CRANFIELD UNIVERSITY

GURKAN YESILYURT

ASSESSMENT OF THE CONCEPTUAL AND MORALE FACTORS ON THE OUTCOME OF WARS

CRANFIELD DEFENCE AND SECURITY

LEADERSHIP AND MANAGEMENT

PhD

Academic Year: 2021 - 2024

Supervisor: Dr. Iftikhar Zaidi

Associate Supervisor: Dr.Irfan Ansari

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This thesis is submitted in partial fulfilment of the requirements for the degree of Enter degree

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ABSTRACT

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ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

|  |  |
| --- | --- |
| IT | Information Technology |
| QJM | Quantified Judgement Model |
| OLI | Operational Lethality Indexes |
| BDD | British Defence Doctrine |
|  |  |

# INTRODUCTION

## Introduction

The concept of conflict and its forms is studied extensively to understand the nature of this phenomena. Definitions are differed according to the ontological position. Schelling takes a rational perspective and takes conflict as inevitable and analyses behaviour to maximise the gains, and he treats conflict situations as bargaining events (Schelling, 1980, p. 5) based on the principles of game theory of economics. Other scholars like Rummel take behavioural approach and sees conflict as complex situation of overlapping goals where forces in any situation are pointing opposite directions and study the causes of conflict in order to produce solutions for prevention (1975, p. 40).

Applications of these perspectives on the real life differed also like the theoretical stances. Clausewitz arguably sits on both rational and behavioural side. His definition of war as a continuation of politics with other means (1989, p. 87) puts him on the rational side with taking war as a one of bargaining options to optimize gains (Reiter, 2003, pp. 27–28). On the other side he also emphasizes behavioural aspects in war when he sees the war on the realm of human social existence rather than science (1989, p. 149). Marx treats the subject from socio-economic point of view and states that the *surplus value,* which is created by the labourers, by no means should be owned by the capitalist and defines conflict as a social struggle between the working class and the capitalists for the control of the means of production and the sharing of wealth (2008, pp. 315, 384). Huntington takes another perspective and points to the conflicts between groups of different civilizations (1996, p. 13).

There is also wide array of explanations on forms of conflict. Rummel summarizes main forms of conflict as inner-personal and social from related literature and applies it to international level (1975, pp. 40, 59). Clausewitz, on the other hand analyses war as one form of conflict (1989, p. 149). Dubois and his colleagues give all forms of conflict from massive destruction of civil populace to interpersonal conflict (1997, p. 17) in which war is one form of this spectrum.

War, as being one form of conflict is also studied and analysed extensively since it is of vital importance to both human lives. Sun Tzu states that war is a matter of life or death for the state (1971, p. 63) while Machiavelli points out that war is the prince’s most important matter to keep the state live (2008, p. 50). This vital feature of the war makes it an important topic of analysis in all ages (Frankel, 2021, sec. War).

Some treat the phenomena to explore the ways to ending or minimizing the risk of war (Rummel, 1975, p. 4), while others treat the subject in order to excel at war fighting (Machiavelli, 2005, p. xiii). Most importantly with the nature of warfare shifted to a more mobile and independent warfare in Napoleonic Wars (Paret, 1986, p. 106) war theories also started to emerge from this process by the two generals, namely Clausewitz (1989, bk. 2) and Jomini (Jomini, 2008, p. xxiii).

After almost century, models of war were started to emerge either to understand the war process or predict the outcome of future wars. Among others, Lanchester tried to shed light on the relationship between force strength and outcome of the wars with integrating capabilities of air force which he names *forth arm* by mathematical models of force attrition (Lanchester, 1916, Chapter 5). Dupuy’s’ Quantified Judgement Model tried to quantify combat variables including non-materials one to compare with the results (Dupuy, 1979, pp. 40–57).

These perspectives of war have yielded main categories to explain the process and outcome of wars. The first one of these is the physical component which constitutes the means to fighting. There is a widespread agreement on its relevance although there are different ways in measuring the effect of it to the overall outcome (Biddle, 2006, p. 21; Clausewitz, 1989, p. 194; Jomini, 2008, p. 136; Lanchester, 1916, p. 42; Tzu, 1971, p. 79; UK Ministry of Defence, 2001, pp. 4–5). Second category of factors is related with conceptual factors. While Biddle (2006, p. 73) takes force employment and doctrine as a mediating factor of physical processes, British Defence Doctrine sees that component as know-how on executing the fighting (2001, pp. 4–1). Another group of factors is discussed under the morale component (Clausewitz, 1989, p. 137; Tzu, 1971, p. 63; UK Ministry of Defence, 2001, pp. 4–3).

Since conceptual and morale factors are tended to be kept as constant or neglected due to their qualitative nature (Clausewitz, 1989, p. 134; Dupuy, 1979, p. 30; Lanchester, 1916, p. 47) rigorous, and systematic academic treatment stayed limited so far. In this research, the factors affecting the outcome of wars will be examined from these perspectives.

## Background

Physical factors as determinants of outcome of wars is analysed extensively due to its measurable nature. Sun Tzu expresses specifically the required force to wage a war in horse, chariot and wagon terms and he states weather and terrain to be main factors affecting the outcome of the wars (1971, pp. 63–80). Further he prescribes force ratios and possible results (i.e., when five times his strength attack him) (Tzu, 1971, pp. 79–80). Clausewitz also treat superiority in numerical sense as high importance and he says it reaches to the overwhelming levels, then becomes main determinant of victory (1989, p. 194). Jomini, when listing the elements to be victorious in war, he mentions proportions and quality of the troops and superiority in artillery and cavalry(2008, p. 136). Lanchester models on explaining force strength also uses number of troops and effectiveness of the weapons, especially the air force uses physical factors as input to determine the victorious side (1916, p. 42). Dupuy force strength value, with which he compares the belligerents is coming from number of personal, effectiveness of weapon (OLU value), environmental and operational variables and these are all physical factors (1979, pp. 19–105).

Second group of factors that analysed in terms of effects on the outcome of the war deals with conceptual factors. British Defence Doctrine sees these factors as thought processes, or more specifically, as principles of the war and the doctrine that provide the coherent intellectual basis and theoretical justification for the provision and employment of armed forces (UK Ministry of Defence, 2001, Chapter 4, 2011, pp. 4–4). Sun Tzu’s concept of strategy, which is seen as combination of policy and doctrine, is one of them and he says it creates the victory (1971, p. 100) and he names doctrine as one part of fundamental factors that effects the outcome of wars (1971, p. 63). In the same manner Clausewitz argues that main determinant of being victorious is strategy, not force ratio, with deciding, time, place, and the force of the engagement (1989, p. 194). For Biddle it consists doctrine and tactics by which forces are actually used in combat, and he names as force employment, which shapes role of physical factors and often predetermines winners and losers(Biddle, 2006, p. Preface). Some other scholars analyze decision making processes before war as the determinant factor of its outcome. This decision might be taken by utilizing different decision-making models; rationally (Allison & Zelikow, 1999), incrementally (Lindblom, 1959), or with adopting strategic incremental approach (Zaidi, 2021).

Morale factors are another major group of factors that affect the outcome of wars. Sun Tzu names morale and rightness of commander as fundamental factors of war (1971, p. 63). Clausewitz extracts attention to the notion of will as another constituent of power of resistance (1989, p. 77) and he names skill of the commander, experience, courage, patriotic spirit as principle moral elements and says moral components are among the most important in the war (1989, p. 186), while Jomini estimates the influence of a better morale by factor two (2008, p. 260). Dupuy lists leadership, training, morale, logistics as non-material factors of the battle (1979, pp. 37–38). There are expert reports on this factor in which morale, cohesion, and discipline is associated with the will to fight and provides an explanation of how to assess this important feature of forces by military planners (Connable et al., 2018, p. 10). BDD defines moral component as persuading the people to fight and this necessitates motivation, leadership, and management(2001, Chapter 4).

Equation of strategy is developed to capture combat variables related with all these three components (e.g., uncertainty, friction, chance, moral component, leadership, and information) in which ends are rendered as a function of ways and means (Zaidi, 2014).

Jomini says that the superiority of armament may increase the chances of success in war, but it does not gain battles (2008, p. 28).

## Aim and Objectives

Against this background this research will add the effects of the conceptual and morale factors to better represent the reality in terms of the determinants of war outcomes. This approach is not challenging current models but will complement them to *explore* other qualitative factors to add new information to the literature.

Since *equation of strategy* in which ends are rendered as a function of ways and means (Zaidi, 2014) well represents physical, conceptual, and morale factors of warfare, it will be elaborated to explain determinants of warfare.

### Aim:

This research will aim to *explore* effects of conceptual and morale factors on the outcome of wars.

### Objectives:

In order to achieve this aim, this research identifies two objectives.

* To *explore* the nature and the degree of the effects of conceptual and morale on the outcome of the war.
* To *explore* what extent does battle influence the outcome of war.

## Problem Analysis

### Problem Definition and Problem Statement

Theoretical approaches and way of thinking on the determinants on the outcome of wars so far includes mainly physical factors. Conceptual and morale factors either assumed to be equal or not represented within the models due to their unquantifiable nature.

Since models are explicit representation of part of the reality (Pidd, 2009, p. 10), current models of identifying the determinants of the outcome of the wars, although useful, assessed to be insufficient by not reflecting major part of the reality with the exclusion of conceptual and morale factors. Assessment of outcome of war necessitates to integrate conceptual and morale factors to the model of theory of war. This necessity is well stated by Biddle(2006, p. Preface), Clausewitz (1989, pp. 134–137), Lancaster, Dupuy but so far their effects couldn’t have been analysed in a robust manner.

That’s why current models cannot explain outcomes of numerically and technologically inferior forces defeats their opponents. Germans would never attack to France in WW2 if they were to use current mathematically developed models. Current models including Biddle (because his main argument was force employment, the one Americans is excellent at) would have said Taliban can never triumph in Afghanistan. These considerations and examples prove that there is a clear problem in those tools way of representing reality.

Against this background, problem definition for this research is defined as *current models in assessing outcome of wars are basically using physical factors as determinants, and this is not reflecting reality and insufficient to explain major wars.*

### Considerations

The literature so far presents models for predicting the outcome of the wars composed of based on quantifiable determinants. Lancaster’s models only take number of troops and the weapon effectiveness as input and excludes training, morale, leadership, and other qualitative factors of fighting strength since, he says, these cannot be put into the equations, and he assumes these factors are equal on both sides. (Lanchester, 1916, p. 47). Kirkpatrick, detected that while Lancester’s models were valid in some historical contexts such as in Americal Civil War, in other scenarious where warfare dominated by technology they are potentially misleading (2021, p. 43).

Dupuy’s models are evaluating material factors much more detail than Lancaster (OLI values for all weapons and platforms, operational and environmental variables as well). His combat effectiveness value (CEV) which combines non-material factors in a group is the most controversial and erroneous part of his models since this value is either determined generally (ex. German CEV value is 1.2 of Allied Powers in WWI in western front) or if there is inconsistent result, related factor (such as surprise) is added afterwards to CEV to calibrate the model to give correct value (Ciano, 1988, p. 31). Another weak point of Dupuy’s model is the subjective selectness of the non-material factors which is included to the model in the beginning of the analysis only if evaluators of the models detect any discrepancy (Dupuy, 1979, p. 39). Biddle’s model includes only one non-material factor (force employment) of major qualitative features which is laid down in the literature.

These major models in this field fails to explain significant events like USA withdrawal from Afghanistan, Battle of France in WW2, or major battles in Vietnam War. For the USA withdrawal from Afghanistan, world’s biggest military spender, $778 billion in 2020 (Sipri, 2021, para. 5), USA, has had to withdraw from Afghanistan after nearly two decades of campaign and Taliban regained control over the country although Afghan Government Forces and its main supporter USA has numerical and technological superiority. Malkasian argues that the thing that make Taliban powerful was their fight for Islam and the cultural values enshrined in Afghan identity like resistance to occupation (2021, pp. 4–5). Current models including Biddle’s one (because his main argument was force employment, the one Americans is excellent at), cannot explain this withdrawal without taking into consideration of non-material factors.

For the Battle of France in WW II, the whole front is broken by General Guderian corps with only three Panzer Divisions and Motorized Infantry elements, against France forces of 10 Divisions at Ardennes and dislocated BEF forces to Dunkirk and French forces to south of the country where they were ineffective throughout the war. Inferior by all predictions or force ratios in this decisive point, superior tactic of strategic penetration by independent armoured force combined with effective leadership enabled these victory (Aitken et al., 1994, pt. 1; Hart, 1974, p. 71).

### Theoretical Approach to the Problem

Clausewitz’s conceptualization of the war and the manner he presents the importance of the numbers seems to be basic to understanding the roots of the problem in the current models. In order to understand real war, Clausewitz analyses the absolute war, like Isaac Newton, who conceptualized the relative motion theories to understand the true motions of the individual bodies in the space (Harper, 2005, p. 592). Clausewitz’s perfect world of the war is absolute war, in which human factors, politics, and elite interests are taken away and each side pushes toward the extremes (extreme use of force, disarming the opponent, maximum exertion of strength) to win the war. Then he describes the modifications to this absolutism and says extreme use of force and maximum exertion of the strength is restricted by the limits of the human nature which in turn reduces the power of resistance. Realities, prospects of future events, political considerations, and possibility of the peace also prevents sides from employing all available forces. In reality opponents use their physical and moral forces in this limited sense (Clausewitz, 1989, pp. 75–80).

Clausewitz’s approach of success on the battlefield is then attributed to the superior numbers only in this absolute mean of the war, when human factors, leadership, morale, will, determination is taken away from analysis. This constitutes his mechanical way of predicting the outcome of the battle. Then he qualifies this by saying that if superior numbers reach to the point of overwhelming, it will counterbalance all other contributing circumstances (strategy, morale and etc.). That’s why he suggests that bringing as many troops as possible into the engagement at the decisive point as the first principle of strategy (Clausewitz, 1989, 194-195).

This conceptualization is adopted by USA military, and they postulated six times strength over enemy to attack (USA Department of the Army, 1976, pp. 3–4). Since USA military planners attributed the victory in the WWII to overwhelming numbers (Herbert, 1988, p. 99), they continue to think overwhelming combat force would yield the success (USA Joint Chief of Staff, 2020, pp. IV–33). Vietnam, Korea, Afghanistan, Libya, and Iraq cases have demonstrated flaws in this way of thinking. These predictive models that suggested these campaigns will reach their strategic objectives. In each of these cases they have been successful in achieving the initial war aims. But hey could not attain total victory in the end.

## Research Questions

### Research Question 1:

What are the conceptual and moral factors among the theories of war that has stated to be affecting the outcome of the wars?

### Research Question 2:

How much conceptual and morale factors *affect the variation* of the outcome of wars?

### Research Question 3:

To what extent do conceptual and morale factors *mediate* the effects of physical factors?

**What will be the Research Questions?**

1st Question: What is the degree of explanatory power of combat power elements including force ratios on the outcome of the battles fought between state actors?

2nd Question-2: What is the leverage of leadership and morale on the outcome of these battles?

* Research questions: They're broadly right but simplistic, and needed to rethought.
  + These two questions should be used;
    - How much leadership and morale affect the variation on the outcome of the battle?
    - To what extent do leadership and morale mediate the effects of material factors?

## Scope

Physical factors that influence the outcome of wars will be explained in general to put the research into context. It is not intended to identify all elements affecting the course of the events in war.

## Research Value

This research is expected to provide contribution to literature *new knowledge* by analysing the effects of conceptual and morale factors on the outcome of the wars in inductive approach.

## Positioning

Current research positioning is to look at war from strategy, leadership, and morale perspectives and their effects on the war outcome.

The research will use the literature that includes the evaluations of war theories on combat factors (Sun Tzu’s *Art of War*, Clausewitz’s *On War*, Machiavelli’s *The Prince,* *Art of War*, and etc.), models and doctrines developed in the light of these evaluations (Dupuy’s QJM, Lancaster’s Linear and N-square law, UK British Defence Doctrine, USA Joint Publications), and previous academic research in this field.

## Methodology, Research Methods

This research will use *sequential mixed method* research strategy, with qualitative methodology preceding the quantitative one in supporting role (QUAL-->quan) as outlined by Bryman (2016, pp. 638–639).

In the first qualitative research grounded theory approach will be utilized to generate theory, since the literature indicates no models for assessing the conceptual and morale factors on the outcome of wars. Once theory about relationship between these factors and outcome of war is generated with a new model through grounded theory, case study analysis (like Vietnam War, the US involvement in Afghanistan, and etc.) will be implemented to assess the robustness of the model.

## Research Ethics

## Layout of the Research

In this chapter (Chapter one) the general context has been set up. Questions has been so far responded with regard to what will be studied, why this research is being conducted, and how it will be conducted. Aim, objectives, questions, value, and limitations of the research has been articulated.

In Chapter two current literature will be summarized to explain what kind of approaches and models are being used so far.

In Chapter three theoretical framework will be presented to explain the factors effecting the outcome of the battle (variables) and their relationships, data collection and analysis methods.

In Chapter four how the research was carried out will be explained.

In Chapter five qualitative model will be tested quantitatively.

# LITERATURE REVIEW

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APPENDICES

Whilst Heading 1 to Heading 6 can be used to number headings in the main body of the thesis, Heading styles 7–9 have been modified specifically for lettered appendix headings with Heading 7 having the ‘Appendix’ prefix as shown below.

Appendix Title (Use Heading 7)

Appendix Section (Use Heading 8)

Appendix Subsection (Use Heading 9)

Creating captions in Appendices

If you have chosen to include chapter numbers in your captions then follow the instructions given here to apply the same format to the captions in your appendices. This section explains how to caption the figures and tables in your Appendices, assuming that Heading 7 is numbered “Appendix A” and that the Figures and Tables are going to be labelled ‘Figure A-1’, ‘Figure A-2’, ‘Table B-1’ etc.

You will have to create new, separate labels that look like the ‘Figure’ and ‘Table’ labels you used in the main body of your thesis.

1. Select the **References** tab on the Ribbon then click on **Insert Caption**
2. Click **New Label**. Type **Figure\_Apx** then click **OK**
3. You now have two labels for figures, called **Figure** and **Figure\_Apx**  
   Repeat for table captions.
4. In the **Caption** box, type your caption text
5. Click **Numbering**. Tick **Include chapter numbering** and choose **Heading 7** from the drop-down list of styles and click **OK** twice
6. Your caption should look something like this:

**Figure\_Apx A‑1 This is the caption text for a Figure in the Appendix**

1. Delete the extraneous ‘\_Apx’ from the caption label so it reads:  
   **Figure A‑1 This is the caption text for a Figure in the Appendix**  
   **TIP:** Instead of deleting each ‘\_Apx’ individually use **Find & Replace** to modify all the labels at once.

Creating Lists of Figures and Tables for Appendices

This template already includes a List of Figures and a List of Tables, however you will have to create two new lists for the ‘Figure\_Apx’ and the ‘Table\_Apx’ labels.

1. Place the insertion point on a blank row after the existing List of Figures
2. Select the **Insert Table of Figures** command on the **References** tab of the Ribbon
3. Set the **Caption Label** box to ‘**Figure\_Apx**’ and click **OK**  
   **Note:** Word will put a single blank line between the original and new lists preventing it from appearing as one seamless list. However if you select the blank paragraph between the tables you can hide it by opening the Font dialog box from the Home tab and selecting **Hidden**.
4. Click after the List of Tables and repeat for the Caption Label ‘Table\_Apx’