the potential for at least temporary degradation of expertise in mechanized infantry units.

As the new policy was implemented, the U.S. Army focused on wars in Iraq and Afghanistan. Some armored brigade combat teams (ABCTs) stored their tanks and Bradley Fighting Vehicles (BFVs), deploying as light infantry. With short dwell time between deployments, numerous ABCTs went years without conducting a single gunnery.[2] This focus on counterinsurgency negatively impacted proficiency in armor units' core competencies.[3] These trends have changed in recent years. The 2017 National Security Strategy highlighted the return of great power competition, and the 2018 National Defense Strategy Commission focused on the importance of conventional conflict against near-peer adversaries.[4] In response to this changing strategic environment, ABCTs have worked hard to regain decisive action proficiency.

A Bradley Fighting Vehicle from the 1st Battalion, 66th Armored Regiment maneuvers across Vaziani Military Base during an exercise in Tbilisi, Georgia, in May 2017. (Photo by SGT Timothy Pike)

This renewed emphasis on decisive action has magnified significant expertise gaps in mechanized infantry NCOs who have no prior mechanized infantry experience. This article reviews the implications of these gaps and conducts statistical analysis to demonstrate how prior mechanized experience may impact lethality. Our argument is based on qualitative observations from our time as mechanized infantry company commanders and quantitative analysis. Specifically, we use average crew experience levels and gunnery table (GT) VI scores from Bradley crew qualification to quantify how experience impacts lethality. We then provide recommendations which address these shortcomings.

Framing the Problem: Master Trainers with No Experience

Imagine you are the company commander of a mechanized infantry company and you learn that you are about to receive a new 11B4O to fill a vacant platoon sergeant billet. You review this NCO's enlisted record brief (ERB) and learn he is Ranger qualified, jumpmaster, a former Ranger instructor, and has served in light and airborne units with extensive combat experience in Iraq and Afghanistan. You're excited, right? Possibly… but many former mechanized infantry commanders would have some lingering uncertainty.

How can platoon sergeants be expected to lead a platoon through proper Bradley command maintenance when they have never set foot in a Bradley? How can they be expected to train their crews for gunnery skills testing and crew qualification when they have never shot a gunnery? How can they mentor their platoon leaders on the nuances of mechanized infantry tactics? These NCOs cannot serve as a platoon's master trainer when they are only beginning to learn the equipment and employment considerations. Sadly, this is a common occurrence in mechanized infantry units.

We do not deny that this hypothetical NCO would personally benefit from this assignment as a mechanized infantry platoon sergeant. The NCO would undeniably be a more well-rounded infantry leader prepared to operate in a variety of units. Further, the NCO would likely bring expertise in dismounted operations that are still crucial in mechanized infantry units. Despite the NCO's strengths and the broadening benefits, the NCO's lack of experience comes at a high cost for the rest of the platoon. When you also consider that the majority of the platoon's NCOs might also come from a light or Stryker background, it is easy to see how the lack of NCO experience in mechanized units can limit unit-wide competence, lethality, and expertise.

The Bradley subject matter expert in many mechanized infantry platoons is often a sergeant (E5) who has been in the same Bradley unit his entire career. This sergeant essentially fills the roll of master trainer for the significant mechanized portion of the training plan to include gunnery preparation, maintenance, and recovery. While this young NCO's experience is important, it is often not paired with the knowledge, education, or maturity expected of a sergeant first class. The platoon sergeant needs expertise to shape the mechanized platoon's entire training plan to include dismounted and mounted maneuver and lethality, mechanized maintenance, and heavy sustainment.

A master gunner assigned to Company C, 1st Battalion, 66th Armor Regiment, conducts a safety and range orientation briefing to Abrams tank and Bradley Fighting Vehicle crews prior to executing a gunnery in Kuwait on 26 April 2015. (Photo by CPT Shaun Manley)

Both mechanized infantry expertise and the formal and informal leadership a platoon sergeant owns are exceptionally important to maintaining a platoon's fleet of four BFVs. Many inexperienced platoon sergeants lean heavily on the sergeant subject matter expert to run the platoon's weekly preventive maintenance checks and services (PMCS). Of course, good platoon leaders are leading the PMCS as well, but many new platoon leaders similarly lack the experience and deep maintenance understanding to ensure crews are completing checks to standard. If the platoon leader cannot learn maintenance from the platoon sergeant's experience and works under a company commander who likely is fulfilling the vehicular imperative following airborne or light assignments as a lieutenant, many platoons find themselves with the blind leading the blind. Many platoon leaders and platoon sergeants will eventually learn the right way to conduct maintenance, but in the world of constrained parts flow, austere regionally aligned deployments, and an aging fleet, our mechanized infantry units do not have time for this learning curve.

There will be some exceptional platoon sergeants coming from light backgrounds who quickly master the complexities of the M2 Bradley, the M242 25mm cannon, and mechanized infantry tactics, techniques, and procedures. However, based on our experience, this is the exception and not the rule. There is typically a steep learning curve. On average, it takes a complete annual training cycle to achieve baseline proficiency required to properly manage maintenance, train for gunnery, and understand mounted maneuver tactics. Considering the average platoon sergeant will only remain in position for one to two years, the majority of these platoon sergeants are leading their Soldiers without the prerequisite expertise. Similar implications apply to section leaders and gunners who lack mechanized experience.

Statistical Analysis: How Does Experience Impact Lethality?

Crew qualification gunnery (herein referred to as gunnery) is the U.S. Army's standardized training event that certifies Bradley crews. Gunnery progressively evaluates crew lethality during six assessed "gunnery tables." The cumulative training event is GT VI, which is externally evaluated by vehicle crew evaluators and master gunners from another unit. Based on a 1,000 point scale, GT VI consists of 10 total engagements split between day and night and includes degraded conditions like chemical, biological, radiological, nuclear (CBRN) engagements and mechanical failures.[5] Beyond bragging rights, a crew's final GT VI score serves as a quantifiable measure of the crew's lethality. Crew GT VI scores serve as our study's independent variable.

The extensive preparation required to prepare Bradley crews for gunnery requires a determined effort by the platoon's NCOs. These gunnery preparation efforts often occur simultaneously with competing requirements like annual/semi-annual services, marksmanship qualifications, and team and squad live-fire exercises. Based on the difficulties associated with managing these competing requirements, NCOs with significant experience in mechanized infantry units will be better prepared to ensure their crews receive adequate training to excel in crew qualification gunnery. While Bradley gunnery is only one portion of the responsibility of BFV crews, we believe the data highlights a broader truth: Prior experience on the BFV is correlated with crew proficiency in lethality, maintenance, and maneuver.

Following that observation, our hypothesis was that mechanized infantry Soldiers require experience to attain expertise on the BFV. We tested our hypothesis against four gunneries from Chosen Company, 1st Battalion, 66th Armor Regiment, that occurred between 2016-2018. Pooling the GT VI scores together, we assessed the impact of a gunner's and Bradley commander's (BC) number of previously completed gunneries on crew lethality. This measures the raw lethality differences based on varying experience levels. The overall data set contains 58 crews which participated in four different gunneries. Of those 58 crews, only eight had previously qualified together. This means there are 42 unique crew combinations present in the data.

A Note on the Small Data Set

It is important to note that this study is limited to one company's gunnery scores over three years. This study lacks a robust sample size and is subject to internal effects based on dynamics unique to the company. The small sample size limits the statistical significance of these comparisons and creates large standard errors between comparison groups. Despite these shortcomings, the changing conditions over three years of data strengthen the finding's external validity. The time span included two battalion command teams, three company commanders, five first sergeants, and several rotations in platoon leadership. The various Table VIs occurred under different training plans, in two different countries, on three different ranges, and with different weather conditions. Levels of preparation were at times impacted by competing training and maintenance requirements. Mechanized experience among subordinate leaders and crew members continually varied. Based on these varying conditions, we feel comfortable making larger statistical inferences based on this relatively small data set.

Gunners	Average GT VI Score	Sample Size
Gunner with no prior gunneries	838.84	32
Gunner with 1 prior gunnery	868.89	18
Gunner with 2 prior gunneries	916.40	5
Gunner with 3+ prior gunneries	934	2
Bradley Commanders (BC)	**Average GT VI Score**	**Sample Size**
BC with no prior gunneries	858.04	25
BC with 1 prior gunnery	862.46	13
BC with 2 prior gunneries*	832.00	11
BC with 3+ prior gunneries	889.75	8
Other	**Average GT VI Score**	**Sample Size**
Gunner and BC with no prior gunneries	846.57	14
Gunner and BC with at least 1 prior gunnery	890.69	13
Returning crews (previously shot together)	888.00	8
Overall company GT VI average	858.47	54
* Seven of 11 of these were platoon sergeants or section leaders with a brand-new gunner; combined, their average was 783. The remaining four of 11 with experienced gunners average 916. The platoon leader and platoon sergeant traditionally receive the most talented gunners.		

Table 1 — Crew Experience Levels and GT VI Scores[7]

Critical Findings

Initial analysis revealed a strong correlation between increasing crew experience and increasing crew lethality. Across all five gunneries, a gunner with at least one prior gunnery will on average score 30 points more than a gunner without any prior experience. A gunner with two prior gunneries will on average score 78 points more than a new gunner. A gunner with three or more gunneries will on average score 96 points more than a new gunner. Though not as significant, similar results were observed with BCs (see Table 1 for complete breakdown). Gunners and BCs who had both shot at least one prior gunnery (not necessarily together) averaged 890 points, 32 points higher than the overall average 858 points. Although there were outliers who earned distinguished scores on their first gunnery, these were the exception and not the rule. Their presence is included in the data set, and the importance of experience still outweighs these exceptional Soldiers.

The analysis also revealed a high degree of crew turbulence. On average, 48 percent of Bradley crew personnel who participated in an observed gunnery returned for the next gunnery.[6] This means over half of experienced crew members were reassigned or transitioned out of the Army between gunneries. More significantly, this normal personnel rotation meant that crew stability between gunneries in Chosen Company,1-66 AR averaged 13 percent across the three observed years.[8] This is despite a concerted effort by the chain of command to ensure crew stability.

The importance of platoon sergeant experience was also evident in the results. Surprisingly, of the 10 platoon sergeants in position during the study, only two platoon sergeants had any previous mechanized experience. Both of their platoons earned the highest platoon average during the two gunneries they participated in. The remaining two top platoons were led by platoon sergeants and/or platoon leaders who had shot at least one previous gunnery.

One may criticize that 30-60 points are relatively insignificant when considering a gunnery on a 1,000 point scale. However, it is important to note that the range of observed scores present in the data was a low of 700 to a high of 985. Thus 30-60 points out of 285 points represent 10-20 percent of the range of recorded scores. In combat, this could be decisive. Overall, the data supports our hypothesis. Increasing experience levels directly enhance lethality and proficiency in the BFV.

To reiterate, much more goes into gunnery lethality than crew experience. Time in the Bradley Advanced Training Simulator, in-depth maintenance preparation, a thorough understanding of the M242 Bushmaster, and a well-developed training plan are also vital to a crew's lethality. However, experience improves crew competencies in these domains as well. Despite the large variety in conditions, the correlation between crew lethality and crew experience was present in four different gunneries.

Recommendations

Though limited in scale, the empirical findings of this article are seemingly obvious: Hard-earned experience on the Bradley produces more lethal crews. Though not tested here, it is plausible to expect increased proficiency in maintenance and tactical competence as mechanized experience increases. While the complexities of Army personnel policy are beyond our expertise, below are two possibilities that could enhance mechanized infantry proficiency.

Course of Action (COA) 1 — Reestablish 11M "mechanized infantry" MOS

This change would maximize proficiency and expertise within mechanized infantry units. NCOs would have years of experience on the Bradley prior to assuming important roles such as section leader or platoon sergeant. They would master the unique maintenance, training, and tactical aspects of mechanized infantry. 11M NCOs reporting to a new ABCT would come with previous mechanized experience rather than starting from scratch. Under this model, every Bradley commander would have prior mechanized experience. The impacts of regular personnel rotation and crew turbulence would be mitigated because 11M NCOs would report with baseline experience. New Soldiers would receive instruction from experts. The Bradley Master Gunner Course would be a sought-after professional development opportunity that would improve probability of promotion.[9]

A new 11M portion for Infantry One Station Unit Training would need to be established at Fort Benning. The greatest risk from this option would be lower retention rates within the new 11M MOS. To mitigate against this, professional development milestones and promotion board guidelines would require modification to ensure 11Ms remain competitive with their 11B and 11C peers.

COA 2 — Mandate platoon sergeants with mechanized infantry experience

If reestablishing the 11M MOS is not feasible, then a reduced option can still improve mechanized infantry proficiency. This option would require that all 11B4O and 11B3O (promotable) NCOs reporting to an ABCT have previous mechanized experience. All Infantry Soldiers, E1-E6, who successfully qualify in a Bradley crew would receive an additional skill identifier (ASI) on their Soldier Record Brief. The U.S. Army Human Resources Command would then be required to assign those Soldiers with the mechanized infantry ASI to fill mechanized infantry platoon sergeant billets. This would ensure that every platoon sergeant had a baseline knowledge of the Bradley and mechanized infantry maintenance, training, and tactics. These experienced platoon sergeants would directly shape their platoon's

A Bradley Fighting Vehicle crew with the 4th Battalion, 6th Infantry Regiment, 3rd Armored Brigade Combat Team, 1st Armored Division, prepares to conduct Gunnery Table VI qualification at the Rodriguez Live-Fire Complex in the Republic of Korea on 22 February 2019. (Photo by SGT Alon J. Humphrey)

maintenance and training plans. They could provide improved mentorship to new platoon leaders, section sergeants, and crew members who lack Bradley experience. To mitigate against inexperienced section leaders and NCOs, the Bradley Leader Course should be expanded to allow students to complete an entire gunnery progression and provide a more rigorous foundation in mechanized maintenance. All 11B2Os and 11B3Os reporting to an ABCT should be sent to this revised Bradley Leader Course enroute to their new assignment.

A note on officers

Though this article focused on mechanized infantry NCOs, we believe the light-wheeled imperative for infantry officers should be maintained. Though new infantry officers reporting to an ABCT need to quickly immerse themselves in the Bradley to succeed, they will never be their platoon's subject matter experts on the BFV. Every effort should be made to send these officers to the Bradley Leader Course at Fort Benning before assignment to an ABCT. New mechanized infantry officers would benefit from either proposal by gaining NCOs with former mechanized experience.

Conclusion

A 2018 RAND wargame on a NATO-Russia war in the Baltics indicated that each NATO combat vehicle would face six Russian combat vehicles based on the Western Military District's order of battle.[10] Lethality is a critical component of the U.S. Army's refocus on decisive action. Reviewing the current threat environment, it is clear the U.S. Army expects its combat units to fight outnumbered and win. Based on the strength of this study's findings, a larger study is warranted. Expanding this research to include mechanized infantry companies from other battalions, brigades, and divisions would further strengthen our hypothesis' validity. While this research focused on gunnery lethality, enhancing experience levels within mechanized infantry units will positively impact maintenance operational readiness rates and tactical proficiency. Similar studies could be conducted analyzing NCOs' previous mechanized experience against a section and platoon's maintenance operational readiness rates. If these observations hold across larger samples, the U.S. Army Infantry community should consider policy changes that maximize expertise, reduce crew turbulence, and enhance overall lethality in mechanized units.

Notes

[1] MG John M. Le Moyne, "Closing Ranks for a Stronger Infantry," *Infantry* Magazine, May-August 2000, 1, accessed from http://www.benning.army.mil/infantry/magazine/issues/2000/MAY-AUG/pdfs/MAY-AUG2000.pdf.

[2] COL Gian P. Gentile "The Death of the Armor Corps," *Small Wars Journal*, 2010, accessed from http://smallwarsjournal.com/blog/journal/docs-temp/416-gentile.pdf.

[3] LTG Sean Macfarland, "It's Time to Invest in Armored Forces Again," Association of the United States Army, 9 November 2018: https://www.ausa.org/articles/it's-time-invest-armored-forces-again.

[4] 2017 U.S. National Security Strategy, December 2017, https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905-2.pdf; "Providing for the Common Defense: The Assessment and Recommendations of the National Defense Strategy Commission," Report, 2018: https://www.usip.org/sites/default/files/2018-11/providing-for-the-common-defense.pdf.

[5] Training Circular 3-20.31, *Crew Training and Qualification*, 17 March 2015.

[6] Crew personnel turnover = (number of crew members that were present at previous gunnery)/(total number of participating crew members).

[7] For those interested in the statistical significance underlying this analysis, see Appendix 1: Statistical Inference and Analysis (can be provided upon request — send email to usarmy.benning.tradoc.mbx.infantry-magazine@mail.mil).

[8] Crew stability is defined as a gunner and BC who previously qualified together remaining in the same crew so they can maintain their "qualified" rating. Crew stability rate = (number of crews that previously shot together)/(total number of firing crews).

[9] From our experience, many competent and qualified NCOs avoided Master Gunner School to avoid becoming locked into ABCT with the J3 skill identifier. If MG became an important career milestone for a new 11M MOS and these NCOs would be staying in ABCTs regardless, then MG attendance would significantly increase.

[10] Scott Boston, et al. "Assessing the Conventional Forces Imbalance in Europe: Implications for Countering Russian Local Superiority," RAND 2018, 9: https://www.rand.org/pubs/research_reports/RR2402.htm.

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