



# Historical Analysis and the Value of Military Experience

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# Contents

- Aim
- An Introduction to Historical Analysis
- The Value of Attack Combat Experience
- The Value of Defence Combat Experience
- The Value of Experience in Peace Support Operations
- Conclusions

# Aim of Work and Today's Talk

- **Aim:** Improve performance for tactical combat and other operations
- **Objectives:**
  - Improve casualty predictions
  - Effect planning of optimal strategies
- Achieved by **discussing results from 3 Historical Analysis (HA) studies looking at in-theatre military experience** and their impact on the performance for tactical combat and other operations
  - Improve professional development
  - Studies unrelated, but linked through assessment of experience

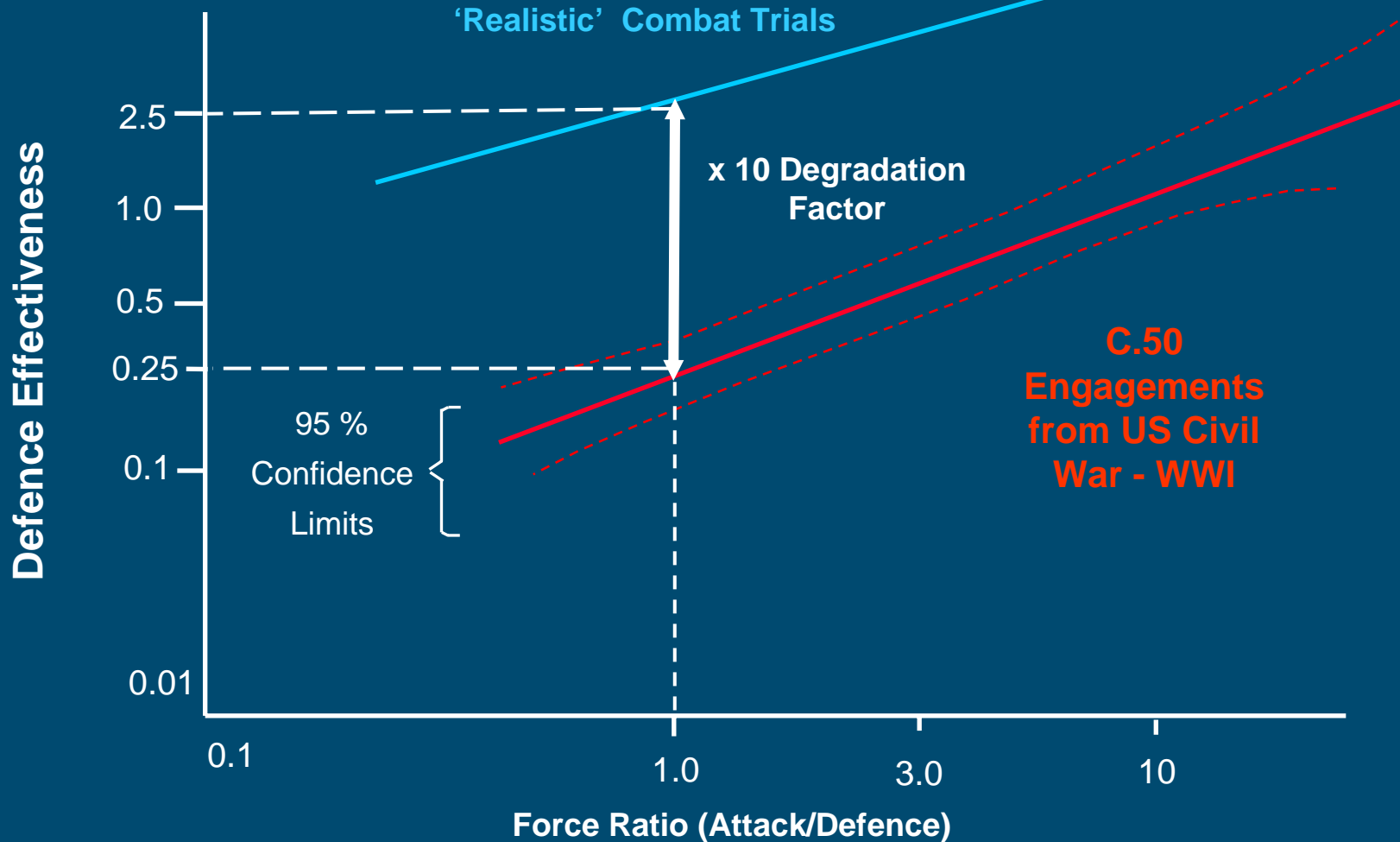
# What is Historical Analysis?

- In Dstl, “Historical Analysis” (HA):
  - Is operational analysis of quantified data describing the **actual behaviour of systems** across a wide range of historical cases
  - Is **empirical, statistical** and **holistic**
  - Involves the testing of **hypotheses** using established statistical techniques
  - Focuses on understanding the **enduring, underlying** mechanisms of conflict

*HA is about the “Analysis of Real Operations” (ARO).....ongoing, recent and historical!*

# HA Example: Combat Effectiveness

Attack Casualties per Defender



# Attack Combat Experience



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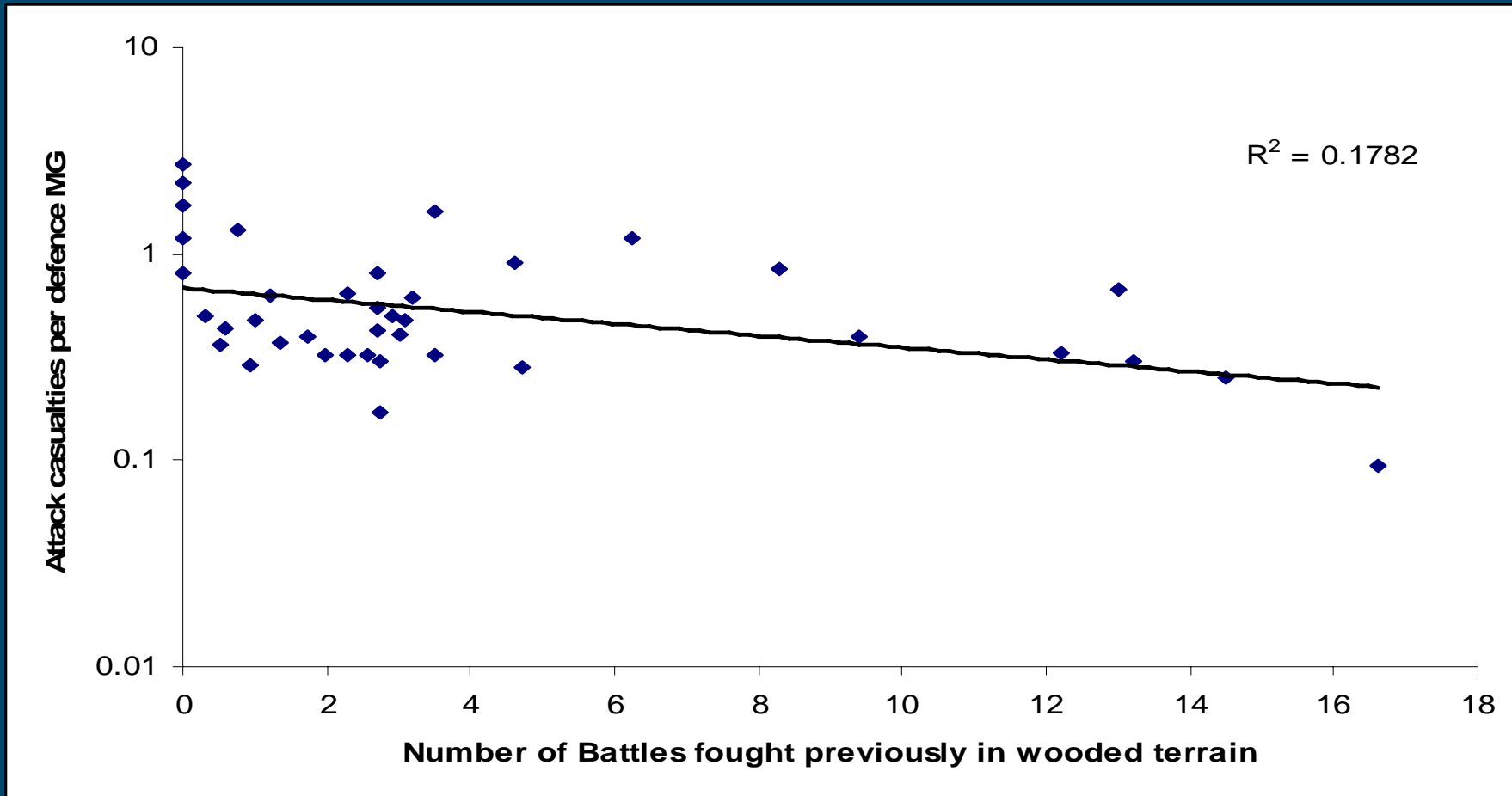


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# Attack Experience: Aim

- To identify the Value of Combat Experience for Attacking Forces and test the Hypothesis that
  - There is a significant reduction (in warfighting operations) in the average combat effectiveness attained by defensive forces as the attacking force gains in combat experience;

# Attack Experience: Analysis





# Attack Experience: Conclusions

- Attacking units in urban and wooded terrain
  - Number of casualties suffered by the attackers falls by 50% after 10 battles (for real combat and live fire trials).
- Caveats
  - WWII Data
  - Skill fade not considered

# Defence Combat Experience



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# Defence Experience: Aim

- To identify the Value of Combat Experience for Defending Forces and test Hypothesis
  - There is a significant improvement (in warfighting operations) in the average combat effectiveness attained by defensive forces as they gain in combat experience;
- High Experience: Taken as having fought 2-3 battles
- Low Experience: Taking as having no combat experience

# Defence Experience: Analysis

	Low Exp.	High Exp.
Sample Size	20	26
Att Cas. Per def MG/Actual Att. Cas	0.74	1.04
Std Ratio	1.63	1.50
T-Test	2.61	
Significance	1% Significance Level	

# Defence Experience: Conclusions

- Combat effectiveness of a high experience unit in defence is 40% higher than for a low experienced unit
- Caveats
  - WWII Data
  - Skill fade not considered
  - Urban/Woods only (not significant for Open terrain)

# Experience in Peace Support Operations



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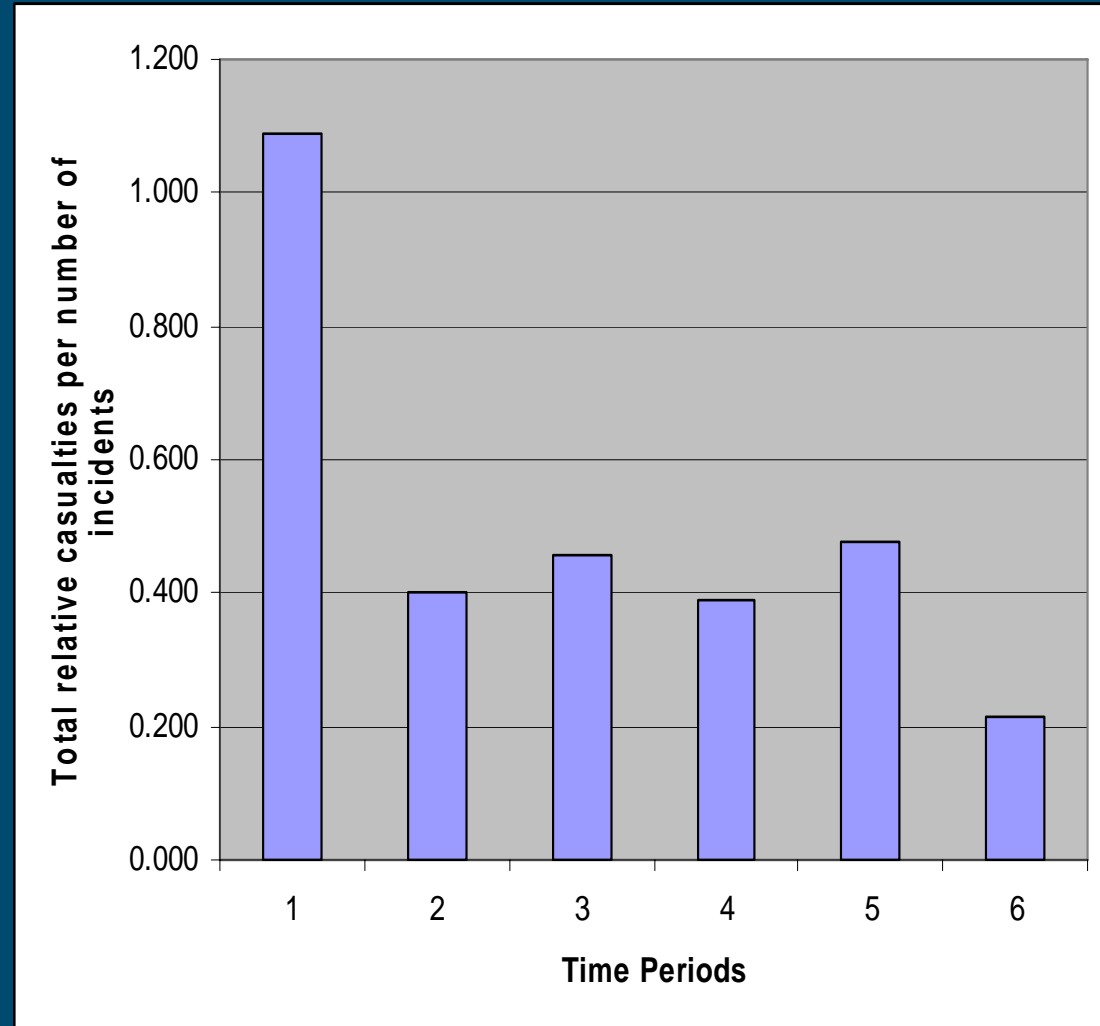
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# Experience in Peace Support: Aim

- To test for the existence of an observable, statistically significant difference in loss rates, consistent with the general learning/experience hypothesis:
  - *During unit tours in hostile environments there is a reduction in the number of casualties that a unit suffers as they spend more time in theatre*

# Experience in Peace Support: Analysis

- UK casualties
  - OP TELIC (May 2003-Nov 2006)
  - Killed + Wounded
  - Monthly time periods
- Jonckheere test for Ordered Alternatives
  - Implies main experience gained over 1<sup>st</sup> Month





# Experience in Peace Support: Qualitative Understanding

- Learning/Experience
  - In-theatre Experience
  - Prior Training
  - Prior Tours
- Other potential reasons for effect
  - Cyclic pattern of events
  - Special events (ceasefires)
  - Tactical changes in RED or BLUE

# Experience in Peace Support: Conclusions

- Testing UK casualties over monthly periods
  - There is a decrease in the casualties from the first to the second time period
  - This is consistent with a general learning/experience hypothesis

# Overall Conclusions

- Presentation provides a summary of a series of studies:
  - Identified that **an experience effect exists**
  - Quantifying the effect of experience for the UK army
    - Potentially 50% modifier depending on circumstances
  - Provide a firm basis both for further investigation of experience and the **importance of human factors**
- Used to **refine predictions of likely casualties**:
  - Inform MOD of likely battle outcomes and casualty estimation thus informing plans for optimum strategies.
- The future?
  - Further research to extend and **improve MoD's understanding of how experience affects performance** and how it can be quantified
  - **Improving modelling of combat**, with implications for
    - Assessing casualty predictions in scenario generation and planning.
  - Provide a grounding for analyses into the **roles played by "human factors"**, more generally

# Questions and Contact

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