

CHAPTER I

INTRODUCTION

1.1. Research Background

The current popularity of video games presents a twofold opportunity for the study of International Relations (IR): (1) the study of video games as they are and (2) the study of video games as potential tools in IR. Analysis on the relation between video games as they are in IR generally follows a Popular Culture and World Politics (PCWP) approach, with video games as an artifact of popular culture portrayed as being able to affect global politics. Based on the PCWP approach, popular culture and IR intersect in four major ways, popular culture as impacting the real world, popular culture as data, popular culture as a mirror and popular culture as constitutive (Nexon & Neumann, 2006). Additionally, de Zamaróczy (De Zamaróczy, 2017) posits that there is a growing fifth intersection between popular culture and IR, which he refers to as popular culture as pedagogy, or as an educational tool to teach IR.

As people play video games, they will “Recall, reproduce and reinforce certain patterns of both conscious and unconscious thinking about the world” (De Zamaróczy, 2017). This can create a condition where alternative sources of information can control what events and issues are considered by the public consciousness (Alfian & Pinem, 2021). For example, many military shooter games originating from Western countries such as the United States of America reinforce the rhetoric of militarization and securitization seen during the Global

War on Terror (Robinson, 2012), influencing the worldview of players. Influences coming from video games may shape the worldviews of future IR scholars. Zamaróczy (2017) recognizes this and warns educators in IR to take video games more seriously, believing that the lessons they teach in class may be undermined by the video games that students play outside of the classroom. This intersection of video games as popular culture artifacts that can impact world politics reveals the urgency to study them more closely in IR.

A yet to be discussed approach to video games in the study of IR are their (2) potentials to be used as simulation tools in advancing research. In particular, the opportunity to use video games as the basis for IR computer simulations as an alternative to models developed by academics. Computer simulations as a research tool and method have been in practice in IR since the latter half of the 20th century (Pepinsky, 2005). They have allowed researchers to accurately model theories and test their assumptions through computational simulation. One such example is GLOBUS, a complex computer-based model of the global system which contained an economic submodel and domestic and regional political processes for twenty-five individual countries (Bremer et al., 1988). However, these models are limited in their accessibility. Acquiring a copy of the GLOBUS simulation can only be done by writing in mail to a specific address. A copy of the GLOBUS model for example costs around USD 125 (Hughes & Bremer, 1990), while other models can cost from USD 25 to USD 1000, depending on the license (Bremer, 1989). Contrasting the accessibility limitations of academic computer

simulations, video games can be used as a cheaper and readily available alternative.

The potential for video games to accurately model complex simulations in a readily available nature has already brought them to the attention of policy-makers. Although policy-makers have already been utilizing technology to optimize their organizational capacity (Rahmasari et al., 2022), contemporary developments in video game technology have allowed them to be used in a similar regard. For example, according to an employee of video game publisher Slitherine games speaking at the Connections Wargaming Conference 2024, the United States of America Department of Defense (DOD) has utilized commercially sold strategy video games for their simulation necessities (People Make Games, 2024). The DOD was able to use the game, modified in such a way to accurately represent military hardware according to available real world data, allowing them to virtually simulate the performance of their war machines (People Make Games, 2024). Unfortunately, little interest has been seen within IR scholarship regarding the potentials of commercially sold video games to be used as IR simulators for the purpose of theory testing and prediction.

Despite the limited interest in IR scholarship, there are potentials for a commercially sold video game to be used as an IR computer simulation. This mainly comes in the form of grand strategy video games, as they make direct contact with IR concepts. In these games, players are given control over a state entity, whether a civilization, nation, or country, with near total control of the political, economic, diplomatic and military direction of it (Nevill & Sahlén,

2022). With the ability to control the country, players are expected to implement strategies to advance their interests in the game.

More importantly for the potential of commercial grand strategy video games to be used as an IR computer simulation, alongside the player, the world of a strategy game will often be populated by other state entities not controlled by the player. These entities, often referred to as artificial intelligence or AI are programmed to function just like the player, being able to implement political, economic, diplomatic and military strategies to advance their interests. The existence of these AI countries makes the simulation in commercial grand strategy video games very similar to the ways IR computer simulations function.

To test the potential for commercial grand strategy video games to be used as an IR computer simulation, it will be necessary to narrow down the scope of the research by analyzing one specific game. To be considered for research, the game should include three of the following elements. It should have a complex diplomatic actions system, a robust diplomacy AI and a dynamic AI strategy system. First, the game should have a complex diplomatic actions system, where different countries can sign treaties and pacts, form alliances and go to war. Second, the game should have a robust diplomacy AI, where the AI country is able to logically make decisions on diplomatic matters according to their specific circumstances. Third, the AI countries in the game should be able to dynamically decide on strategy goals which can change over time, simulating the ever changing foreign policy of a real world country.

A list of games will be derived from the list of the top 10 most popular grand strategy games, according to data from the Steam video game platform. This yields the list of the following games: Civilization VI, Hearts of Iron IV, Total War: WARHAMMER III, Crusader Kings III, Victoria 3, Stellaris, Europa Universalis IV, Civilization V, Total War: THREE KINGDOMS and Civilization VII (SteamDB, n.d.).

When considering the elements required for a computer simulation of IR, only Victoria 3 by Paradox Development Studio and published by Paradox Interactive fulfills all three. The final element, being a dynamic AI strategy system, is only present in Victoria 3. In the rest of the game titles, AI strategy either follows through a bilateral case by case basis like the case of Europa Universalis 4, Stellaris and Crusader Kings 3 or the core foreign policy agenda is set from the very beginning and goes unchanged throughout the game like in the Civilization series. This sets Victoria 3 as uniquely compatible to be utilized for this research.

Table 1.1 IR Computer Simulation Suitability of Top 10 Most Played Grand Strategy Games

Game name	Year released	Publisher (country of origin)	Daily player count on Steam: (SteamDB)	Playable period	Complex diplomatic system	Robust diplomacy AI	Dynamic AI strategies
Civilization VI	2016	2K (United States)	39,343	4000 BC - 2050 AD	Y	Y	N
Hearts of Iron IV	2016	Paradox Interactive (Sweden)	38,659	1936 AD - 1948 AD	Y	N	N
Total War: WARHAMMER III	2022	Sega (Japan)	22,687	2502 IC (Non-Historical)	N	N	N
Crusader Kings III	2020	Paradox Interactive (Sweden)	15,064	867 AD - 1453 AD	Y	Y	N
Victoria 3	2022	Paradox Interactive (Sweden)	14,923	1836 AD - 1936 AD	Y	Y	Y
Stellaris	2016	Paradox Interactive (Sweden)	14,695	2200 AD - 2500 AD (Non-Historical)	Y	Y	N
Europa Universalis IV	2013	Paradox Interactive (Sweden)	13,551	1444 AD - 1821 AD	Y	Y	N
Civilization V	2010	2K (United States)	13,067	4000 BC - 2050 AD	Y	Y	N
Total War: THREE KINGDOMS	2019	Sega (Japan)	8,051	220 AD - 280 AD	N	N	N
Civilization VII	2025	2K (United States)	8,033	4000 BC - 1950 AD	Y	Y	N

Y = yes, the element is present in the game; N = no, the element is not present in the game

This research will look into Victoria 3's potential as a commercial video game to serve as the basis for simulating International Relations, functioning as a more accessible alternative to existing simulation models, for the purpose of testing IR theories and processes that researchers cannot directly observe. To achieve this, the research will compare Victoria 3's simulation to that of the Policy Arguer (POLI) expert system project, which models foreign policy decision-making (Taber & Timpone, 1994). To conduct the comparison, a model will be constructed out of Victoria 3's AI foreign policy by analyzing its programming. Before comparing the two, an explanation of Victoria 3's model will be given. Finally, the comparison between POLI and Victoria 3 will be made. It is hoped that this research can contribute to the discussion of computational International Relations, video games in IR and the study as a whole.

1.2. Research Question

Based on the research background, the following will be the research question for this study: What are the potentials for the commercial grand strategy video game Victoria 3 to be used as an alternative to existing IR computer simulations?

1.3. Research Objectives

Directly tied to the research questions, the objective of this research is to reveal the potentials of the commercial video game Victoria 3 to serve as an alternative to existing computer simulations of International Relations.

1.4. Research Significance

This research breaks new ground within the growing study of IR and video games, by examining directly the capability of commercially produced video games to be used as a computer simulation of International Relations.

1.5. Theoretical Framework

1.5.1. Literature Review

Addressing the topic of this research requires a more thorough analysis of the existing relevant literature. Nikitas et al. (2021) examines in their research the relation between international relations and video games. Their paper provides adequate ground to the argument that video games can be relevant within the field of international relations. The research highlights the utility of games within the context of international relations in two main ways. First, the authors recognize the educational role video games have in teaching international relations concepts,

especially games that simulate international politics and history. In addition, their paper explains the power of video games in influencing public opinion on geopolitical issues. One example being the popularization of wargames such as Call of Duty and Battlefield which they argued led to the legitimation, justification and consensus of citizens regarding military interventions, weaponization and militarism in the real world.

Loban (2017) explains how video games specifically coming from the grand strategy genre can be used as a learning tool within the discipline of International Relations. He argues that the wealth of content relating to diplomacy and international relations within these games make them great tools to teach the subject. Loban argues that grand strategy games provide players with a spectrum of diplomacy from explicit manifestations of diplomacy in the forms of hard-coded mechanics, to conceptual manifestations of diplomacy in the form of player interaction.

Zamaróczy (2017) explains how video games of the historical strategy genre should be more prominent in the field of International Relations. He makes two arguments in his article. Zamaróczy highlights five of the key assumptions to these games, namely: the assumption of perfect information, the assumption of perfect control, the assumption of radical otherness, the assumption of perpetual conflict and the assumption of environmental stasis. The author argues how these assumptions run counter to International Relations scholarship and combined with the continuously growing popularity of video games, will pose particular problems for educators when “what they attempt to teach by day in the IR

classroom may be undermined by what students are playing at night.” Zamaróczy also argues that computer games can be used as a mirror to critically reflect on the nature of contemporary global politics. Doing so will allow us to better perceive the social realities around us, Zamaróczy argues. He concludes by reiterating the need for International Relations scholars to care more about video games because of the reasons stated above.

Cusack and Stoll (1990) provides an application of computer simulators as a way to test the assumptions of the realist theory of international politics. In their model, the international system is represented as a collection of 98 states which controls territory, has power and basic preferences (the broad overview of this model can be seen in Appendix C1). In the model, countries may experience five different kinds of behaviors. They can experience civil war, initiate a territorial dispute with a neighboring country which can fizzle out or erupt into war, where alliances and power will determine the outcome of said war. After conducting experiments using the simulation, the authors conclude that the foundations of realism are fractured and at times contradictory, urging the need for realism to undergo revision to deal with the questions of state survival and system endurance.

Taber and Timpone (1994) provides an application of computer expert system methods to model the complex theory of foreign-policy analysis, in the form of the Policy Arguer (POLI) project. This project recreates the arguments of Snyder, Bruck and Sapin (2002) to simulate real and hypothetical situations in U.S. policy. The authors argue that the complexity of the model is designed

precisely to answer types of problems such as those posed by Snyder, Bruck and Sapin that suggests that national behavior is related to the subjective perceptions and beliefs of national decision makers. The POLI model represents U.S. foreign policy debates on strategies towards Asia in the 1950s, with the existence of three main paradigms, that being militant anticommunism (MAC), pragmatic anticommunism (PAC) and isolationism (ISO). When a geopolitical event is entered into the model, the program will interpret the event according to each paradigm, create a set of policy recommendations according to the event, and through various mathematical means, the most recommended policy will become the final policy output.

1.5.2. Research Framework

Research Framework

Simulating Statecraft: The Potentials of the Video Game Victoria 3 as a

Simulation of International Relations

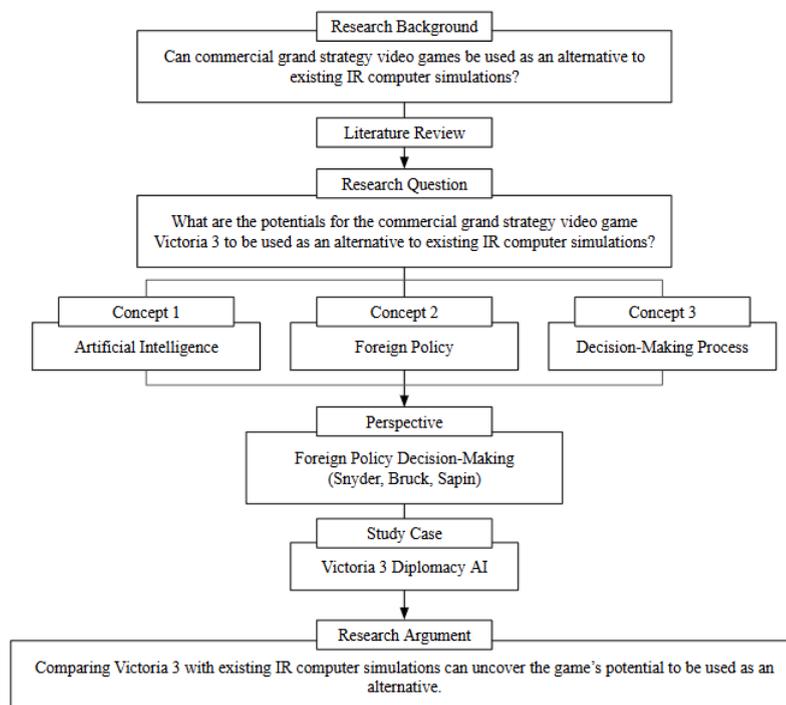


Figure 1.1 Research Framework

The Foreign Policy Decision-Making perspective was first introduced by Richard Snyder, H.W. Bruck and Burton Sapin in their paper Foreign Policy Decision-Making: An Approach to the Study of International Politics. The authors put emphasis on the decision-making, where decision-makers decide on a course of action to take, which will eventually become a foreign policy decision. The decision they come up with will be determined by a multitude of factors, which can be categorized as “The Internal environment, the external environment and the decision-making process” (Husien, 2022).

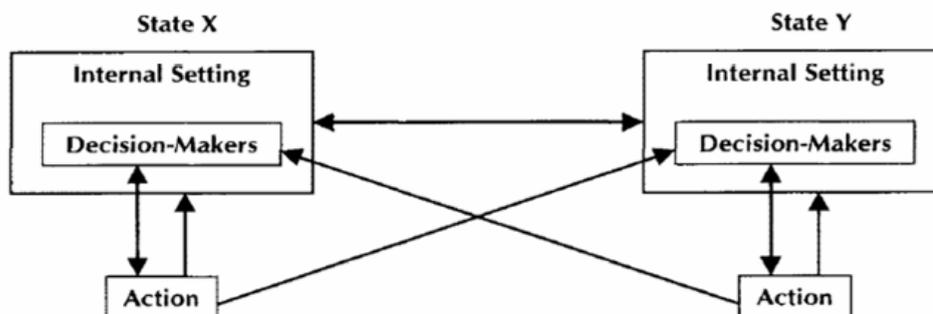


Figure 1.2 Snyder, Bruck and Sapin's Foreign Policy Decision-Making Model

1.6.1. Conceptual Definition

1.6.1.1. Artificial Intelligence

According to the Oxford English Dictionary (2023), artificial intelligence (AI) is understood as the following: the capacity of computers or other machines to exhibit or simulate intelligent behavior; the field of study concerned with this. In later use also: software used to perform tasks or produce output previously thought to require human intelligence, esp. by using machine learning to extrapolate from large collections of data. Also as a count noun: an instance of this type of software; a (notional) entity exhibiting such intelligence. Abbreviated AI. In essence, AI can refer to multiple things. It can be used to refer to programs that appear to simulate intelligent human-like behavior. Currently, AI is widely understood within the context of machine learning where a model is created and taught to perform certain tasks by identifying patterns, such as creating images through convolutional neural networks or intelligible words through natural language processing.

1.6.1.2. Foreign Policy

Foreign policy is one of the most important concepts within the study of IR, with each paradigm offering their theories as to how foreign policy is formed and the goals of said foreign policy. According to the Britannica Encyclopaedia (The Editors of Encyclopaedia Britannica, n.d.), foreign policy is the general objectives that guide the activities and relationships of one state in its interactions with other states. The development of foreign policy is influenced by domestic considerations, the policies or behaviour of other states, or plans to advance specific geopolitical designs.

1.6.1.3. Decision-Making Process

Decision-making is one of the most important concepts in foreign policy analysis. Decision-making was first introduced by foreign policy analysis by Richard Snyder (Husien, 2022). Rather than just focusing on the foreign policy output, this approach attempts to understand why these policies were chosen out of many other possible choices, which are influenced by a wide array of factors such as leaders, bureaucracy politics, domestic politics, as well as regional international systems, to name a few.

1.6.2. Operational Definition

1.6.2.1. Artificial Intelligence

The concept of AI used in this research will fall closer to the first definition. In the video game *Victoria 3*, AI refers to non-human players that exist within the game programmed in such a way to play alongside the player. This is explained within the development diaries of *Victoria 3* published in the Paradox

Forum, which allow players to gain insight to the rationale and design choices made for the game. In diary 59 (Anward, 2022), the developers specifically discuss AI in the game Victoria 3. According to the developers, through programming, the AI is able to play the game just like human players, utilizing the same features and facing the same restrictions that players face. To achieve this, the AI is given three programmed strategies focused on administration of the economy, the political and ideological direction and the overarching diplomatic strategy to be taken by the country.

1.6.2.2. Foreign Policy

Within Victoria 3, what is generally understood as foreign policy is defined as diplomatic strategy. Returning to developer diary 59 on AI, the developers explain that diplomatic strategy determines the foreign policy direction that the AI wants to pursue (Anward, 2022). The strategy that the AI decides to choose, according to the developers, are picked semi-randomly determined from a set of weights ranging from the ideological beliefs of the leader of the country, the strengths of particular political interest groups, or the ranking of the specific country on the world stage. These strategies range from maintaining the balance of power, territorial expansion, colonial expansion, isolationism, to economic imperialism. There also exists a group of strategies that are tied to the historic circumstance of the game setting, such as a specific strategy aimed towards unifying Germany.

1.6.2.3. Decision-Making Process

To apply the concept of decision-making process into this research, a closer assessment of how it works within the video game Victoria 3 is required. The developer diary 59 on AI explains the process in which a decision is chosen (Anward, 2022). At its essence, when the AI is faced with a problem that requires a decision to be made, they will assess all possible choices by providing scores to them. These scores are added, subtracted, multiplied, or divided based on criterias the developers have deemed logically sound, while also giving players access to modify these values in the game's code.

1.7. Research Arguments

This research argues that Victoria 3 has the mechanics necessary to be used as a base for a computer simulation of International Relations.

1.8. Research Methods

1.8.1. Research Type

This research will be conducted using a descriptive qualitative research method. Using this research method will allow the researcher to study the subject and provide analysis in a systematic manner to develop deeper understanding on certain phenomena.

1.8.2. Research Site

In conducting the research, the location will be solely at the desk, where the researcher will collect research-related data from the computer.

1.8.3. Research Subject

The main subject of this research will be the artificial intelligence (AI) in the video game Victoria 3. The game version used in the research is Victoria 3 game version Masala Chai (1.8.7) released on March 31 2025 with the checksum 7c15. Downloadable content (DLCs) available before the start of the research have all been activated, consisting of the American Buildings Pack, Colossus of the South, Dawn of Wonder, Free Trains Pack, Melodies for the Masses, Pivot of Empire, Sphere of Influence, Victoria II Remastered Soundtrack, Voice of the People and Voice of the People Preorder.

1.8.4. Data Type

This research will be conducted mainly using the qualitative method. As the research is conducted in a qualitative method, it will use data in the form of screenshots, textual data, observation notes and programming code to describe Victoria 3's game mechanics.

1.8.5. Data Source

This research will use a varying array of sources to conduct the analysis. Primary sources in the form of video game code will be the main source for the research findings. Existing literature will be used as both primary and secondary sources.

1.8.6. Data Collection Technique

Data will be collected through direct observations where the researcher observes, records and analyzes relevant events of interest. Secondary data will be collected online to be used for literature study.

1.8.7. Data Analysis and Interpretation

After gathering relevant data in the form of primary and secondary sources, a thorough analysis and interpretation of the data will be conducted. Relevant code derived from the video game will be compiled and interpreted by translating the code into text. Data will also be obtained from literature studies. Following this, all relevant information will be compiled and categorized accordingly, which will be used to interpret final results.

1.8.8. Data Quality (Goodness Criteria)

Primary data used in this research will mainly be gathered directly from the files of Victoria 3. These files can be readily accessed by owners of the game, allowing for easy cross-checking of the data presented in this research. Furthermore, secondary data quality will be ensured by collecting from credible sources such as scientific journals and academic literature.