



History in Scale: Military Dioramas as an Interpretation Device within a Museum

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Abstract

The effectiveness of a miniature historical diorama in a museum setting is the focus of this study. The diorama, designed and built by the researcher, is a miniature interpretation of a gun battery operated by the Maltese insurgents against the French in Ghargħar (Malta) during the French Blockade of 1798-1800. The literature, reviewed from a post-colonial and collective memory perspective, highlighted the value of habitat dioramas in engaging visitors' attention and the challenges to place them in contemporary museums, however there is still a knowledge gap on the function of historical miniature dioramas in these memory institutions. A thematic diorama representing a particular Maltese historical era that is influenced by collective memory was created as practice-led research by the author using Paine's (1980) storytelling techniques. Primary data from local model makers and museum professionals on dioramas was gathered through interviews and analysed. The museum visitor's responses to the interpretive experience and storytelling skills of this museum diorama also sampled and analysed. It was concluded that a historical diorama with an interpretative narrative based on combining research and artistic values will appeal to viewers of many age groups if it integrates Tilden's (1957) principles of interpretation and Falk's (2013) approach of identifying museum visitors. If the right scale of a miniature diorama is planned in accordance with a balanced set of research and creative standards, it can engage museum visitors. A well-designed diorama is still an effective museum installation and can benefit from the application of additional digital interpretive tools such as virtual reality. A physical miniature diorama designed using criteria that balance scale, art, and history, can effectively engage with a wide spectrum of viewers and can communicate a variety of narrative themes.

Keywords: *Museology, Historical Diorama, Scale Model, Heritage Interpretation, French Blockade*

DECLARATION OF AUTHENTICITY FOR MASTERS STUDENTS

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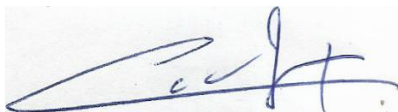
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I hereby declare that I am the legitimate author of this dissertation and that it is my original work.

No portion of this work has been submitted in support of an application for another qualification of this or any other higher education institution.

I hold the Institute of Tourism Studies (Malta) harmless against any third-party claims with regard to copyright violation, breach of confidentiality, defamation and any other third-party right infringement.



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Date

1 Introduction

A miniature diorama is a small-scale reproduction of a scene or setting that has been crafted to capture a specific point in time. It is used in museums to create interactive exhibitions that immerse visitors in historical or natural occurrences in a realistic manner. Miniature dioramas are a popular method of producing interesting and instructive exhibitions at museums, allowing visitors to enter a different world and experience nature or history in a fresh and engaging way.

The function of a diorama inside a museum, however, is the subject of divergent opinions and a general lack of investigation. The purpose of this research is to pinpoint and assess the worth of dioramas and the ways in which various people value them. The background and context will be covered first, then the research problem and followed by the research aims, objectives, and questions. Lastly, the significance and the study's limitations will be exposed.

Despite the fact that museums have historically been collection-focused, dioramas have been a component of exhibitions since the nineteenth century. The initial dioramas were created as life-size displays of exotic natural history specimens, but as visitors became engrossed and curious about them, dioramas began to change and grow as a component of museums' interpretation strategies. This study aims to determine whether the diorama still belongs to the ideal devices to be incorporated in museums, given that today's museums have changed from being collection-oriented to visitor-centric to provide an experience.

Using prior knowledge and experience from working in a museum, this research will also employ a practice-led project on a specific subject to assess the function of the

diorama with various visitor generations. Although models and dioramas have been a part of Malta's museums since they first opened, no specific research to date has been done to determine whether a diorama still serves as a tool for interpretation rather than being viewed as merely another artefact.

Many studies have already been done on the history, function, and ability to engage visitors of habitat dioramas within the setting of a museum, but not on the value of their interpretation. Investigations into miniature dioramas are lacking, even though their role in the institution has been acknowledged, particularly when they focus on certain subjects like war. Although research on the use of dioramas as didactic tools has been examined, assessing how storytelling abilities might be used to forge a relationship with the visitor has been overlooked. As a result, the goal of this project is to investigate the viability of creating guidelines for narrative dioramas intended for museums. When compared to modern digital experiences inside a museum, this research will also examine if the miniature diorama is struggling to remain a device.

This study will attempt to discover and analyse the skills development methodologies used by specialists in the area and the visitor because there is a dearth of research regarding addressing guidelines to build storytelling dioramas.

What methodologies and skills-development tactics are discussed in the research to comprehend how various people see the function of a museum diorama. How effective are these tactics and strategies? What are the advantages and disadvantages of creating a guideline? This study examines a specific diorama that will be on exhibit in a Maltese museum and uses the planning, building, and evaluation phases to create guidelines for an interpretive tool inside a museum.

By identifying and assessing skill-building strategies and approaches for institutions where communication and interpretation skills are rapidly and continually evolving,

this study will add to the body of knowledge on guidelines development. This will contribute to filling the current research gap in this area and benefit the institutions working in such dynamic contexts where the perception of the public is continuously shifting.

Limited local subject matter experts, particularly, in the case of model makers, limited the scope of our investigation. The chosen topic also focuses on a local historical issue that influences collective memory. Additional drawbacks that should be taken into account include the methodology employed, specifically a qualitative example that may be critiqued for being unduly subjective. This research was conducted in a condensed period with limited resources and research expertise. Although the results were concentrated on a national museum, they cannot be generalised, and the outcomes are still dependent on the museum's mission statement.

The setting for this investigation has been described in Chapter 1. The research questions and objectives have been determined, and the research has been valued. Also, the study's limitations were mentioned. A review of the existing literature will be done in Chapter 2 to determine the history and current function of a storytelling diorama in a museum setting. The methodology, which explains practice-led research and the adoption of a qualitative research strategy, will be described in Chapter 3 along with a discussion of the ethics and research design's constraints. The study design will be examined in Chapter 4 along with interpretive guidelines for a storytelling diorama based on the findings. Chapter 5 ends with a summary of the research results for this thesis.

2 Literature Review

This literature review aims to examine what has been written about how various models and military dioramas have been used in the past for educational purposes and how they elicit various emotions and serve as a springboard for visitors to create their own meaning through experience in museums.

A deeper understanding of the use of dioramas is provided by looking at the diorama-related literature in the museum field, which also aids this thesis in drawing some connections between the interpretive and educational potential of this medium.

2.1 The Role of the Museum

The traditional museum has shifted its attention to the visitor's experiences, and this change includes deeper attention to exhibitions and display tools. Most people tend to view museums as a structure filled with artefacts in glass cases, possibly recalling their first visit to a museum as schoolchildren (Museums + Heritage Advisor, 2020). Knell (2019) describes the contemporary museum as a museum that sets its agenda according to the peculiar conditions of today. He explains that a museum is concerned with history, art, science, technology, society, or anything else since our lives are more oriented towards the contemporary like never before (Knell et al., 2019, p.1). Anderson (2016) points out that instructors, researchers, internal consultants, and exhibit designers may all have conflicting expectations for the outcomes within the museum itself and argues that museums need to understand their audience beyond the one-size-fits-all definition of what constitutes a typical museumgoer.

The objects inside a museum play a significant role, even though institutions are moving away from the traditional collection-oriented display. Different researchers

highlight their opinions on 'the artefact' and their interpretation values. Because the phrase can have a variety of definitions, some of them very broad, defining the boundaries of material culture studies has never been easy. Pearce (1992) explores some of the terms in usage and their many meanings, and she says that it is most helpful to focus on those relatively tiny, moveable objects for which "object" or "thing" is our phrase in everyday speech when studying museums. These three terms are best used together without any specific distinctions being made between them, despite their possible difference in formal philosophical discourse (Pearce et al., 1994, p.9).

Museums are representations of historical events that may also have a significant impact on the present. Objects in museums can serve several purposes in memory, such as offering visual cues and communicating with others. By displaying some people's memories over others and by developing or changing the recollections of individuals who view the exhibit, museums alter and construct memory. These studies indicate that even though museums in the 21st century have become more experienced-oriented, the "museum object" still plays a crucial role in providing interpretation (Keene, 2004).

This research will explore the role of interpretation in the institution when there are no objects to display, and a recreation is required to explain a subject. The researcher opted to explore military history to further pinpoint any processes that have been recorded.

2.2 Museums and the Representation of Wars

The researcher asserts that a museum is the best setting to promote discussion on military issues and provide visitors with access to sensitive material. Winter (2012) describes museums as the cathedrals of the twenty-first century because they have filled the void left by traditional churches as a place where mixed populations of various or no faith, of various origins and beliefs, confront and reflect on sacred

themes such as sacrifice, death or mourning. He says that war not only belongs in museums, but it also takes up most of the museum's floor space. He maintains that war is semi-sacred and should be displayed in a museum. In light of the conventional churches' waning influence on our moral lives in many parts of the world, he asks the reader: 'Where else can we find a forum for posing difficult moral questions about war? We are able to ask questions in museums that the clergy and the liturgy are unable to answer' (Winter, 2012, p. 150-163).

Keene (2005) discusses the widespread misconception that the main goal of military museums is to glorify or remember war in order to represent the history of the nation-state. She asserts that while some military museums still act in this way, others take a more welcoming stance. Most offer venue support and lend items to commemorative events, but they also enable much more intimate and personal memorialisation. She notes that an increasing number of people go there to find and view items connected to their kin. According to Keene, some museums also gather people's personal memories, or "war stories," through written, sometimes verbal, or recorded memories. People who offered memoirs frequently believed that their contributions were too minor to be of general interest, but in the museum, they felt as though they were part of a larger whole and that their unique testimonies were extremely valuable. Keene (2005) concludes that historically recorded events, particularly those involving war and conflict, are frequently updated and reassessed. A foundation in tangible evidence is provided by personal testimonies and objects (p.95).

War and the topic of collective memory are related. In a case that exemplifies the effects of collective memory, Xuereb (2021) looks at the pivotal conflict between the Maltese patriots and the French in 1798 (the Blockade) and how this sparked a narrative that has shaped perceptions and interpretations in the media up to the present day. According to him, memory has become a major concern for sociologists, historians, and intellectuals all over the world over the past twenty years and discusses the builds on the research that Western academics have conducted on forgetting,

remembering, and forgiving. The fact that Malta did not go through atrocities like the Holocaust does not negate the traumas of hunger, loss, and property destruction during the war (Xuereb, 2021, p.ix-xvi). In this regard, while watching a multi-media tourist show in Valletta, Frenco (1998) says he was impressed to hear how the Order of St. John surrendered Malta to the French "without a single shot having been fired." This, he says, is an example of collective memory that is presented to the public and one of the false impressions that many people still hold (Frenco, 1998, p.144).

2.3 The Museum Visitor

Interpretation is the art of communication and provokes the visitor. When museums know their visitors, they can communicate effectively and provide unique experience to their visitors. Unfortunately, not all museums have the means to study their visitors.

In this regard, Falk (2013), with one of his graduate students Katie Gillispie says that the role of interpretation acting as a communication tool is of prime importance leaving a mark on the visitor's memory. Falk (2013) contends that there appears to be widespread agreement that visitors to museums can be divided into five main categories which assist in developing a better design plan for interpretation and offer insight into how to enhance the way museum exhibits are presented or how well docents lead visitors around the galleries.

The contemporary museum is eschewing the conventional showcase in favour of a more philosophical approach to interpretation. The first four principles by Tilden (1957) are mainly focused on providing assistance with the design and production of an exhibition topic, a collection display, or just the artefact by itself. The use of augmented reality, 3D printing, and the digital world can help viewers step into various dimensions. Smart interpreters can use graphic design, models, dioramas, and the audio-visual to achieve their goal, especially when there is no actual artefact, or the event is challenging to tell. Interactive displays further improve the experience.

Dioramas can be used in exhibitions as anchoring points to relate past experiences, knowledge, or interpretation of the artefacts on display at a museum, according to Falk et al.'s (2008) observation that dioramas are a potent catalyst and underutilized educational source.

According to these investigations, the researcher agrees that interpretation is the art of communication that provokes the visitor. In his opinion, these arguments reveal the different identities of museum visitors. Although it is challenging to categorise a museum's audience because each visitor has distinct expectations, scholars have tried to categorise museum visitors based on their cultures, gender, age groupings, and political or religious beliefs. The researcher used these tests by Falk and Tilden to determine how various visitors could respond to information about the conflict. Falk's studies concluded that each person's expectations influence how they perceive their visit. This thesis will examine whether the military diorama is leaving an impression on visitors.

2.4 The Diorama as a Stimulator of Imagination

'Information, as such, is not Interpretation. Interpretation is revelation based upon information. But they are entirely different things. However, all interpretation includes information'. (Tilden, 1957, p.18)

Tilden's observation is based on his principle that information alone does not stimulate the museum visitor to imagine and understand but interpretation will reveal that information and encourage the visitor to think and imagine. Tilden argues that through interpretation, there is understanding and through understanding there is appreciation (Tilden, 1957).

Apart of the information gathered through research which was translated into dioramas as a three-dimensional tangible object, dioramas can be made to reveal further important information that through written sources and illustration is hard to communicate. A diorama can follow Tilden's statement in the form of a visual representation to understand and value information.

2.4.1 *The Art of Communication*

In the researcher's opinion, the extent to which designers, artists, and scientists went to create dioramas for museums is a topic that needs more investigation. The visitor may be introduced to the topic through the use of stories and a diorama is a representation of reality, just as a museum artefact is an example of reality (Reiss & Tunnicliffe, 2011). Dioramas create a scene by simulating an event in still life and the artist experiments with various materials to fool the spectator, using resin for water and wax to make leaves. Dioramas can even turn into objects of desire (Fischer, 1926; McCormick, 2002a). Buckley (1953) investigates how exhibits motivate visitors to learn, want, or move on to the following galleries. He argues dioramas may be an expanded picture of concepts that help the spectator grasp and make up their own stories and the need for interpretation highlights the significance of the information that can be gleaned from them (Buckley, 1953b). When the interpreter is formulating his idea to make the exhibition of any museum object tell a story, these analogies cannot be ignored.

2.4.2 *Dioramas Within Museums*

Established as a form of exhibit in a museum, dioramas accept both a cultural and scientific implications, predominantly in natural history museums. McComas (1941) states that dioramas can facilitate communication with the visitor, and exhibit developers seek to motivate the visitor to understand the meaning, message, or association. The diorama is still a relatively new objective aid and there is no common agreement amongst museums about the exact scope of the use and term of the diorama; some museums were enthusiastic about the results achieved with the use of

dioramas whereas others did not feel that dioramas were sufficient compared to actual objects in the study of collections.

Since the word "diorama" means "to see through", it can take viewers to various locations and eras. Studies show that both adults and children find dioramas appealing, and they can be used to celebrate a variety of childhood memories. Researchers have found that dioramas can be used to teach, but there is still little research in this area. The majority of academic studies have been conducted with a focus on science learning, particularly biology. Even though it is limited to only one subject, the method used can be applied to understand how other classes of dioramas convey information to viewers without being pedantic (McCormick, 2002b).

2.5 Can Science and Artistic Licence Coexist?

When discussing museum dioramas, the majority of the academic research focuses on habitat dioramas. According to Quinn (2009), the "classic habitat diorama" is made up of three artistic components: taxidermy specimens, a foreground of various flora and habitat, and a curved background painting to suggest "space, distance, and environment." (Schwarzer, 2009). According to Reiss and Tunnicliffe (2011), a traditional diorama is one that is enclosed in a specific place with a constrained perspective, is situated in three dimensions, and has a painted backdrop. Roberts (1998) says that using the cabinet of curiosities, natural collections, and educational guidelines, habitat dioramas were a textbook example of how to use specimens to convey a narrative. Moreover, dioramas of natural history have long been acknowledged as potential educational resources because they keep many visitors' attention and permit them to create stories about the events depicted in the diorama (Reiss, 2019).

Livingstone (2015) believes that the best habitat dioramas evoke the feeling of a visitor stumbling upon a moment frozen in time whereas Kamcke and Hutterer (2015) describe them as a new way to view landscapes with the eye of an artist by taking

beautiful and sublime elements from the natural world and arranging them to create a work of wonder. Scheerso and Tunnicliffe (2019) also compile a number of papers by various authors about the purpose and role of habitat dioramas as educational tools and believe that natural history dioramas are one of the genres of museum exhibits that are most effective for the teaching and learning of many aspects of biology and other various fields.

Kerby et al. (2017) also argue that critics like Donna Haraway (1984–1985) dismiss dioramas as trophy rooms for affluent, white Western men. Other observers describe them as a "charming throwback," "spooky," or a "dated anachronism," less aggressive but no less dismissive (p.358). They say that military dioramas, which place a strong emphasis on presenting notable victories and national historical moments, can frequently come off as being out of touch with contemporary sensibilities (Cornish et al., 2022).

Studies, which often focus more on habitat dioramas, pay comparatively little attention to military-themed dioramas. Kerby (2017) asserts that institutions with funding and support for the genre are unlikely to think about commissioning new dioramas. Some museums have attempted to modernise their dioramas by including interactive and multimedia elements, but it does not seem that this has happened to the majority of military dioramas. They may have been shielded by the conservative nature of the institutions housing them and the debate over how tastefully images of death and destruction can be "enhanced" by technology (Kerby et al., 2017). In this regard, New Zealand's Te Papa's Museum exhibition "Scale of Our War" takes a creative approach to depicting war through artefacts, models, and an immersive experience that may lead to a creative leap in the future.

Although ecosystems and science were the main topics of interest, the researcher's findings on habitat dioramas persuaded him that the scope of their creation and their

ability to engage viewers are advantages for constructing any form of diorama. Other dioramas, like those that show the military, prefer to use a scale rather than life-size objects to convey a dramatic statement. Unlike environmental dioramas, scale can be employed to convey information and draw viewers in while retelling war stories without necessarily requiring the addition of a life-size human figure. The diorama's message of knowledge and science continues to be attractive to spectators through creativity and artistic licence.

2.6 Diorama in the 21st Century

Even in the 20th century, there were already discussions on how some curators thought dioramas were no longer useful tools for independent study (Wonders, 1993). However, the majority of the literature on dioramas makes the assumption that they are valuable both as educational tools and as visitor attractions but based on the researcher's professional experience of working in a museum, he wholeheartedly concurs with Ludwig (2017) that the efficacy of museum dioramas has not yet undergone a thorough analysis.

However, newer web and social media technologies hold great promise for further interpreting dioramas, both off and on site (Schwarzer & Sutton, 2009). There are more opportunities such as Google Maps and global positioning systems (GPS), which enable users to zoom in on original locations or creative commons images and let users share historical and contemporary images while overlaying them on a map and linking them to multiple websites at once. Digital technology expands our understanding of geography and place, and two-key components of dioramas, in addition to giving us new ways to share information.

Even though most studies are focused on habitat and use a scientific methodology, they are still pertinent to this research. Academic research on military dioramas is far more constrained. Most of the academic research has been conducted using life-size

models rather than miniature dioramas. The researcher firmly believes that he has identified a gap, particularly in a Maltese context, based on the literature review that is currently available. In this thesis, the researcher explores additional methods for creating a narrative diorama, from creation to presentation, all within the framework of a Maltese museum. Since this study is focused on a local situation, the researcher is interested in and concentrates on how specific subjects can be presented in museums while considering post-colonial perspectives and collective memories of specific historical events that occurred in Malta. Models and dioramas have been a part of the collection since the national museums first opened to the public, but only a small portion of them have a military theme. Using the French Blockade of 1798–1800 as his topic, the researcher assesses the potential for creating the ideal presentation to display a military diorama in a Maltese museum.

2.7 The Art of Model-Making

Since the miniature diorama served as the focus of these studies, it is important for the researcher to have a basic understanding of scale and scale modelling. Models have the power to bring our imaginations back to life and being a three-dimensional form, lend themselves to creativity and discovery outside of sketching and painting, and take learning into another realm (Bayley, 1938). Models are of great importance to the architect, sculptor, designer, and other experts and are a visual medium and a way for the builder to convey ideas to the audience (Van Gils, 2020).

Despite having these features, a standalone model is still only able to be what it first appears to be: a small reproduction of an actual thing. Any model changes once it is in a setting and becomes a component of a three-dimensional image. The context provides a frame of references that enhances the model's relevance and meaning, creating a diorama. Paine (1980) claims that, “Dioramas do not imply a story in a narrative sense, it’s simple means can show something going on. Dioramas are not just a group of models, but an event. An event that can be active and obvious” (p.2).

Numerous institutions are still debating the merits of the diorama, and Maltese museology is shifting in favour of an emphasis on the visitor experience. The purpose of this study is to determine whether dioramas are still effective as a teaching tool for understanding cultural heritage in the twenty-first century.

2.8 Historical Background and Values of Dioramas Within Museums

One of the earliest three-dimensional models ever discovered is on display in a small showcase at the Malta Archaeological Museum (Figure 1). Although models have been found, such as soldiers and ship models in Ancient Egyptian tombs, this one is older. This small stone carved model is only 4.5cm long and depicts a typical prehistoric 'temple' building. This model (MG/S1, object no. 12951) solved the mystery of how the well-known Megalithic buildings appeared and were roofed. According to Trump (2002), this model could be a representation of *Mnajdra's* smallest, eastern 'temple' (Trump, 2002, p.192). To the researcher, this already demonstrates the relationship between models and Maltese museums; in addition, there were a few dioramas on display (Figure 2), some of which date back to 1918 (Museums Department Annual Report, 1904-50).

Some argue that dioramas became sterile museum relics that were simply added to a collection. Some academics questioned if curators selected them for inclusion in a collection more for their worth as antiquated pieces of art than for their status as models. It is thought-provoking to learn how and why models and dioramas infiltrated museums, even though the first museums and cabinets of curiosities were collection focused. To comprehend more, the researcher investigates the history of the story-telling dioramas found in museums.



Figure 1 – The Megalithic Model, 3800 - 3000BC (Heritage Malta)



Figure 2 – The 'Temple' Dioramas, Auberge d'Italie, The Valletta Museum. (Heritage Malta)

2.8.1 The Panorama

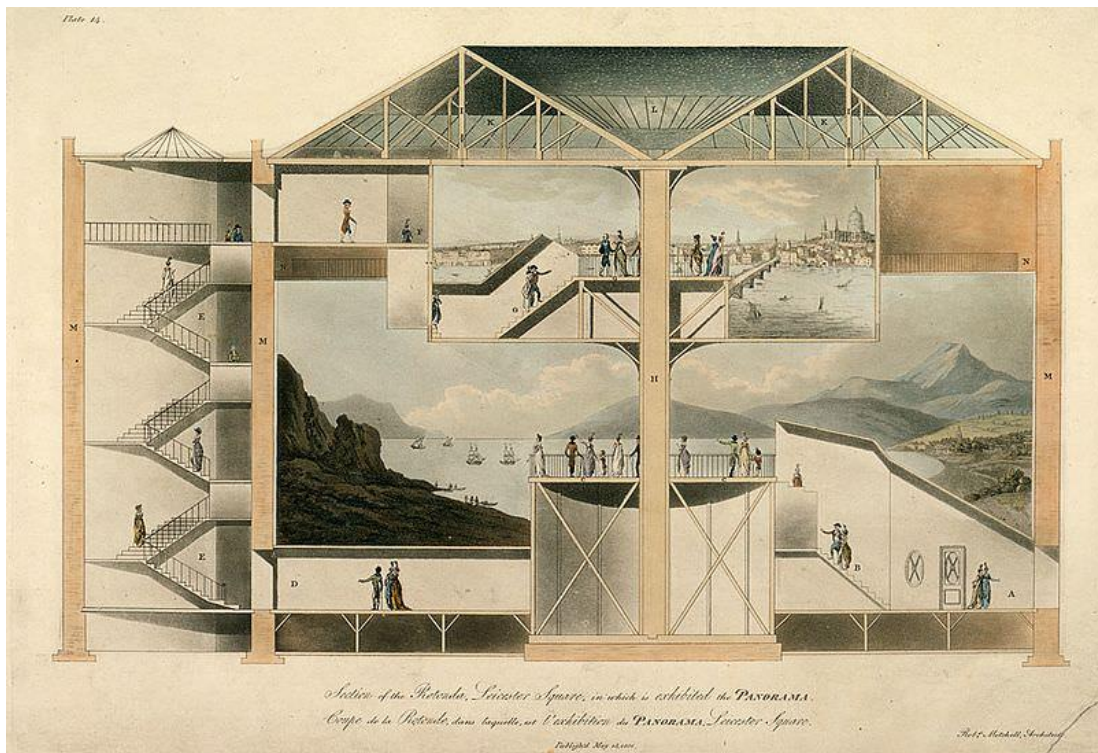


Figure 3 - A cross-section of the Leicester Square Rotunda, where Panoramas were on display. Aquatint by Robert Mitchell, 1801 (British Library)

A new type of exhibition known as the *Panorama* was created around the turn of the eighteenth and nineteenth centuries using an illusionistic fusion of art and technology. The panorama, (Figure 3) which was constructed inside a rotunda, projected a sizable image in a small area by utilising optical concepts such as tilted planes, curved painted backgrounds and altered object scales to support the sense of false perspectives. A vast scene made up of enormous circular paintings that could be viewed from one central location was intended to be portrayed using this novel technique. (PanoramaXXL, 2022a). The initial panoramas were a tremendous hit with the general people, leading Baker to patent the idea and also, to its spread to other significant towns in Europe. Given that this technology was created during the Industrial Revolution, panoramas gave users a place to escape to a fictional setting (Kamcke et al., 2015). Additionally, propaganda and politics gained popularity, and numerous panoramas began to depict significant battles by the victors (Figure 4). Exoticism and

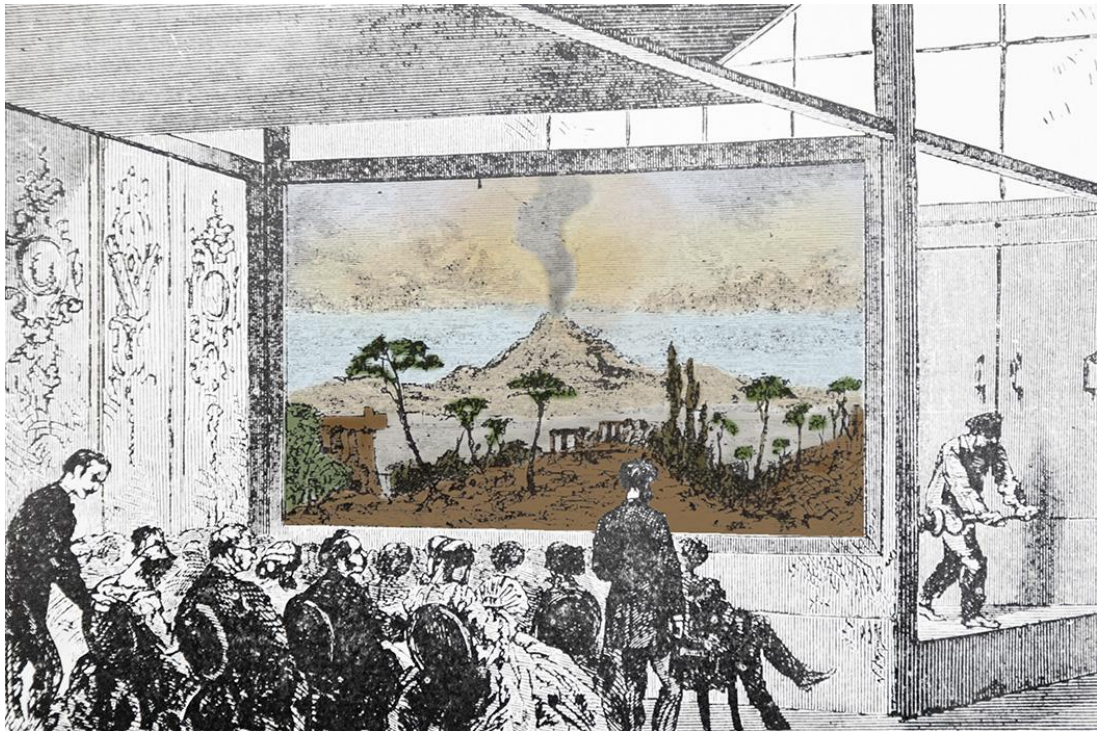
far-off landscapes became predominantly popular in the nineteenth century to promote travel and colonialism in particular countries (PanoramaXXL, 2022b).



Figure 4 - Belgium's Waterloo 360-degree Panorama is one of the few still on exhibit (www.mirror.co.uk)

2.8.2 The French Golden Age

The Panoramas established Paris as their hub. However, the stillness of panoramas inspired two Parisians, Louis Jacques Mandé Daguerre (1789–1851) and stage painter Charles-Marie Bouton (1781–1853), to concentrate on capturing movement – their invention was called the ‘Diorama’, and it was developed from panoramas. This creation stayed true to the word's Greek etymology because *di* means ‘through’ and *orama* also means ‘to see’ or ‘to be aware of’. The first dioramas were large paintings on transparent canvas made with an opaque or translucent paint and displayed in a dark room. The source of light came from the back or front of the canvas and was controlled by coloured apertures. The audience witnessed an atmosphere of moonlight to sunlight created by lighting effects (Figure 5). Deguerre's methods were kept a secret, and the invention came to an end when his diorama was destroyed in a fire in 1839 (Kamcke et al, 2015).



*Figure 5 – The innovative diorama by Daguerre and Bouton
(The Patrick Montgomery Collection, Object No. 2009.289 from www.lumious-lint.com)*

2.8.3 The First Dioramas Within Museums

The first dioramas were displayed in museums in America during the nineteenth century. This century also saw the introduction of new techniques in taxidermy, allowing taxidermists to create life-like animal dioramas. The habitat diorama was created by putting these specimens in enclosed spaces and viewing them through a single window (Schwarzer et al, 2009; Rogers et al, 2019). The Muskrat diorama (Figure 6), a signature of Carl Akeley, was created in 1889 at the Milwaukee Public Museum. It featured a colony of muskrats doing real-life activities; this style was imitated and named the “Milwaukee Style” and revolutionised the way dioramas were presented (Schwarzer, 2009).

Habitat dioramas use artistic elements to draw the viewer's attention and convey the scientific message. The creators attempt to add detail and varied species to create an ambience, even though the grouping and surroundings are condemned by some

scholars as being "unnatural." If organised appropriately, the observer can be given a viewpoint of the ecosystem in question (Buckley, 1953; Honan, 1990).



*Figure 6 - The Muskrat Diorama by Carl Akeley, built in 1889.
This habitat diorama completely changed how a museum diorama is displayed.
The Milwaukee Public Museum, USA (www.radiomilwaukee.org)*

2.8.4 Challenges the First Dioramas Faced Within Museums

Dioramas came under fire for being unrealistic, depressing, or overly dramatic. Criticisms ranged from the philosophical to the practical. Since they required ample space for chosen collections, curators were ready to invest in creating object-oriented dioramas based on collections on display in museums. Scientific truths were often sacrificed in favour of aesthetic licence in some dioramas, such as the recreation of "totally fictitious nuclear families" to mimic human behaviour when it was not present in the animal kingdom (Reiss & Tunnicliffe, 2011).

Since they preferred original objects, some museum curators were also hesitant to use dioramas for interpretation. Some curators contend that traditional artefact displays on shelves are a pure form of museology than dioramas (Schwarzer, 2009). However, according to Buckley (1953), the animals on display appeared to be "dead," but the viewer is given a different message because the animals are shown in the context of their habitat. Even when viewed through glass, the exhibit still aims to inform, amuse, and capture the viewer's imagination. He contrasts the basic idea behind the approach between a habitat diorama and a window dressing for a store. A museum diorama display is meant to draw attention, but it also represents permanence, unlike a shop, which aims to entice passers-by with the desire to own what is displayed but is forgotten once the item is purchased (Buckley, 1953). When discussing habitat dioramas, Chicone and Kissel (2014) narrated, "Stories of natural history are worth celebrating." They point out that when viewing art, each piece can be interpreted differently, and dioramas play the role of informal educators inside a museum because they precisely intersect art and science.

The author observes that similar dynamics hold true for all dioramas, even though relevant academic research has been conducted to date with a particular focus on habitat dioramas. Given that miniatures were not even envisaged at that time, space is another issue to consider.

2.8.5 Dioramas as Means to Communicate Information

The communicative power of dioramas stands out among their many other attributes whether they are created for museums or by amateur artists and artisans. This research has shown that it does not matter where something is located within the communicative aspect because it remains there permanently. Mifsud (2009) studied a group of elementary school students and used observational research to learn what they thought of the dioramas displayed at the Malta Natural History Museum. His study revealed that most students still drew the animal that captured their interest days after they first saw it. Borg (2009) expanded on how students from more

urbanised areas might react differently than those from rural communities like the one Mifsud studied. He emphasised that even on a small island like Malta, the differences between the various communities can be seen, and that dioramas can help the viewer discover new territory or provide opportunities for exploration for those who are already familiar with the local culture. These two studies demonstrate the potency of dioramas, even the most basic ones, in helping young visitors retain what they see since they are three-dimensional objects.

The diorama likely offers the most impartial evidence of reality in its natural setting, barring first-hand experience. A picture or even a rare model can generate the same perception since these tools do not adequately depict space relationships. Pictures on flat surfaces do not put the viewer close to the spatial elements of a setting that enable the diorama. Since the observer finds it harder to picture themselves as a participant in a picture relationship, it is less objective and much less real to them. The diorama adds a third dimension to quality teaching (Gouget, 1942, p. 232-235).

According to Reiss (2019), dioramas of natural history hold the attention of many visitors, regardless of their age, level of knowledge, or previous experiences, and they allow them to create stories about the events depicted in the diorama. Additionally, Sterzuk and Mullholland (2011) provide a theoretical analysis of a heritage diorama that shows Great Plains Indians as "White settlers" might have perceived them. They assess the current situation to better understand how curriculum and pedagogical practices produce dominant and dominated racial perspectives in Saskatchewan. The development of curatorial methods used in Western museums can be linked to the history of the diorama as a teaching tool. The diorama's design is reminiscent of artefacts on display in museums, which are employed to disseminate information about a world that serves as a continuation of dominant national narratives (Sterzuk, & Mulholland, 2011).

The arguments shed light on the diorama's educational potential. A diorama can be the perfect tool to tell a different perspective if the institution is trying to restore historical elements that were tarnished by post-colonial syndrome or collective memory, but it must be addressed by a curatorial mission statement because every historical passage can be interpreted differently.

2.9 Interpretation of War in Museums

Dioramas, especially those found in military museums, are perhaps expected to serve as all-encompassing displays more than any other type of museum exhibit. To justify their use as an explanation tool, they must be accurate representations of history. However, to thrive in the contemporary museum environment, they must also be artefacts or works of art that are adaptable enough to change with shifting fashions and public perceptions. Diorama artists, however, are constrained by three seemingly incompatible strategies: portraying a single moment in a complex event, condensing timelines to show multiple moments, and producing a fictitious, generic representation of a battle. Scale is another issue, as the more of a battle a diorama depicts, the less it can convey the unique human experience of conflict, as seen in Figure 7, which contrasts with the horrors of war revealed in a life-size diorama shown in Figure 8. The thought that this approach to dealing with personal trauma is problematic is because while great battles have historically been associated with national conquest, modern war is increasingly seen as a force that destroys civilisations rather than serving as a catalyst for the development of the nation state (Kerby et al., 2017a).

Kerby (2017) argues that the ability of habitat dioramas to inspire awe does not deflect criticism. The claim that they are "high art," "science," or "history" is further contested using miniature figures and the ensuing association with children's toys (p.359). Insley (2008) contends that this perspective ignores the nuanced differences between habitat dioramas, which "aim to trick their audience with an illusion of reality," and



*Figure 7 - Model of the field of Waterloo made by Captain William Siborne
(NAM. 1975-05-56-1)*



*Figure 8 - Section of a life size war diorama, Pobeda Victory Museum, St Petersburg, Russia.
(A.Maltsev from www.rferl.org)*

human dioramas, whose goal is to "convince rather than deceive" (Kerby et al., 2017b, p.360).

2.9.1 *When Dioramas are Controversial*

The British Army commissioned Captain William Siborne to create a model of the Battle of Waterloo in 1830 (Figure 7), a diorama which was over 8.33 metres by 6 metres long and contained over 70,000 miniature tin-lead soldiers. However, it was deemed inaccurate due to its potential to give too much attention to the Prussian army's entry to the battlefield and undermine the Duke of Wellington's claim to be the primary victor. Siborne struggled to sell his masterwork as a result, and only succeeded years later when he changed the diorama to emphasise a British victory (NAM, 2021).

Siborne's diorama is a popular attraction at the National Army Museum in London, but its accuracy is questioned when used for research or historical interpretation of the illustrious battle. Major General James Cowan, a trustee for Waterloo Uncovered, decided to build a new version that incorporates cutting-edge research and archaeological data to provide a clearer picture of the battlefield. A team of top-tier archaeologists, university staff, model makers, and experts were assembled to produce new insights into the historical Waterloo battlefield and the appropriate regiments involved. This diorama is intended to be more precise than Siborne's version, and a bigger scale is being used to reveal more details. Although the project is still ongoing, the National Army Museum debuted the diorama's first finished section in 2021 (Waterloo Uncovered, 2021).

2.9.2 *Using Artistic Licence to Interpret a Dark Period of Military History*

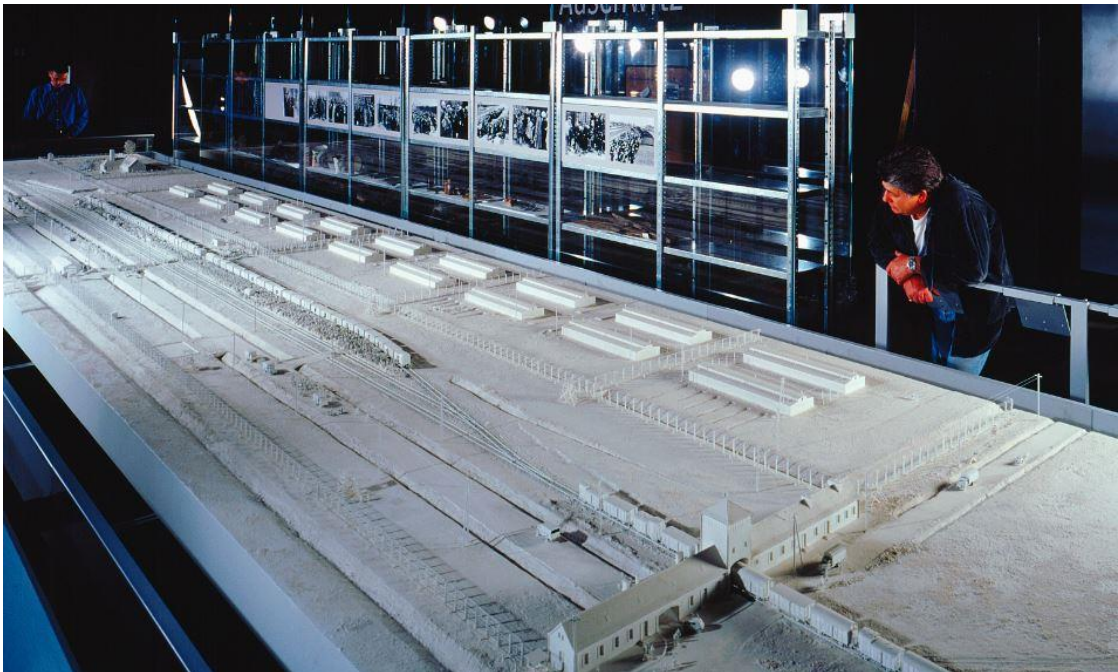
Detail, particularly in miniature dioramas, can be considered cute, but it is not always within the learning capabilities intended by the museum's message. To address this issue, artistic licence can be used. Certain design aspects, such as the use of the colour black, dim settings, and small passages, are particularly prevalent in exhibits that cover

sensitive subjects like the Holocaust. Frequently, these components have symbolic importance because they affect how visitors feel (Popescu, 2000a). According to Holert (2016), the way the miniature model of Auschwitz at the Imperial War Museum in London was delivered managed to scale-down and trivialise the serious content (Holert, 2016). Despite its massive size, the display managed to convey a clear message and emotion. For their new Holocaust Gallery, in 1999, the Imperial War Museum commissioned designer Gerry Judah and model maker Ben Taggart to create a simple block representation of a crucial section of the camp. The entire story and purpose of the camp were laid out in a single tableau. Judah's model depicts each episode of the prisoner's experience at the same time. It is on display in a dimly lit space filled with artefacts and filmed survivor interviews. For each event, time has stood still, and the museum visitor sees the train entering the camp; then, the same train on the ramp followed by the prisoners being grouped by sex and fitness to work; and finally, the same prisoners walking to their execution site (Figure 9). This diorama was painted in monochrome grey to give the impression that the entire piece, with its many thousands of components, stood as one entity, almost as if it were carved from a single block.

Design elements play a part in creating this impression. The model is placed near the back of the exhibition, is well-lit, and takes up a substantial amount of the dark room (Figure 10). Visitors are further convinced that it is worthwhile to spend more time in this area with chairs that are turned on their sides. The model's whiteness and well-lit design aim to emphasise that Auschwitz is a crucial Holocaust event that merits special attention. It was so effective that visitors described this model as 'one of the most memorable aspects of the exhibition' (Popescu, 2000b, p. 231).



*Figure 9 – Detail from the Auschwitz Diorama, Imperial War Museum, London
(www.modelhouses.co.uk)*



*Figure 10 – In Situ, The Auschwitz Diorama Display, Imperial War Museum, London
(www.modelhouses.co.uk)*

2.9.3 Remembrance

A bicultural interpretation of the new museology and the principles of the Treaty of Waitangi served as the foundation for the New Zealand Te Papa Museum - gallery. Te Papa changed its mission from "being about something to being for someone" as critical commentary was minimised. Despite being ingrained in popular culture and the fabric of the nation, the museum's coverage of the country's involvement in the war was lacking when it reopened in 1998. However, Te Papa entered a partnership with an outside firm that had creative control over a social history exhibition as it began work on an exhibition to commemorate the 100th anniversary of the First World War. The Lord of the Rings movie trilogy's prop-making company, Weta Workshop, collaborated with Te Papa to develop the exhibition. 'Gallipoli: The Scale of Our War' is a collaboration between the worlds of movies, model-making, and museums. Weta director Richard Taylor suggested using larger-than-life characters based on real people whose stories would serve as the narrative's main focus. However, the enormous sculptures doubled as storytelling devices, and as a result, the plan subverted the common perception that a museum serves as a repository and interpreter of authentic artefacts. Huge hyper-realistic human models set in a diorama were interpreted by curators and audience advocates using the same framework as other components of the exhibition's visitor experience. (Figure 11). To elicit empathy with the many different human emotional experiences that were inherent in these stories, authentic first-hand accounts were used whenever possible. Additionally, a multisensory experience was used to explore these stories and emotions through a variety of senses and modes. These principles involved helping visitors make a connection between their personal story and that of the exhibition and experience. Gallipoli is the most visited exhibition in New Zealand history. Weta's cutting-edge technical know-how combined with visitor-centric "new museology" and meticulous historical research continues to be popular (Ross, 2022, p. 210 -225).



*Figure 11 - Final details on one of the vignettes from Gallipoli: The Scale of Our War
(www.tepapa.govt.nz)*

These three topics were chosen by the researcher for three specific, well-received military dioramas in museums because they blend controversy, art, and history, have a pedagogical function, and arouse strong emotions in the audience. These dioramas did more than simply enhance the historical exhibits; they also provided context and heightened the impact of the other museum artefacts. Thanks to the use of scale and isolated historical events or battles, these dioramas continue to be strikingly contemporary in terms of theme, if not always in the medium. It is also intriguing how this selection of war themes succeeded in evoking memories in viewers even outside the context of a military museum.

Additionally, these three topics were chosen to explore what other museums had already constructed and how they integrated the dioramas into the museum experience. War topics were purposefully picked to examine how the issue was understood to engage the audience. For this research, it was important to take into

account and use the historical subject matter, collective memory reflections, and the use of scale and art as guidelines to convey the message.

2.10 Other Forms of Storytelling Dioramas

2.10.1 Hobbyist Dioramas

Scale models have been used throughout history to depict a variety of objects, including military formations, prototypes, and more. Before Revell (USA) and Frog (UK) pioneered the use of plastic to build their own model kits in the 1930s and 1940s, the majority of commercial models were built of wood. Although there have been ships in bottles since the 1700s, it wasn't until the 1950s that plastic replicas gained popularity. The scale model revolution is typically credited to Lewis Glasser of Revell (USA) and Nicholas Kove of Airfix (UK), who chose to use their injection-moulding techniques to make toys that were then sold to a manufacturer in parts. After seeing the popularity of these disassembled plastic toys, both enterprises began producing scale-model kits of ships and airplanes and released them into the market. While the original manufacturers were primarily focused on making a profit, new model companies emerged (such as Monogram Models from the United States, Tamiya from Japan, Academy from Korea, Esci and Italeri from Italy), and they produced expertly crafted model sets (kits) that adhered to standardised scale requirements based on a variety of different vehicles, such as airplanes, tanks, cars, ships and model soldiers (Buck, 2018).

Model soldiers have a long history, with a popular topic among hobbyists. The life-sized terracotta warriors made for the first emperor of the Ch'in dynasty to the collection of small white metal model soldiers possessed by Czar Nicholas I of Russia show how well-liked and popular these models were. In the 19th and early 20th centuries, British companies and other manufacturers used mass production techniques to make miniature soldiers more affordable. The 'Historex' boom of the early 1970s saw the introduction of detailed plastic kits, mostly of Napoleonic subjects

made and produced in France, which broke with tradition and infuriated the conservative artisan. This led to the emergence of the Master Modellers, who lacked traditional artistic training and instead, honed their artistry through many hours of methodical experimenting (Smith, 1997).

2.10.2 The Game Changers

Monogram Models released their first range of military vehicles kits in the 1970s by including tip sheets with each box that featured the same model in a diorama. This was created by military historian and master modeller Sheperd Paine, who was inspired by his precise, often brilliant, and inventive settings. Monogram requested Paine to fill a void in the modelling world for aviation enthusiasts who don't frequently construct dioramas. From this experience, Paine wrote a book called '*How to Build Dioramas*' that outlined a set of guidelines for modelers to follow while making narrative dioramas that need no introduction or title to be explained. (Paine, 1980a).

Francois Verlinden, a Belgian modeller, was the first to make mass produced accessories for scenario creation. His design aesthetic became known as the 'Verlinden Way'. As a result of his innovations in the hobby sector, dioramas were increasingly popular in international modelling competitions. This led to the emergence of the internet and the development of websites like Missing-Links, which enabled modellers to communicate, share ideas and skills, and display designs, allowing for a more intimate method of content and friendship exchange on a global scale (Frisch, 2018).

2.10.3 Definition of Dioramas According to the Model Maker

According to Marijn Van Gils (2019), a scale model communicates a notion from the creators. As a scaled-down representation of reality, it provides insight into what is real. Scale models may convey more than just aesthetics and technical details; yet, if placed in a context, a model is transformed. The diorama becomes three-dimensional and just as instructive and vibrant as a photograph. The setting of a vignette or

diorama is put into perspective, and the context provides a frame of references that amplifies the model's significance and meaning. A stand-alone model cannot provide the context and perspective that a diorama provides (Van Gils, 2019).

Moreover, some dioramas merged with the classical habitat dioramas inside museums, placed as a scene within a box that can be seen via one opening. Due to their limited size, electrical lighting is used to spotlight and create effects, a technique termed the Shadow Box Diorama or Box Diorama. Simple as it sounds, this was rather complicated to create and required skills and technical expertise. Box dioramas also constrained the observer to a limited context, so hobbyists came up with a novel approach of 'open dioramas' that would allow their project to be viewed from a variety of perspectives by doing away with the "box" and background. The diorama was enhanced from several perspectives. However, according to Paine, there was still another skill needed to tell stories and animate the static models (Paine, 1980b).

Paine founded his opinions on the scientific framework and imparted the concepts and ideas that the Renaissance artists had devised to dramatise their sculptures and paintings. Therefore, the storytelling approach was discovered to be quite beneficial for the ideal diorama-setting even in the hobby of model makers (DeRogatis, 2008). Dioramas are popular, but not every modeller is skilled, and few can truly capture the setting. Most of these dioramas are set against the backdrop of war stories. Many modellers start their representations of war with fighting and destruction as is customary, but many more find that they can also include calmness, daily life, or poignant events, like a soldier reuniting with their family after the war, to arouse strong emotions. The influence that popular culture and collective memory may have on how the diorama is perceived is another intriguing aspect. Some hobbyists find it simpler to design just the setting for their model, which acts as the focal point, rather than creating a narrative scenario (Van Gils 2019b).

Van Gils (2019) suggests that the model maker must create an atmosphere that elicits strong feelings in the viewer and direct the viewer's eye to the right places to help them understand the story. He uses the word "atmosphere" to refer to the emotions the modeller wants the viewer to experience. He emphasises that while a battle scene may depict the action clearly, it lacks the emotions that make a battle feel authentic. The modeller must make sure the viewer recognises the crucial cues in the model before the viewer loses interest. The diorama must make a good first impression so that the viewer will continue to look, and it is important to comprehend what the viewer sees from that first impression (Van Gils 2019c).

These contributions, according to many seasoned scale modellers today, are what gave dioramas their appeal. Models have always been a source of knowledge, but the diorama goes beyond the documentation and study that goes into making a model. Apart from the knowledge and attention to detail that miniaturists are known for, hobbyists have continued to advance their talents and have even begun employing more creative abilities to capture the interest of the observer. According to Fritz (2019), technical models tend to lose value as they get older because of advancing technology and shifting styles. A storyline in a model significantly reduces that impact. The model in a diorama is still useful if the context is presented effectively. The viewer must be able to "read" and comprehend the story for the diorama to function. According to my interpretation of the research, the fundamental building blocks of a miniature diorama are still comparable to those that have been tried and true in dioramas found in museums. Diorama artists struggle to 'create seamless illusions of reality' but are constrained by three seemingly incompatible approaches: representing a single moment in a complex event, compressing timelines to show multiple 'moments', and the creation of a hypothetical or generic representation of an event. Grappled with these issues, one must position diorama planning uneasily between art and history. It is noteworthy that research on museum dioramas has never examined the artist's concept of communicating their message to the viewer, and that one can better understand how things are done by relating to hobbyists.

2.11 The Role of Dioramas in the Contemporary Museum

After receiving the information on how miniature artists monitor the effects of change to communicate the message to the audience, the researcher went back to the museum exhibitions. Dioramas were developed at the Oakland Museum in California in the late 1960s to keep them contemporary with current standards. The traditional habitat dioramas with specimens from Africa and the Arctic were on display in the museum when it first opened in 1926. A group of environmental scientists was hired to redesign the natural habitat exhibits as it planned the construction of a new contemporary facility. Dioramas now tell a story across local geography rather than displaying a collection of disparate snapshots of time and place. Experiments with interactivity shifted from object orientation to experience orientation, with the Milwaukee Public Museum and the Royal British Columbian Museum in Canada pioneering the removal of the glass barrier in 1970. The first immersive encounters were launched. Some institutions were intrigued to experiment with interactivity (Chicone & Kissel, 2014).

Kitchener (2019) demonstrated his strategy for incorporating technology to add interactivity to a static diorama. Interpreting dioramas can be difficult because viewers tend to focus on the "big picture" and may try to use their prior knowledge and experiences to make sense of what they are seeing. Visitors may also attempt to interact with other formal interpretation techniques, though, to satisfy their curiosity or verify their identity. Several habitat dioramas at the Museum of Scotland required identification in order to help visitors. In the diorama, labelling can sometimes be ineffective and interfere with visual communication. Instead, Kitchener used a touch screen on the display that displayed the corresponding image of the diorama. A person could access basic information by touching any specific specimen from the provided image on the touch-up screen thanks to its interactive design. Additional buttons led to additional pop-up screens that revealed more information without overwhelming the viewers with it all at once. Instead, they gave them the option to continue exploring at their own pace. By simply "touching" the specimen, the visitor could interact effectively since the software was created to make it possible for the viewer

to quickly identify the specimen by tapping on it. This system encouraged users to engage more deeply with the exhibits. The interactive device that was selected was small and did not obstruct the visitor's view of the diorama, and the software that was generated was specially created to enable in-house editing and updating by the curatorial staff (Scheersoi & Tunnicliffe, 2019).

A significant issue regarding models and dioramas is that some curators still view them as an anachronism, and that the advent of augmented reality/virtual reality and photogrammetry-modelling in the digital era has rendered traditional skills obsolete. Despite this, the traditional diorama still has a place in a museum, and not just as a nostalgic means of display (Museum Dioramas Are as Endangered as the Animals They Contain, 2020). Dioramas, according to some curators, were obsolete because they took up a lot of room and required constant upkeep. Recent studies have demonstrated the viability of dioramas as a self-directed learning tool, as well as their ability to function in the twenty-first century (Wonders, 1993).

Institutions have revisited, updated, and repackaged dioramas to stay abreast of technological and educational trends and to take advantage of their capacity to delight the public. However, according to some studies, the audience today wants more information but does not want to be inundated with academic labelling and long paragraphs of text. Moreover, visitors want more than just the bare minimum of data. Although dioramas can be used as a didactic tool, traditionalists in museology contend that there should be a distinction between them and "shop window dressing" and "Disneyfication," in which entertainment replaces educational purpose. Some institutions assert that they have a duty to provide additional information to better reveal the subject because they believe that without adequate stand-alone interpretation, visitors may still leave with an incorrect impression of the subject (Benton, 2006; 2009).

Institutions today are aware of the advantages that technology can provide. Web and social media technologies hold great promise for expanding diorama interpretation both online and in-person. 'Making dioramas' is a common activity on *YouTube* channels and "e-how," but there are more opportunities for interaction with QR codes that let users map sites and locations using *Google Maps* and the Global positioning system (GPS). Users may access zoomable maps, as well as historical and modern images to show how people relate to their surroundings and to history. Practical and philosophical critics continue to assess these new environments for the diorama's future (Schwarzer, 2009, p.22).

Due to a lack of academic research on this topic pertaining to military research, the researcher turned to the hobbyist community to see if they employed the same processes as those used to make museum dioramas. From his examination, the researcher came to the conclusion that even hobbyists rely on documentation and detail, along with little artistic licence, to convey information and messages to viewers. Hobbyists use knowledge and evidence to build war stories, and the majority believe that realism is considerably more powerful than excessively dramatic displays. He believes that what has already been researched and proven to work for habitat dioramas may still be applied to miniature dioramas and other themes. However, the viewer might be lured deeper into the subject matter by increasing its relevance and fusing artistic licence with technology.

3 Methodology

This chapter provides a detailed explanation of the methods and methodology used to collect primary data and answer the main research question, which looked at the value of military dioramas as interpretive tools in museums. This methodology places an emphasis on the research philosophy and study, as well as the objectives, research strategies, and research tools used, and it provides relevant literature to back up these choices. The methods for data collection, results analysis, ethical issues, and study limitations are also explained in this chapter.

A qualitative study was used to explore and understand the perceptions, concepts, and ideas to create the ideal interpretation for a museum diorama. The research method was based on an exploratory approach to further understand how different individuals appreciate the role of a diorama inside a museum. To create a link between the study question, methods, and data management consistency, methodological congruence was used. The various components of these research processes will cooperate to help deliver the topic with the most comprehensive response possible (Richards & Morse, 2013).

3.1 Paradigm Use in Qualitative Research

The researcher adopted different tools and methods to collect data and explore further the interpretation possibilities of a museum diorama. This thesis used a specific case study to see how to incorporate a military diorama in the interpretation plan of a thematic museum display. The Malta Maritime Museum was chosen because it already has a sizable assembly of scale models in its collection, the author works as a model maker with this institution and because the curatorial team is currently redesigning the museum exhibition with the intention of expanding the display area and putting a special emphasis on visitor-oriented exhibitions. In addition to

employing authentic artefacts, the team's intention and close collaboration with the designers is to use dioramas for certain topics when an artefact is not available. The French Blockade (1798 – 1800) is one of the chapters that will be narrated, and Senior Curator Liam Gauci wants to tell the story from the Maltese point of view rather than from that of the French and British. Recently acquired significant artefacts from this era have revealed a wealth of new information that will help the museum depict this period in Maltese history better. When discussing war and collective memory in Malta, literature has shown that this period has been significantly impacted. The pivotal conflict between Maltese patriots and the French in 1798 is what Testa (1997), Frendo (1998), Xuereb (2021), and Gauci (2022) refer to. This led to a debate that has shaped how people view the conflict and how the media has covered these events to the present day. This museum aims to make discoveries that will make visitors reflect and query the Maltese collective memory.

According to Tilden's (1957) principle that "Interpretation is revelation based upon information," a museum may be the best setting to disseminate fresh information on this subject. The purpose of this research was to determine whether a miniature diorama is the best tool to encourage further disclosure of this new information. A diorama of the French Blockade event was created by the researcher to adopt a practice-led research methodology. A triangular system for qualitative research was investigated to arrive at the ideal interpretation through a diorama (*see Section 3.5*). The system intended to explore the combination results that emanate from this triangulation to develop guidelines. An assortment of museum professionals was used to form the interpreters, the model makers as the technical experts, and the museum visitors as the receivers.

3.2 Practice-led Research Methodology

A specific diorama that depicted the events when Maltese insurgents revolted against the French served as the case study for this practice-led research. Using Paine's guidelines for effective storytelling, the author completed all the practical work for

this diorama by himself. (Paine, 1980). The author additionally conducted the research for this diorama with the assistance of the curatorial staff of the Malta Maritime Museum and other specialists, citing references.

A specific incident from this historical period was chosen in consideration of the senior curator of the Malta Maritime Museum's request to emphasise the Maltese people's contribution to the Blockade. This period was picked since the museum will host a section devoted to it. Although this period is extremely important, it is not frequently mentioned in museums. One of the main elements of the Blockade, in which the Maltese insurgents were engaged, was the line of gun emplacements that trapped the Republican French soldiers inside the fortified harbour cities. Apart from its historical significance, the Maltese line of fortifications was considered the best subject to illustrate their contribution to the Blockade. Nevertheless, these are no longer standing and have never been discovered. Based on findings from other international museums as a result, building a diorama is the ideal interpretation tool to bring to light a neglected subject.

3.2.1 Interpretation of the French Blockade of 1798 - 1800 from a Different Perspective

Obtaining historical sources was crucial before designing any historical diorama. The historical sources consulted for this diorama's interpretation came from both primary and secondary sources. With the assistance of the museum's curatorial staff, the researcher examined the various sources that were available and carefully studied the available interpretation and recent discoveries to obtain the best material for this presentation. A specific occurrence was chosen to better support a Maltese perspective in this diorama's narration, and in this regard, the plot, diaries, and chronicles were consulted to visualise the scene better. This period has undergone various perspectives on collective memory. The Maltese played a crucial role during the Blockade, although this important role has been minimised in the collective narrative of the event as a fight between the French and the British. Therefore, the

goal of this thesis was to provide more light on the significant role that the Maltese insurgents played.

Analysing the written content from a political perspective of the period was perhaps the most difficult part of the process. Sources from various perspectives were examined to cross-reference any possibilities or provide answers. Field research on comparable existing military architecture and consultation with expert members of the Historical Re-enactment Group of Malta (HRGM) to learn about uniforms were two other types of information collected. The research focused on daily life, geography, and fashion in addition to the military to gain a deeper understanding of the era. After consulting with the museum's curatorial team, the data gathered was meticulously converted into a storyboard. This careful analysis was necessary to create the details needed to represent this era and the intended message.

Hence, a portion of the new display at the Malta Maritime Museum will be devoted to the arrival of the Republican French in Malta and the uprising that led to the Blockade. Original artefacts have been selected for display, and dealing with collective memory is a key component of the interpretation technique. This museum will be the first to dedicate a large section to this period. The Blockade, the Royal Navy, and Malta: 1798–1800 temporary exhibition was organized by the Malta Maritime Museum in October 1998; nevertheless, the institution has since extended its study and included more artefacts from this period. The Royal Navy's involvement with Malta was the primary subject of this temporary display. The primary objective of the new exhibition, according to the senior curator, is to explain the role played by those Maltese insurgents and other individuals inside the blockaded cities. The diorama is intended to be one of the focus points and a participatory way for the audience to learn about these special stories. As the exhibition space is still being built, the outcomes of this study will be used to help implement the most effective content to maintain this display current and instructional for a variety of audiences, as suggested by Falk's (2008) findings.

3.2.2 The Maltese Siege Batteries' Strategic Importance During the Blockade

The Maltese rose in opposition to the French in September 1798 despite lacking weapons. As fighting broke out all over the island, the French withdrew to the fortified cities around the Grand Harbour. The Maltese contributed to the Blockade by constructing a line of gun batteries that encircled the cities to besiege the French garrison that was located there. All the batteries were interlinked with lines of communication and support, and these included defensive walls like labyrinths to hide any movements from the French sentinels. Maltese rebels manned each battery, distributed among the companies led by Maltese leaders. The Maltese insurgents built this strategic line of gun batteries on their own before outside help arrived to begin the blockade from the sea, trapping the French garrison and supporters inside the harbour cities from the land, as shown in Figure 12. Once assistance arrived, foreign officers also provided support to some of the key batteries. (Rollo, 1999; Spiteri 2008).

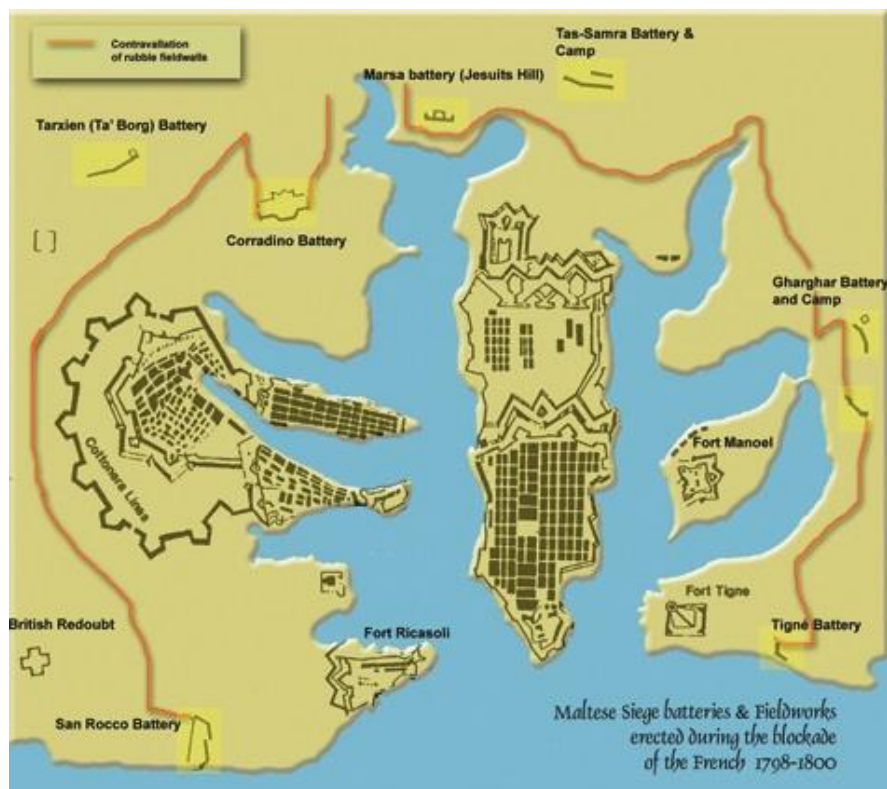


Figure 12- Map representing the line of siege batteries and fieldworks during the Blockade (S.C.Spiteri, ARX Issue 6, 2008)

Regretfully, these batteries were dismantled after the Blockade, but we have no specific date for when this happened, and no archaeological evidence has ever been recovered to date. This topic was discussed without any tangible evidence and with only a few artworks and literary references. The best visual descriptive sources are a set of prints and drawings showing each major battery, but even though they are all similar, there are some differences because they were created by different artists (Spiteri, 2008). No Heritage Malta institution has a special exhibit regarding this siege line and the role the Maltese insurgents performed, despite possessing prints and originals in the National Collection.

3.2.3 Why were the *Għargħar* Batteries Chosen?

The "*Għargħar*" battery, also known as the "*Tat-Twila*" battery, was the biggest of a group of gun batteries designed to control the approaches from Gzira, guard Fort Manoel and Marsamxett harbour. Sources claim that Vincenzo Borg, also known as "*Brared*," the insurgent leader of Birkirkara, funded this group of fortifications which were built by local *capomastri*. According to records, the Birkirkara insurgents oversaw these batteries. Even though no plans have been discovered for this specific battery to date, documents indicate that it participated in numerous engagements with the enemy, including one involving a French ship, the '*Guillaume Tell*'. Numerous records have been discovered that support these claims. (Testa, 1997; Spiteri, 2008; Gauci, 2020). For this reason, the "*Għargħar*" battery was selected for the museum display since it contains a wealth of historical information and is the ideal subject for this diorama.

Major Weir, a Royal Marine officer who commanded the recruitment of the Malta Light Infantry during the Blockade, drew specific pictures of various batteries that were issued as prints, including the "*Għargħar*". These were not the only visual depictions of this battery as within the collection at the Malta Maritime Museum there are other artworks done by contemporary local artists. Even though these works of art showed the same "*Għargħar*" battery, variations in particular details and architecture

were found (see Figures 13 -16). In addition to these variances in each piece, the fact that water colours cannot be shown for extended periods of time due to conservation concerns is another good reason to employ a diorama in their place.



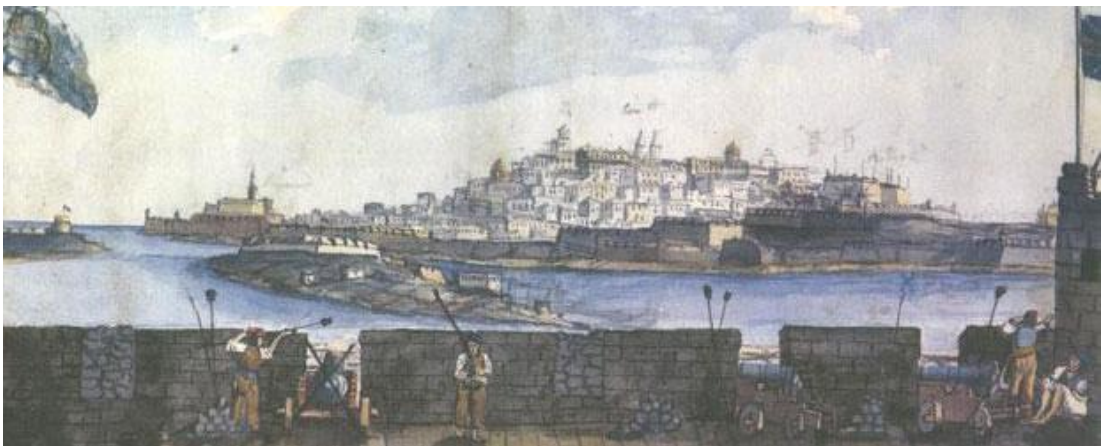
Figure 13 - "Għargħar" Gun Battery in 1799, water colour by Agostino Scolaro (Heritage Malta)



Figure 14 – Maybe the first interpretation of the "Għargħar" Gun Battery, unknown artist (Heritage Malta)



*Figure 15 - Depiction of "Gharghar" Gun Battery according to Major J. Weir
(www.vassallohistory.wordpress.com)*



*Figure 16 – Another interpretation of the "Gharghar" Gun Battery c.1800, unknown artist
(www.wikiwand.com)*

Together with the curatorial team, additional sources were consulted to identify these variations. *Brared's* diary, one of the recently added artefacts to the museum's collection that provided the additional material required, was used when writing the key storylines and the interpretation for this diorama. The curatorial team considered that as these writings were his personal journal, they should be maintained as the basis of interpretation in cases of ambiguity. This was because each work of art had a distinctive element that was also part of collective memory but was liable to misunderstanding, see Figures 13 -16. To gain a variety of viewpoints the journals of Bosredon Ransijat (a French Knight who held high offices in the French Government in Malta), Major Weir, and Captain Alexander Ball (the British Navy's commander who was later elected president of the Maltese Congress) were also used as sources.

It was not the intention of this diorama to clear up any misunderstandings that existed in the public's memory, but rather, to emulate what Tilden (1957)'s principles amplify that is, to utilise interpretation that reveals and provokes further interest about the role of the Maltese insurgents. To take an example from one of the stories, this battery has the distinction of being the first place in Malta to fly the British flag. Even though all the illustrations depict this event, they are not accurate. According to Carmel Testa's book *The French in Malta*, which cites the sources, the event is described as *Brared* requesting that Captain Ball fly the British flag in addition to the Kingdom of the Two Sicilies Bourbon flag from his "*Għargħar*" battery. Consulting the passage, it was raised in March 1798, but the Maltese officer from the nearby battery at "*Tas-Samra*" requested to borrow the flag the next day to raise it on his battery, and this pattern continued every day with the other batteries around the harbour (Testa, 1997). In another set of memoirs Bosredon Ransijat reported what he saw from inside besieged Valletta and also mentioned that occasionally they saw the British flag flying from particular positions and that the Bourbon one was always present. (Scicluna, 2013). The flag dilemma becomes even more perplexing as *Brared* mentions this incident in his journal and the fact that from the "*Għargħar*" battery they regularly used to fly a red pennant as a form of signal to communicate with rebels inside Valletta. (Gauci, 2019). This incident is remembered as one of the most significant

aspects of the Blockade, and it appears that it was considered very necessary to remember it in current times.

A local researcher Cusens (2022) shared his findings from the National Archives of Malta that showed how, in 1937, Birkirkara historian E.B. Vella persuaded the British Government to commemorate the flag-raising event in honour of this illustrious national on the centenary of *Brared's* death. Two flagpoles with the Maltese and British flags, as well as a plaque on the nearby "*Ta' Xindi*" farmhouse that served as the Borg headquarters, were built in honour of the occasion, possibly where the "*Għargħar*" battery once stood. The flagpoles were still there when the area was developed in 1974. (LGO 1033/37).

What is misleading in previous interpretations is that the "*Għargħar*" battery is depicted in a later configuration because other sources indicate that updates were involved at a later stage. There has not yet been any mention of whether the flag Captain Ball supplied was the naval variant. This supports the author's theory that artist Weir purposefully chose to include it. Given his career and what transpired at the end of the war with the army taking control, Weir may have been more loyal to the navy. Why the artists included an anachronism of the event was even more intriguing. Why did the artists care so much about displaying the British influence?

Using this example and others to discuss all the individual and collective memory stories, increases room for interpretation. The batteries show that the insurgent army was much more than just an armed rabble of villagers, despite the fact that it was called a peasant army. The purpose of this project was to describe the incident, offer an interpretation, and help the audience come to their own conclusions.

3.3 Planning the Diorama

These factors, along with the volume of data acquired, led to the conclusion that "*Għargħar*" would be the best battery to portray as a diorama. The scaled-down representation of the military fortification itself was the first step in the diorama interpretation. The main feature, the battery, the story, and the protagonists to support the stories were some of the key elements on which the interpretation of this diorama would be based.

The research led the team to the conclusion that this battery suffered alterations and encountered several significant occurrences while it was in use. The museum's collection includes a fascinating selection of drawings by Agostino Scolaro, prints by Major James Weir and additional pieces of art that were attributed to other unknown painters (Figures 13 -16). Since no plans have been discovered so far, these visuals remain the only eyewitness descriptions available today. A detailed examination of the images, particularly those that mention the "*Għargħar*" battery, revealed differences in the construction. According to accounts, the gun battery was strengthened to match the demands of the counterattack on the position. The battery also received two watchtowers, a double vaulted shelter, and a rustic masonry defence wall. (Spiteri, 2008; Gauci, 2019). The study was misled by one aspect of these paintings that was not present in all of them. The number of embrasures and cannons was not adequately represented in the images.

A report written in 2008 by fortifications specialist Stephen C. Spiteri, did identify the quantity and calibre of cannons employed; although he also could not reach any conclusions regarding the architecture, the diary of Vincenzo Borg *Brared* again provided some insight into this other dilemma. Specific notes have been discovered about how the Birkirkara insurgents acquired the cannons. Since *Brared* was the one who paid for the building and maintenance of this battery, he kept track of every expense and noted how much he spent for it. The construction of a line of five embrasure batteries was mentioned in one of these payment notes. Later, he details

further improvements including guard towers and bomb-proof shelters. This discovery, which supplied the answers to the questions raised, led to the inference that the battery for this diorama was in a late configuration. Since there were no drawings available, the size of this battery was determined using similar original embrasures and stone dimensions.

In addition to the battery's structure and the fact that this is a diorama, additional crucial components were required to begin constructing a story. The incident when the British flag was flown over this battery is one of the more well-known stories about it. Because the museum already has materials and drawings depicting this event, and because the diorama is in a late configuration, it was not historically appropriate to depict this occasion and hence, it was determined that this event would not be duplicated in three dimensions. The diorama would highlight a less well-known occasion in which the flagpole was employed to deliver messages and show other lesser-known storylines. While the significance of the flag-raising ceremony could not be overlooked, the inconsistencies in the illustrations could not be repeated as they would be better conveyed in other ways in the overall interpretation of the presentation.

According to Xuereb (2021), the role of the Maltese insurgents is a collective memory of a post-colonial malaise. The insurgents were known as a peasant army by the French, who fabricated the idea that they were being led by the Church against the bourgeoisie. However, this is an underestimation as most Maltese males between the ages of 16 and 60 who lived in the country prior to the arrival of the French were given training as militia, had experience in the corsair business and many were already skilled hunters. Even British officers who sympathised with the cause tended to underestimate the Maltese fighter's abilities. Major Weir's paintings of the rebels are generally represented in peasant garb, although other sources say that a particular group of insurgents was so organised that they even had uniforms. Despite this, the Maltese leaders' zeal for their fight is still evident in Mitrovich and *Brared's* diaries,

showing the importance of their bravery in the face of adversity. Buhagiar (2021) discovered the roll call of the Birkirkara garrison that manned the "*Għargħar*" battery, including a doctor, officers, non-commission officers, gunners, artillerymen, despatch riders, troops, and even a band. This call supported the theory that the "peasant" army was well organised and comprised of trained soldiers, with artillerymen, veterans from the *corso* and life at sea. Research from secondary sources showed that the insurgents of Birkirkara had their own uniform, which helped to develop a concept for this diorama's narrative.

3.4 Constructing the Diorama

Together with the curatorial team, all the information was gathered into metadata form so that it could be discussed and used for planning. One of the primary issues was to accurately depict the battery's development. Following the author's recommendations, a 1:32 scale was selected using the data collected to scale the batteries because it had commercially available parts that would make the process simpler and because it was the ideal scale for viewers to appreciate details as many modelers acknowledged in the analysis. The use of materials that are fire retardant, anti-parasitic, and designed to not degrade over time was suggested, even for health and safety reasons. Fewer maintenance costs were taken into consideration.

The most difficult task was assembling all these data points into a single tableau. According to master modellers and museum specialists to create effective communication, one must arouse the viewer's curiosity, get them to pay attention to details, and loop in historical information through storytelling. Van Gils (2019) indicates that the model builder must evoke strong emotion in the viewer by establishing an atmosphere, and they must also direct the viewer's eye to the appropriate spots for them to understand the story. These points were considered in the planning phase for developing the plot line of the diorama.

The "Għargħar" battery experienced a variety of incidents during the course of the Blockade; together with the curatorial team, the key ones and the most appropriate for this interpretation were selected. These were scrutinised by the author to see which of them could be transformed visually and combined. Following Paine's methods, one can portray multiple episodes occurring simultaneously by balancing them out and employing artistic licence, but the overall composition must still make sense. (Paine, 1980). Styrofoam was used to construct the groundwork and buildings, while plaster was used to add textures. The figurines, which mirrored the body language required to portray the settings, were sculpted from epoxy putty. However, suggested extras that could be 3D printed or obtained as ready-made models were purchased when they were available.



Figure 17 – The "Għargħar" gun battery diorama under construction (Heritage Malta)

In order to accommodate all additional updates, it was decided to display the gun battery in the late configuration, as shown in Figure 17. Combining various vignettes that did not occur simultaneously but worked well together to create a compelling scene was the difficult part. By including all pertinent information, this strategy served to keep the event in context when seen as a whole. The right stories were carefully chosen to produce the vignettes, ensuring that they would work well together. Even

the time of day and season were taken into consideration to create the ideal ambience, and visual detail was one of the key elements that were thought to draw the viewer's attention. Eighteenth century paintings, pictures from re-enactment groups and authentic attire were used to create clothing and hairstyles to evoke the proper image of an insurgent army and allies. The process of creating this diorama was compared to imparting a book's knowledge to the general public in a visual format. The scientific metadata recorded was handled visually. Even, the painting and weathering techniques were thought to be more than just cosmetics; they also served to convey meaning and emotion. The colour scheme was chosen to reflect an early spring scene and a midday setting to generate an atmosphere. This created the possibility for a greener environment enhanced by the vibrant colours of flowers, as well as a choice of apparel and uniforms ranging from winter to summer attire.

3.5 Data Collection Procedure

In order to further explore the research topic, practice-led research and a triangle research strategy were merged, building on the "methodological congruence" method. To gather data using the triangular research methodology, three groups of participants were chosen. The intention was to gather data to aid in creating and implementing the best interpretation strategy for the Blockade diorama. Semi-structured interviews were conducted with the first two groups, which were made up of technical and interpretation experts. According to George (2022), semi-structured interviews offer a framework for developing questions within a predetermined thematic framework. They are typically employed as an exploratory tool, providing a common theoretical framework while enabling the researcher to investigate various angles of the research question. Informants have the freedom to express their opinions in their own words when taking part in these interviews.

Two group interviews were conducted using self-administered structured questionnaires as the study tool. A questionnaire was given to the museum professionals and model makers as the first two groups based on their grouping

(Appendices A & B). The study's goals, information, and a soft copy of the questionnaire were all sent to each participant through an email. The participants had a week to complete and return the questionnaire. The response rate was 100%. Most of the close-ended questions were centred on the individual's views on dioramas and their role in museums. In a final task, participants were asked to respond briefly on dioramas that may be found in museums.

3.5.1 *Semi-structured Interviews*

According to Maguire and Delahunt (2017), the process of finding patterns or themes within qualitative data is known as thematic analysis. Tables were made from the answers of every interviewee's closed-ended question (Appendices A & B). To maintain anonymity, each grouping was classified, and each participant was given an index (such as Interviewee X1 for the first Interviewee, X2 for the second, etc.). Every question elicited a different response, and to create the tables, the collected data was imported into Microsoft Excel. The next step involved code writing. After reading all the comments, this was completed manually and then copied to a Microsoft Word document. Every part of the information that related to or caught the researcher's interest was coded.

Seven local heritage museum professionals were chosen as the first interviewees to examine the importance of dioramas in museums and how they related to the concept of using a diorama as an interpretation device. The interview subjects were chosen from a pool of heritage/museum professionals with the aim to find out more about their perspectives on the value of dioramas and the function they serve in relation to other museum exhibits. Although curators made up most of the museum staff, opinions from a collections officer, a tour guide, and a marketing specialist were also gathered. All the professionals came from different museums, and some did not work for a government agency. This was done with the intention of evaluating the various ways that different people from different sectors of heritage institutions approached the topic.

The value of dioramas in the contemporary museum was also discussed in comparison to other more modern digital installations. Their viewpoint on using a diorama in the absence of original artefacts was also delved into. Although there were only ten closed-ended questions in the questionnaire (Appendix A), interviewees still provided their justifications.

A second round of interviews was conducted with a group of eleven master modellers who were chosen from a sample of internationally renowned model makers. The latter excelled in building dioramas and single models, had published books and articles, and won awards for their work. They were sent a second set of ten closed-ended questions via email (Appendix B). These questions were part of the attempt to comprehend the technical aspect and cover the entire process of creating a diorama, from conception to completion. The main goal was to understand how the modeller chose the subject to represent their vision and which technique they favoured (e.g. - creating a diorama instead of a single model) to tell a story. This study also aimed to find out whether the techniques used to create storytelling dioramas followed the same guiding principles as those mentioned by Paine (1980) or rather preferred the Verlinden's (1990) way and whether they shared any traits with other museum dioramas. The goal of the interview was to learn how they evaluated the relative merits of research versus artistic licence and the suitability of their work for museum exhibitions.

Since each of these modellers had a distinctive artistic style, no inquiries about their technical abilities were asked. Instead, the investigation was focused on how they translated information into models and how they perceived the storytelling potential of dioramas, in the context of various subjects. These closed-ended questions were answered by the interviewees via email, and they also provided their opinions. Storytelling, scale, and historical sources emerged as the main themes.

The purpose of the second round of focus groups was to examine the technical side of dioramas. The artist's perspective on the dioramas is one of the most fascinating and challenging ones. Ten master modellers, the majority of whom the author had already met and whose work had been seen in publications or exhibitions abroad, agreed to be interviewed. These modellers were accomplished experts in their respective fields who hailed from a variety of different countries. They were chosen from various nations so that their opinions would not be shaped by cultural norms. They all made models differently and shared a passion for dioramas. The goal was to compile a variety of viewpoints and even ascertain whether they varied due to regional or stylistic differences. Since model design is currently influenced by numerous schools of thought, having options from other countries was intended to produce a more varied perspective on the subject.

3.5.2 *Visitors' Survey*

According to Lietz (2010), some people place more emphasis on how questions and answers interact as a sophisticated form of communication between researchers and respondents. Researchers must choose between different elements of questionnaire design, such as question length and order, and question wording. The ideal number of response options and the desirability of a "don't know" option are some of the factors considered. Lavrakas (2008) argues that random sampling ensures that every sample has an equal chance of being chosen. In other words, a sample that was chosen at random is meant to represent the entire population accurately and impartially.

The receiver, or viewer, was the subject of the third point of the triangular analysis. A qualitative survey was utilised to investigate how viewers see dioramas. According to experts, open-ended questions are used in qualitative surveys to generate responses and they aid in identifying early themes or concerns to subsequently be explored deeper in the research. In this case study, a proposed exhibit (the diorama) at the Malta Maritime Museum served as the subject. The museum had the drawback of being closed to the general public for the last three years while restoration and new

exhibition design work were being done. This prohibited the conduct of surveys with visitors who were present. This shortfall had no bearing on this study and the researcher devised a survey for a representative sample of the general public in order to assess public opinion on the thematic topic, the diorama, and era, the French Blockade. If not, it would have given the researcher time to revise the planned interpretation strategy of the diorama. From the general public who attended other Heritage Malta events, a random sample of fifty participants were chosen and invited to participate on a voluntary basis. Each participant received a printed survey to fill out, along with a set of closed-ended questions and a picture of the "*Għargħar*" battery diorama, without explaining the subject or period to avoid conflict with the study's goal (see Appendix C). The purpose of the survey was to learn more about how people view and comprehend dioramas and to assess whether the one already built required any additional clarifications.

Given that the theme was focused on a particular local historical episode that is influenced by collective memory, the survey was designed to help analyse the perception and expectations of various generations living in Malta. Following the consensus among generations, the respondents were divided into age groups, and tables were made for each inquiry. A table for each question was made using Microsoft Excel. The participants were divided into groups based on generation and the results were inputted. Additionally, the last question was coded. The data was gathered to further investigate the outcomes of various age groups.

The survey was printed and distributed by hand during themed events. Different age groups were targeted to measure the general population. The purpose of the survey was to determine the degree to which the public is aware of and comprehends museum dioramas. The French Blockade was chosen because it is one of the most influential historical occurrences that affects collective memory and gauge public opinion and determine whether it can be explained through a diorama that appeals to a range of age groups. To assess whether the professional and technical respondents'

ideas were conveyed to the audience, the survey questions also attempted to link what has already been investigated with theirs. The age groups for the respondents were determined by the general agreement of the different generations.

3.5.3 Triangular Approach

Validity and reliability must be demonstrated when using two or more data collection techniques in triangulation. (Cohen et al., 2007). Triangulation was a valuable research methodology because it gave a complete picture of the phenomenon being studied and enhances validity and reliability. In this study, the combined data from the questionnaires, interviews, and surveys in that order examined the related findings. Convergent evidence was strengthened, and any novel findings were thoroughly investigated. The information collected from various angles was examined for similarities and differences. The goal was to examine the information and, armed with the knowledge gained, evaluate, and categorise a suggestion for the interpretation of museum visitors in accordance with Falk's (2008) studies. (Figure 18). The analysis also supported any additional needs like printed media, guiding or digital assets implementation to help create a better interpretation of the Blockade diorama.

Identity of Museum Visitors

“The Explorers”	those that are curious to discover and learn more.
“The Facilitators”	those socially motivated, like parents taking their children to introduce them to museums and keep them in touch with heritage, arts, science and history.
“Professional/Hobbyist”	these can be experts or collectors, passionate in their interest and in search of details - seekers of knowledge and eager to delve deeper into the subject.
“Experience-Seekers”	motivated to visit and explore a new destination not normally in their routine and with no preconceptions of what they will find.
“Rechargers”	visitors seeking refuge in a different setting to what they normally frequent, perhaps refuge from their daily rushed routine. They would be seeking quiet areas turning their visit into an almost religious meditation experience

Figure 18 - Falk's Identification of Museum Visitors (Falk, 2013, p. 117)

3.6 Ethical Considerations

This research study was carried out in accordance with ethical standards in academia and the rules and regulations of ITS. Each Interviewee or respondent gave their informed consent and participated voluntarily. The data gathered from subject matter experts and museum visitors of various generations served as the foundation for this study, and participants from this particular group were sampled. Where minors took part, parental approval was obtained. The respondents' anonymity for the questionnaire was enforced.

3.7 Conclusion

This chapter presented the research methodology of this thesis. In this study, the "methodological congruence" qualitative methodology approach supported a practice-led research method in developing a case study of a physical diorama. As this research was designed to investigate the relationship between the interpretation of the diorama, the technical set-up of the diorama, and visitors as consumers of the interpretation, a triangular system was preferred over a two- or four-point method. Two methods were employed to collect data, i.e., interviews with experts and surveys with a random sample of the public. The major limitation was that it was only based on one period of Maltese military history. This restriction should not preclude further research on the interpretation of military dioramas in museum settings.

4 Analysis

This chapter presents and discusses the findings from a series of 18 interviews with model makers, museum professionals and a survey with 50 museum visitors. These results are discussed in relation to the primary research question and the related questions that this study set out to answer. Additionally, they look at the key themes and supporting themes that emerged from the data.

This analysis used a triangular method to examine the usefulness of a military diorama as an interpretive and narrative tool in museums for various visitors. In order to understand how they respond to dioramas, how they contribute to the development of such installations to present them in a museum environment, and what function they manage to achieve during the research and development process, the first set of interviews was presented to a chosen group of museum professionals.

4.1 The Museum Professionals

Even though the seven interviewees were asked closed-ended questions, they all took the opportunity to elaborate and offer more information than was necessary to respond to the questions. Tangible dioramas, visitor experiences, virtual reality, and didactic tools were the main themes that came out of these interviews. The analysis looked at how each interviewee understood what a diorama was and appreciated how useful it is for teaching interpretation and storytelling as well as conducting historical research.

All participants agreed that they understood what a "diorama" was and that they should be used as a teaching tool. According to Interviewee 4A, a curator, dioramas are a didactic tool that present a site concept to the general audience without the use of language. He points out that conducting extensive research is required whether

creating a traditional or digital diorama. The Interviewee adds that in order to construct one, the researcher and modeller conduct an extensive investigation and examine minute details that are challenging to describe or depict using archival sources. Despite being static representations, dioramas are a very dynamic tool. He points out “If the modeller and researcher work in unison, and both have the necessary skills, the outcome should reflect all the input from each individual”. According to the curator, the final product must take into account each person's entire contribution.

The majority of the literature that is available focuses on habitat dioramas, therefore it was essential to compare and contrast whether the information was similar when talking about a military diorama. According to Wonders (1993) dioramas are still valuable in museums, and it's vital to consider the perspectives of both the museums and the visitors. Based on these studies, the analysis explores the function of miniature dioramas in local museums from several angles.

When the topic of visitors to dioramas was brought up, every Interviewee once more expressed their positive interest in them. Given that they each has a different strategy for engaging visitors, it was intriguing to look at the various reactions. Interviewee 7A, a media and marketing specialist, asserts that outside of the realm of research, dioramas stimulate imagination beyond what was previously possible. Even Interviewee 5A, a tour guide, stated that “A diorama helps locate an artefact exposed, connected with and within historical context”. In his experience, dioramas help visitors visualise the information provided by guides and other sources at museums. Additionally, dioramas assist in locating and contextualising an artefact inside a museum. Interviewee 3A, a curator, states that “A traditional tangible diorama portrays a scene or scenes that when researched historically can help the visitor/viewer understand history better”.

Dioramas have a lot of teaching potential, according to writers Reiss and Tunnicliffe (2011). They argue that to exploit the instructional potential of dioramas fully, museum educators must lead visitors in carefully understanding those stories. According to the authors, dioramas communicate stories and act as inspiration for new ones. If military dioramas are respected by specialists similarly to habitat dioramas with their scientific methodology, it would be an interesting argument to evaluate and explore. Positive feedback was also given by the interviewees on the usefulness of using museum dioramas to discuss subjects like war.

As a tour guide, Interviewee 5A commented that it is challenging to describe battlegrounds or significant sites because they have lost their surrounding environment. Buildings and other forms of development have made it impossible to visualise the sites; however, dioramas, whether tangible or virtual, can make up for this deficiency. Scale is another important consideration; Interviewee 7A notes that smaller-scale dioramas or scaled-down models can be better interpretive tools for displaying details than other visual contexts, such as drawings or plans. Even the comments made by Interviewee 3A referred to the importance of miniature dioramas offering a bird's-eye perspective that helps to expose and connect within a historical context.

Kerby (2017) says that the ability of habitat dioramas to inspire awe does not deflect criticism. The claim that they are "high art," "science," or "history" is contested using miniature figures and their association with children's toys. Dioramas are, however, rarely mentioned in discussions of war art. However, as Insley (2008) contends, this perspective ignores the nuanced differences between habitat dioramas, which "aim to trick their audience with an illusion of reality," and human dioramas, whose goal is to "convince rather than deceive" (Kerby et al., 2017, p.359-360). In contrast to what some other experts said, this was an intriguing argument. Dioramas are, however, rarely mentioned in discussions of war art; instead, the emphasis is typically placed on more conventional visual arts like painting, sculpture, and photography.

On the topic of using 21st century technology as interpretation tools, only interviewee 3A objected to using augmented/virtual reality (AR/VR) in addition to a traditional tangible diorama, but he did not give any justifications. Other interviewees agreed in using digital technology, shared their responses, and expressed concerns. However, Interviewee 4A, a curator, explains that he still prefers a traditional tangible diorama as the best option since a static one leads the researcher and modeller to study a scene in detail. Virtual reality, on the other hand, can also be used as a tool and offers a variety of options and flexibility. Museums still need to explore the potential of a diorama as a pedagogical tool before using it as a gamified element. Interviewee 7A explains that in addition to becoming digital, dioramas can also be enhanced with lights, sounds and scents to create a multi-sensory representation that mimics reality. Interviewee 1A, a collections officer, asserted that in order to better communicate, museums need to comprehend their audience. She asserts that "A museum must combine the 'old and new' to achieve a better interpretation and communication with their visitors". Curator 6A stated that he prefers to invest in tangible dioramas due to his concern that technology is constantly changing.

It appears that a similar aspect affects debates regarding digital technology in foreign museums. In 2015, Quinn would claim that "You can perform the same activities on your laptop at home as you can in a natural history museum with computer interactive displays. Showing you the real thing is what makes natural history museums such a special experience. Such a close encounter is not possible through contemporary media." (Kutner, 2015). To find an answer, more study on this topic is necessary.

The questionnaire also asked participants what they would do if the museum was lacking an artefact to display and needed to create a diorama. Interviewee 1A insisted that dioramas are essential for museums without artefacts. Dioramas assist visitors in visualizing and comprehending themes. According to Interviewee 4A, museums should view dioramas as an additional tool to explore artefacts, subjects, or arguments

to improve exhibitions rather than as a representation of authenticity. The effectiveness of dioramas in narrating and illuminating significant events or battles in the absence of artefacts was discussed by Interviewee 3A. Though most museums are full of artefacts, Interviewee 5A explains that these need a better presentation to stimulate the imagination. Dioramas can be the perfect tool for putting the artefact in context and giving it life. When using life-size dioramas, Interviewee 6A likes to arouse curiosity and, if practical, to include the original artefact within the diorama to better illustrate its function.

The interview was concluded with an open-ended question giving interviewees the opportunity to express any additional views they had. Interviewee 2A, a curator, said he intended to add new dioramas as they proved popular with visitors, particularly school groups. He considers them to be powerful teaching aids and a system that is being revived by numerous foreign museums. The curator points out that visitors are unique people with diverse tastes, and dioramas can accommodate most of them. Even the research and construction of the dioramas, according to Interviewee 4A, is a process worth documenting. Through this process, it may be possible to investigate possibilities that conventional research and archive sources do not allow. According to Interviewee 7A, who has used dioramas in his projects for thirty years, people continue to find them fascinating, as evidenced by the comments left in guest books and on social media.

The analysis of data revealed that museum professionals still view the conventional tangible diorama as a didactic tool in various ways. The results of the investigation supported the research hypothesis, which suggested that the process of gathering information and creating the diorama is crucial for the professional because museum visitors are its intended audience. Additionally, creating a diorama and conducting research can reveal additional details that primary and secondary sources may not always make clear. The interviews revealed that although digital technology is a significant factor, there is a consensus among professionals that it does not need to

replace what has already been shown to be beneficial but that a combination of the two may be advantageous. This needs more testing and research, particularly in light of how augmented reality can be used as a teaching tool rather than succumbing to the Disneyfication effect. Relevant literature discusses the similarities between contemporary fun parks like Disney World, keeping in mind that the design of museum dioramas derives from and still should take note of these exhibits but as Ludwig (2016) stated, the difference is that Disney World's primary goal is to entertain the public while learning is viewed as a "bonus factor."

All participants agreed that dioramas can fill the space left by missing artefacts, but it was also intriguing to note that they thought that dioramas can be used to depict the same artefact's original use and enhance the narrative. The paradox of using scale was also discussed, along with how well it can be used to depict historical events or battlefields or to show how an area has changed as a result of contemporary urbanisation. The information gathered showed that everyone concurs that a museum has the potential to contain dioramas that tell stories. It was emphasised that while dioramas are useful for communicating, they only do so when the maker and the researcher are in harmony.

4.2 The Model Makers

The purpose of the second group of interviewees was to examine the technical side of dioramas. The artist's perspective on dioramas is the most fascinating and challenging ones. Since each of the eleven modellers had a distinctive artistic style, no inquiries about their technical abilities were asked. Instead, the investigation focused on how they translated information into models and how they perceive the storytelling potential of dioramas, even in the context of various subjects.

The first question established their function from an artistic point of view. Even though the majority of them possessed technical expertise, only two of them were

professionals, Interviewee 1B and 7B, meaning that scale modelling was their primary source of revenue. Only one of them, Interviewee 7B, worked for a museum; they primarily completed commissions for private collectors. The others though experts, were hobbyists and preferred not to take commissions. Since hobbyists made up a large portion of the grouping, it was assumed that the outcomes from this investigation would vary because most were not bound by consumer demands, were not impacted by time restraints, and could select from several subject styles. This comparison also considered the hobbyist's mindset regarding how they approached their projects. In contrast to this understanding, the findings of additional inquiries indicated a different strategy.

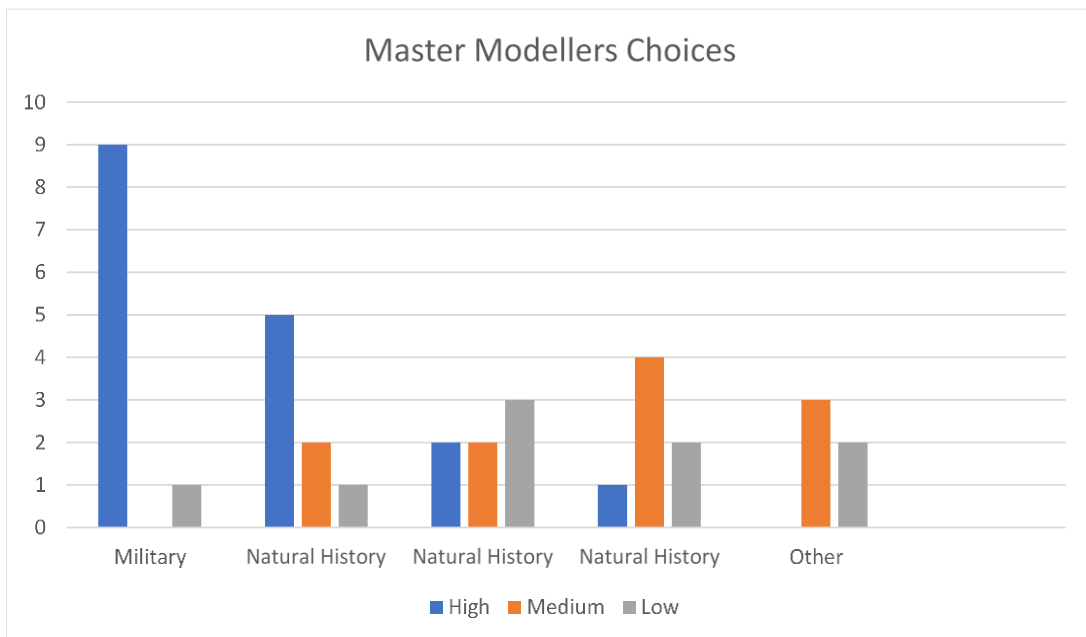


Figure 19 - The subjects that the surveyed model makers liked to depict.

The following questions were designed to elicit information about their preferred options. This was estimated by range to give a notion of preferences from a list of five categories that included two historical subjects, one habitat, and an aesthetic topic. The findings indicated that military subjects are favoured by the majority, with habitat being second. The other areas are for artistic flourishing and the testing of new

abilities because these modellers have a stronger preference for historical subjects. The majority of these modellers favour miniatures and work in the popular scales for military modellers: - 1:32 and 1:35. (Scale works in ratios; the real size is the model's size times the greater number.) This scale is favoured because traditionally, toy soldiers have always been this size and so, it is easier to notice the details than in smaller forms, moreover there are a lot of commercially available accessories. Model makers appear to find it much more interesting to create their stories around the subject of war and conflict. The following question will focus on what prompts them to develop their interpretation of a historical topic.

The additional batch of questions gave them the freedom to give their own views. When asked about historical sources in one of the questions, they all agreed that using such sources is an essential component of the project. Aside from the use of primary and secondary sources, some modelers required that they even conduct more studies on specifics like geography, weather, and when possible, ones to discover more about the people involved. Apart from the internet, Interviewee 10B stated that museum artefacts can also serve as an inspiration source. Interviewees 1B and 8B noted that literature can serve to better illuminate the circumstances and the characters involved, as well as help the mind create a mental image of the scene that includes the characters' expressions, feelings, and personalities. Interviewee 1B made a comment, "As long as the history is correct, I can use my artistry skills to bring the story to life, then everyone who sees' it, can get an understanding of the event and also learn about what happened in an interesting format". Even Interviewee 6B emphasised that dioramas must be based on solid and well researched historical background. No detail should be overlooked when creating dioramas, according to Interviewee 9B, and in addition to historical detail, the environment must also be considered to create a realistic scene. This demonstrated that even model makers make an effort to maintain historical accuracy in their work.

When asked if they thought a diorama was a more effective storytelling tool than a single model, everyone responded in the affirmative. Interviewee 2B remarked that dioramas bring history alive. Dioramas, according to Interviewee 8B, "Are particularly evocative because they provide very precise 3D information (as opposed to photos, drawings, videos, etc.) when one can no longer present the real object and may be examined for as long as the spectator wishes as opposed to film." He maintains that the decision of whether to use a diorama as a presentation rather than a single model depends on the purpose for which the communication medium is being used. Technical details may be sufficiently conveyed by a single model, but dioramas can also be a useful tool for historical and archaeological studies if the interpretation intends to convey more details. Interviewee 3B states that while dioramas are story tellers, single models are technical and intended to show specifics. Whereas a full hull ship model is favoured for presenting technical features, Interviewee 6B, similarly, a model-ship modeller, noted that if one wants to show how the ship performs at sea, one must show the model's waterline and context. According to Interviewee 4B, dioramas are more intended to show a specific historical event in scale when it is hard to show them at life-size. Even Interviewee 10B noted that dioramas pique the public's interest in the topic. Items in a diorama can help the viewer understand the subject's context and how it operated in relation to its surroundings. It can be more engaging and instructive for viewers.

As a last question, they were asked if they could picture their work being showcased in a museum. Most modellers said that they could envision using their dioramas in museums. Interviewee 3B pointed out how even if one may view an original artefact within a museum, the diorama is an opportunity to share the narrative of the same artefact. He compared dioramas to open books and used a museum displaying military vehicles as an illustration. "With museums, people may see the vehicles but not the story behind," he added, "This is an excellent chance to describe how these vehicles were utilized." (Interviewee 3B). According to Interviewee 1B, a diorama with miniature figures can enhance an exhibition by complementing it by better illuminating a historical event like a three-dimensional painting. Interviewee 9B

claimed that a pop-up museum exhibition used his work successfully to illustrate a subject that was difficult to explain. He contended that dioramas are more effective at telling stories and that including a human figure would help viewers feel more connected to the scene/event.

Interviewee 4B brings up a pertinent point about how huge, prominent dioramas in museums, such as fortifications, are often scaled too minute for the average person to relate to them without losing the intended impact. He noted that the right choice of scale can help to bring an event to life. According to Interviewee 7B, the bulk of museum dioramas in Vietnam are quite simple, and a more creative approach would raise the quality. This argument is compared to the same strategy used by successful museum exhibitions, such as the quality and scale factor included in the 'Scale of Our War' exhibition in Te Papa Museum, New Zealand (Ross, 2022), and the scaled-down and trivialised content of the Auschwitz concentration camp miniature at the Imperial War Museum in London (Holert, 2016).

Interviewee 8B is not completely convinced and thinks that it depends on the objectives of the museum; if the dioramas are overly artistic or show imagination, they can only be understood in terms of works of art and cannot be understood in terms of any historical context. Despite the fact that his works tell stories, Interviewee 5B firmly believes that they are too artistic and reflect his own interpretation to blend in with the museum's more conventional style.

It was absorbing to observe that even those who created for their personal enjoyment emulate Paine (1980) and employ the storytelling effect to visually replay their narrative. As stated by van Gils (2020), dioramas are a form of visual communication that aim to convey a narrative to the audience. Model makers emphasise that research and searching are crucial when they narrate historical subjects, even though they are aware that this preparation and practice is decisive in achieving the ideal storytelling

diorama. This analysis showed that model makers who choose historical themes for their work are not only interested in the artistic part of building a diorama but are also interested in historical sources and details to interpret the event as realistically as possible. There was a shared understanding that when the human element is included and body language is used to send a message, a bigger scale should be used (1/32 and over), while a smaller scale (1/87 and smaller) should be used to emphasise a particular location, such as a battlefield. However, these discussions showed that while the majority of Interviewees believe their work is useful in a museum setting, they require direction in order to produce an appropriate museum diorama that strikes the right balance between artistic licence and historical interpretation in order to convey the desired message.

4.3 The Visitors' Survey

The analysis to this point has been on the technical and professional merits of creating dioramas. Both aspects considered the common ground from the information acquired, and it is clear that they follow a strong pattern to produce the ideal museum diorama. The consumer, or diorama viewer, will be the subject of the third point of the triangular analysis. This examination was thorough to understand the visitor's viewpoint in this qualitative survey.

Question 1. Do You Know What a Diorama Is?

The purpose of the first question was to determine whether the visitors were familiar with the term "diorama." 50 visitors made up the sample, and 31 of them knew what a diorama was. Only 19 out of the sample, or less than half, were found to be uninformed of what a diorama is, according to the research. This exercise was intentionally focused to how many of the sampled visitors were familiar with the term and the results, were split according to age groups to determine how and in what order generations reacted. Results showed the younger museum visitors are allegedly more drawn to a digital environment, which made this research more thought-provoking to see their reactions. Other research revealed that even though

some museum curators are opposed to the usage of dioramas (Schwarzer M, 2009; Kutner, 2015), it is however well known that they captivate even young viewers and are among the best tools for imparting knowledge and generating an emotional response. (Wonders, 1993; Schwarzer, 2009; Ludwig, 2016; Reiss, 2019). To determine whether these findings infer these studies in the sample used, the analysis's results were divided into generations.

Table 1 - Results from Question 1 of the Survey. Respondents n=50

	Yes	No
Generation Alpha (1-11yrs)	3	5
Generation Z (12-25yrs)	7	3
Millennial (26-41yrs)	6	2
Generation X (42-57yrs)	9	6
Baby Boomer (58-76yrs)	6	0
Silent Generation (77- 94yrs)	0	3
Total	31	19

Unlike what was anticipated, respondents from Generation Z gave good feedback, and few did not know the meaning, just as with Millennials. Yet, Generation X demonstrated their strength in both answers, but only the Baby Boomers were familiar with dioramas. The Silent Generation was the only group to reply negatively, contrary to expectations that the youngest Generation Alpha would make up the majority. The examination of this sample showed clearly that dioramas continue to be appreciated by the mature generation and are still familiar to younger people. More than half of the data (n = 31) showed that the word "diorama" is still understandable. This question's answers demonstrated that dioramas were neither a revelation nor a forgotten model especially with the younger generations. The survey was intentionally designed so that those who answered negatively did not continue with the other questions, and the subsequent ones were directed at the remaining 31 respondents. In this sample, only the Silent Generation was no longer present, while the other

participants still represented the major generations who frequently visited museums. The study question was, thus not hampered by this because Baby Boomers still represented a good portion of the elder generation.

Question 2. Have You Ever Seen Any Type of Dioramas in Other Local Museums?

After watching two images of the "Gharghar" Battery diorama, without any indication of the period it represents, the respondents were asked if they had seen any other comparable dioramas.

Table 2 - Results from Question 2 of the Survey. Respondents n=31

	Yes	No
Generation Alpha (1-11yrs)	3	0
Generation Z (12-25yrs)	5	2
Millennial (26-41yrs)	5	1
Generation X (42-57yrs)	7	2
Baby Boomer (58-76yrs)	3	3
Silent Generation (77-94yrs)	0	0
Total	23	8

Again, out of the 31 respondents, 23 were most likely to have seen such dioramas. Most of them were members of Generation X. The fact that most members of Generation Alpha were already familiar with miniature dioramas was an unexpected development. Only Baby Boomers gave equal responses (n=3), and it seems that they were among those who had never seen similar dioramas, along with members of Millennial (n=1), Generations X (n= 2) and Z (n=2). This shows that although everyone who participated knew what a diorama was, eight of them had never seen one up close even when shown images. The fact that the majority was aware of many diorama styles continues to be a prevalent aspect.

Question 3. Did You Ever Hear About ‘The French Blockade in Malta’ Before You Saw This Diorama?

The respondents were next questioned about their prior knowledge of the French Blockade while still having the chance to see the images. There were more respondents who had no background knowledge of the topic in Question 3 than in the previous questions. It was assumed that the younger generation (Alpha) would not be familiar with this era because it is not addressed in the history curriculum for students under the age of 12.

Table 3 - Results from Question 3 of the Survey. Respondents n=31

	Yes	No
Generation Alpha (1-11yrs)	1	2
Generation Z (12-25yrs)	5	2
Millennial (26-41yrs)	2	4
Generation X (42-57yrs)	5	4
Baby Boomer (58-76yrs)	5	1
Silent Generation (77-94yrs)	0	0
Total	18	13

Yet, results showed that Millennials and Generation X seem to have no knowledge or have forgotten this historical event. Baby Boomers, on the other hand, seem to be more familiar with the topic overall. Although there is a strong collective memory of this period, this question showed that there are still many facts that need to be revealed in order to learn more about the topic.

Xuereb (2021) and Frendo (1998) both discuss the effects of collective memory in the context of war. Xuereb argues that the dark past is preventing collective memory and identity, while Frendo suggests that many believe the Order of St. John surrendered Malta to the French without a single shot being fired, which is a false impression.

Researched heritage interpretation has the potential to refute this argument and explore the biased, myth-filled, and historically manipulated areas.

Question 4. Did You Know About These Gun Batteries That Were Built During the Blockade?

The subsequent question was still centred on a specific topic that could be representative of the time even though the answers showed that most people were not conversant with the French Blockade. Participants were questioned about their knowledge of the siege tactic utilised in this event to determine whether a representation of a gun battery was the appropriate subject to reveal the French Blockade.

Table 4 - Results from Question 4 of the Survey. Respondents n=31

	Yes	No
Generation Alpha (1-11yrs)	1	2
Generation Z (12-25yrs)	2	5
Millennial (26-41yrs)	2	4
Generation X (42-57yrs)	3	6
Baby Boomer (58-76yrs)	3	3
Silent Generation (77-94yrs)	0	0
Total	11	20

The findings showed that most people (n=20) were not aware of these gun batteries. This time, it was clear that the majority of the respondents of all generations were not familiar with the topic.

Question 5. What Did You Find Interesting in This Diorama?

The following set of questions (Questions: 5 - 9) served as a guide for discussion about how to interpret this miniature diorama from the visitors' point of view.

Question 5's main focus was on the diorama's technical aspects. It was deliberately designed to reveal what had caught the visitor's attention. Here, the visitor was asked whether the diorama's military theme made it intriguing or if it were for them a miniature work of art. Some of the respondents ticked both options. Although it is a military topic, the results showed that the majority were intrigued by the aesthetic approach. Given what the model makers had already mentioned in the interviews, this suggested that an aesthetic approach would grab the viewer's attention.

Bayley (1938) and Van Gils (2020) emphasise the importance of model-making in stimulating creativity and innovation. Models are a visual medium for artists, sculptors, designers, and other experts to convey ideas to the audience, reminiscent of the making-up of thrilling worlds as kids.

Table 5 - Results from Question 5 of the Survey. Respondents n=31

	Military	Artistic
Generation Alpha (1-11yrs)	0	3
Generation Z (12-25yrs)	5	2
Millennial (26-41yrs)	1	9
Generation X (42-57yrs)	3	6
Baby Boomer (58-76yrs)	3	4
Silent Generation (77-94yrs)	0	0
Total	12	24

The fact that Millennials outperformed all other generations in their keen interest in being captivated by the creative detail, while Generation Z saw the military as the primary focus, was also noteworthy. This could be an indication that the Millennial generation was interested in detail while the younger generation contrasted what they saw with toys. The findings support what model makers stated regarding the use of artistic licence to draw attention. This is a recommendation for additional research into how different age gaps can inspire varied imaginative interpretations of military dioramas.

According to what was discovered, the conclusions were identical to those discovered through research on habitat dioramas. Dioramas are a controversial topic in museography with some believing that they evoke the feeling of a visitor stumbling upon a moment frozen in time. However, they are not real or factual, and museums still display them. Insley (2008) argues that habitat dioramas seek to deceive by creating the appearance of truth, but human dioramas, instead try to persuade the viewer rather than deceive. (Kerby et al. 2017).

Question 6. Did You Find This Diorama Interesting and Wish to Know More About Its' History?

When asked if they felt that seeing the diorama inspired them to learn more about the subject, all respondents gave positive responses. This demonstrated that there was no difference in knowledge based on age or between those who were already informed and those for whom the diorama had sparked an interest. This demonstrated what museum officials and model makers had previously stated in the interviews, namely that a storytelling diorama can pique the interest of both the knowledgeable and the curious.

Table 6 - Results from Question 6 of the Survey. Respondents n=31

	Yes	No
Generation Alpha (1-11yrs)	3	0
Generation Z (12-25yrs)	7	0
Millennial (26-41yrs)	6	0
Generation X (42-57yrs)	9	0
Baby Boomer (58-76yrs)	6	0
Silent Generation (77-94yrs)	0	0
Total	31	0

The following question inquired about what further support this diorama required to maintain visitors' engagement. This was a deliberate addition to provide the viewer with information beyond the aesthetics and maintain their interest. The option to select more than one choice was given to the respondents. Smart technology was purposefully left out of the options to examine how people interacted with other forms of communications.

Question 7. Did You Feel That You Need Further Explanation About This Diorama Through A/An:

Table 7 - Results from Question 7 of the Survey. Respondents n=31

	Audio Guide	Panels	Pamphlet	Guide
Generation Alpha (1-11yrs)	1	1		1
Generation Z (12 – 25yrs)	2	2	1	1
Millennial (26 – 41yrs)	2	3	2	3
Generation X (42 -57yrs)	4	3	5	2
Baby Boomer (58 – 76yrs)	2	2	2	
Baby Boomer (58 – 76yrs)				
Total	15	11	10	7

Overall, the survey found that people prefer audio guides to better understand the interpretation presented to them. The use of a panel to explain the subject and having a pamphlet to read were taken into consideration. The activity in which respondents showed the least interest was a guide explaining the diorama. These findings provided more evidence that using a variety of tools will keep visitors interested.

This demonstrated that even if the museum does not use audio tours, adding a QR code or a monitor with sound can make the experience comparable. Visitors continued to enjoy following the interpretation on panels, which shows that viewers still value conventional graphic communication methods and are opposed to being limited by technology. There may have been a preference because people want to be in charge of their own discovery rather than having it dictated to them by an authority figure. (Ludwig, 2016). The visitor today wants more information but does not want to be inundated with academic labelling and long paragraphs of text. Traditionalists argue that dioramas can be used as a didactic tool, but institutions must provide additional information to inform visitors better. (Benton, 2006, 2009)

These findings show that dioramas are not always self-explanatory, and for those who are interested in learning more, including pertinent supplementary information will engage and keep the spectator interested. In this case, digital technology can be used as an additional tool to improve the experience of a diorama. Although it is not the focus of this study, it is a suggestion for future research. The fact that there was no preference among age groups for the optimal format highlights the point that the museum cannot maintain a focus on relying on one form of communication to improve the user's experience.

Question 8a. If Instead of a Diorama, You Would Have:

In order to describe the role of the Maltese during the Blockade, it was decided to ask visitors if they would want to view an artefact, a narrated or graphical exposition of the theme, or both. The purpose of this question was to determine whether a diorama may still serve as a narrative tool for the interpretation of a specific topic even in the absence or scarcity of artefacts at a museum. Also, it intended to evaluate whether visitors would understand a specific topic only by seeing an artefact on display.

Table 8 - Results from Question 8a of the Survey. Respondents n=31

	Pic/Painting	Written/Oral	Object
Generation Alpha (1-11yrs)	1		1
Generation Z (12-25yrs)		3	2
Millennial (24-41yrs)	3	1	1
Generation X (42-57yrs)	6	2	1
Baby Boomer (58-76yrs)	3	1	1
Baby Boomer (58-76yrs)			
Total	13	7	6

Most respondents across all generations preferred a diorama exhibition. What was noteworthy was that the minority who had different reactions still chose a creative depiction or a graphic to convey the situation. This provided more evidence of the fact that people visiting museums still preferred a visual and narration to tell the story rather than the object by itself. This underlined the fact that model makers and museum professionals saw visual communication as the best interpretation of an event or artefact.

Buckley (1953) argues that customers and museum patrons can be compared, and a diorama can serve the same purpose as a shop display. Dioramas can entice and draw the visitor in and can be a revelation to study. Visitors can make up their own stories while seeing dioramas, and the significance of the information that can be gleaned from them is highlighted. When the interpreter is formulating his idea to make the exhibition of any museum object to tell a story, these analogies cannot be ignored.

Question 8b. Would You Understand the Theme ‘Maltese Siege Batteries During the French Blockade’?

Table 9 - Results from Question 8b of the Survey. Respondents n=31

	Yes	No
Generation Alpha (1-11yrs)	1	2
Generation Z (12-25yrs)	6	1
Millennial (26-41yrs)	3	3
Generation X (42-57yrs)	8	1
Baby Boomer (58-76yrs)	5	1
Silent Generation (77-94yrs)	0	0
Total	23	8

A sizable number of the participants gave an affirmative response when asked whether they grasped the subject of using the Maltese batteries to explain the Blockade. Those who replied negatively came from all generations, but they were in the minority (n=8). Here, it was undoubtedly confirmed that the batteries were a good option as the subject to illustrate the event.

Question 9. As This Diorama Interprets War, Did the Topic Create Any Feelings?

In the survey's final question, respondents were asked to rate how emotionally charged a depiction of war made them feel in order to determine how effective dioramas are in engaging visitors.

Table 10 - Results from Question 9 of the Survey. Respondents n=31

	Yes	No
Generation Alpha (1-11yrs)	2	1
Generation Z (12-25yrs)	6	1
Millennial (26-41yrs)	4	2
Generation X (42-57yrs)	8	1
Baby Boomer (58-76yrs)	4	2
Silent Generation (77-94yrs)	0	0
Total	24	7

The majority of respondents believed the diorama to be effective. The largest contributions came from Generation Z and Generation X. It's surprising to see that a military topic can still be brought up in conversation. Contrary to popular belief, it is not just adults who have witnessed or dealt with conflict that feel more strongly about it. This study demonstrated that, in addition to bringing back memories, military dioramas can also assist the viewer to feel a variety of intense emotions including pride, anger and sorrow.

At the end of the survey the respondents were invited to discuss how they felt after viewing this subject presented as a diorama. There were 31 respondents, and eight of them chose not to respond; these people belonged to diverse generations, so there was no indication that people of a certain age could not respond. The coding revealed that terms like rage, sadness, nationalism, and patriotism were frequently used. When discussing war-related topics, some of the participants wrote that they experienced anger and despair. The nine-year-old respondent wrote, "It felt scary because you may die." One respondent, who was 48 years old, stated, "Somehow war, troops, and military give me a sad sensation," while another, who was 43 years old said, "War brings about feeling of grief and patriotism." Some found it an opportunity to relate to the struggles their Maltese ancestors faced. "Makes me consider the people of the time", wrote a 37-year-old respondent. According to one 14-year-old participant, "The Maltese were heroic when facing the French." Another 13-year-old said that he feels like this period was significant to Maltese history.

The diorama served as a revelation on the subject for most of the respondents. "Seeing a diorama, makes me more interested to know more," a 48-year-old wrote. This diorama brought back memories for a 56-year-old man who was interested in this period and "used to go and see re-enactments when they were organised here." Some remarked that it had been a revelation for them and that they were curious to learn more. In a pot, a 49-year-old stated that there should be more teaching and investigation concerning the part the Maltese performed during the French occupation.

A 60-year-old was drawn by the fascination of the period and said, "The diorama brings it alive." Another person, 35 years old, stated, "Such dioramas assist convey the Maltese side of the story. An event that shaped our identity as a nation." Others, particularly from the younger generation, expressed interest in learning more and even wanted to explore sites. Someone even suggested developing a supplementary outreach with more focused programmes on other media.

This study found that military dioramas can appeal to a wide range of audiences because they combine controversy, art, and history, serve as educational tools, and evoke powerful feelings. A well-designed diorama not only improves historical exhibits but also gives other museum artefacts more perspective and heightens their impact. It is also remarkable how this war-related topic was able to stir up memories in viewers.

4.4 The Triangular Strategy Results

The research analysis for this investigation was further characterised by this methodologically sound procedure. A sequence of actions was done during design and construction to convey the story, as revealed by the triangular data collecting technique, which was based on the viewpoints of model makers, museum professionals, and visitors. As these needs were addressed, it became evident that a balance must be made between the requirements of a tandem, the experts (curatorial), and the model makers (technical). The investigation revealed that to transform scientific information and research into a storytelling device, artistic and technical skills are required. In addition to serving as a didactic tool, it has been found that, when a subject like warfare is covered, dioramas are ideal for telling a story and inspiring the audience to generate unique experiences.

To create a museum diorama, a historical expert and a model maker must think in parallel about how to present the finished product to the viewer as a teaching tool. A diorama serves as a powerful interpretation tool since it might be challenging to adequately explain themes established through visual communication using only graphics or words. The historical data that must be turned into a diorama requires analysis from academic, scientific, and aesthetic perspectives. The analysis revealed that these types of dioramas can also be utilized to explore related themes and reach out to professionals for additional research and study. Model makers concur that while artistic skill is necessary to draw in and hold the attention of the observer, it

cannot substitute the historical component's ability to inform the viewer. Size and detail are other elements that should not be ignored and is undoubtedly something that draws the attention of different generations, who interpret them according to their abilities.

The study found that dioramas are still an opportunity to draw the viewer when these are integrated and analysed by the visitor. According to this study, a diorama can engage diverse identities and also draw different audiences from different age gaps without the need for explanation, in line with Falk's idea (2008) on forming the identity of museum visitors. Based on Tilden's principles (1957), research revealed that dioramas can be enlightening for themes that are not widely recognised or have received a different perspective due to collective memory. Although dioramas being static can depict a narrative, they may also include educational labels or interactive features to give visitors more context and details about the scene. With the help of modern technology, the possibility of reaching out and delivering the appropriate message can significantly increase. It was discovered that a tangible diorama can still draw attention and be remembered even when a digital presentation may be more appealing. This triangular analysis was carried out not only to confirm the effectiveness of the practice-led research methodology and to develop guidelines for building dioramas, but also to assess the potential for making a static diorama engaging for the visitor by determining what modifications could be implemented to improve the interpretation.

This was done to mimic what might be seen in a museum environment. From the information gathered, these points were considered so that when the new Blockade exhibition space and this diorama are added, these additions will be reflected in the design and ultimately establish the ideal set up to create an experience and engage various visitors of diverse identities. Despite the fact that this study's focus was on a specific era, the author believes the data collected is relevant and can be used in other military dioramas of a similar nature and different eras.

5 Conclusion

5.1 Key findings

The primary conclusions from the investigation were that dioramas are still an effective educational tool in a museum in the twenty-first century. In the absence of artefacts or an event/object that requires narration without the necessity for description, a museum diorama can interact with the visitor and supplement the exhibit. Dioramas have been found to be good storytellers and disclose or explore complex literary topics. The use of dioramas to communicate with different museum visitors continues to be common, and they are effective in reaching all age groups.

5.2 Aims

This study aimed to investigate how various people value a diorama's interpretive worth inside a museum. The results indicated that dioramas can be used as a technique to enhance a visitor's experience of an event and to establish connections with people of different generations through the power of storytelling.

It was discovered that the capacity to integrate research, scale, and artistic talent were valuable elements to develop an effective communication tool through a diorama. Further findings showed that miniature dioramas can be used in a museum setting to show a wide range of topics, including historical events, natural settings, cultural customs, and fictitious storylines. Findings indicated that dioramas could engage multiple generations and provoke thought more than a single stand-alone object on exhibit at a museum, even when issues like war are depicted.

According to the findings from the sample of museum professionals, model makers, and visitors, communication is enhanced when there is a balance between historical

research, detail in scale, and artistry. If planned properly, this communication can help to connect with various museum visitors and has no language barrier. The study result was able to develop a guideline from the viewpoints acquired from the analysis, which is intended to help create an effective museum diorama that tells a story.

5.3 Methodology

The majority of pertinent studies on dioramas are mostly concerned with habitat and life-size dioramas, therefore this study addressed a gap by talking about military miniature dioramas in relation to museum visitors. Additionally, whereas most of the research concentrated on the viewer's experience with dioramas or their historical context, this study filled the gap by investigating how this message is constructed through an examination of the synergistic effects of museum professionals and model makers.

A thematic miniature diorama was created as part of this study's practice-led research methodology to examine the efficacy of communicating the narrative of a military event. The challenge of this project was selecting suitable topics and scales to construct a storytelling diorama. This diorama's intended purpose as a museum exhibit provided an opportunity to assess whether the abilities incorporated to engage the viewer were attained and to determine what other improvements or advancements are required to achieve an appropriate interpretation.

The study has shown that the diorama's ability to interpret information is not limited to the tangible model alone; it may also include informative labelling or interactive features, such as touchscreens or audio tours, to provide visitors more background on the scene. Further components that can be developed and used to enhance the visitor's experience may include digital technology and multisensory effects.

5.4 Guideline for Storytelling Dioramas

The results showed that a guideline needs to be designed and followed in order to produce the optimum storytelling diorama fit for a museum. An essential component that needs to be examined and converted into a story board is research. To establish a clear picture throughout the planning phase, the appropriate components and details must be examined and selected. Even though only an event is depicted by a diorama, it manages to freeze a moment in time. It is important to think about how the storyboard is made and how the narration, characters, and scenario are connected, just like in theatre and film.

A diorama is merely an event, yet it captures a split second in time. The team building the diorama must strike the correct balance between science, scale, and aesthetic ability to generate an effective experience to communicate with the viewer. Using multisensory, labelling, interactive, or digital technologies can increase the interpretation, but they must be tuned to do so without detracting from the experience.

The objective is to achieve a balance by selecting the appropriate scale, storyline, and creative techniques to appeal to various visitors. By employing more information, which might not be included but is only provided to those who want to explore further, the interpretation can be improved further without distracting the audience with pointless details.

5.5 Limitations

The research was limited in that most of the information available was focused on habitat dioramas; nonetheless, this did not affect the results. Another drawback was that the researcher had to approach foreign model makers because local expertise in storytelling diorama construction was uncommon. Another drawback is that this study concentrated on a particular subject—a military event that had a significant impact on

collective memory. Though in the author's opinion, theoretically applicable to other eras, the results gained reflect that period. However, additional research is advised to fully understand the implications.

5.6 Future Studies

The investigation revealed that, even in a time when digital devices are more prevalent, dioramas are still useful pedagogic tool. The research discovered that military dioramas are able to fascinate, particularly the younger generations, and engage distinct emotions. It is suggested that more investigation is done to determine how different age groups can inspire various imaginative interpretations of military dioramas. Although this research did not go into deeper detail on this subject because it was not its intended purpose, further research is recommended.

A diorama still plays a significant role in a museum, especially when talking about themes like war and conflict. Because it is both a physical object and a device for storytelling, a museum exhibit can provide a visitor with an additional opportunity to engage with a topic. Dioramas have no age or language boundaries, and if they are planned in accordance with guidelines that balance art, scale and history, the communication effect will be felt by a variety of viewers and is able to convey a variety of messages.

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7 Appendices

7.1 Appendix A

Interview with Museum and Heritage Professionals

Name	
Profession	

Please tick the right answer with an (X) -

1. Do you know what is a diorama?

Yes	
No	

2. Do you find dioramas effective to be used for your research and archaeological studies?

Yes	
No	

3. Do you find dioramas an effective didactic device for interpretation and story-telling?

Yes	
No	

4. If your institution displays dioramas do you know if visitors find them interesting? If yes, please explain in what sense?

Yes	
No	

5. Do you believe that dioramas are still relevant in a museum or heritage institution to interpret and discuss topics such as war?

Yes	
No	

6. What is your preference between using augmented reality/ virtual reality and a traditional tangible diorama? Would you consider a combined effort?

Yes	
No	

Reason	
--------	--

7. In case you do not have an original artefact for an exhibition would you consider display/create a diorama?

Yes	
No	

8. Anything else you would like to add?

--

Thank You.

7.2 Appendix B

Interview with Artisans/Model Makers – Dioramists

Name	
Country	

1. Are you a professional modelmaker/artisan/dioramist?

Yes	
No	

*Please range 1 to 5 (1 less and 5 more) which subject do you prefer: **Thick (X)** under the respectful selected number*

2. Military history

1	2	3	4	5

3. Natural history

1	2	3	4	5

4. Non-military subjects

1	2	3	4	5

5. Fantasy

1	2	3	4	5

6. Other

1	2	3	4	5

7. Do you use historical sources to create these models/dioramas?

8. Do you find dioramas an effective device for historical interpretation and a form of story-telling better than a single model?

9. Do you think your models/dioramas can be used in a museum?

Yes	
No	

Reason	
--------	--

10. If not, why?

Thank You

7.3 Appendix C

General Public Questionnaire

Age	
Country	

1. Do you know what is a diorama?

Yes	
No	

If you responded **(YES)** please turn to the next page and continue

2. Have you ever seen any type of dioramas in other local museums?

Yes	
No	



Please have a look at this Diorama representing the 'Tat-Twila' Battery in Gharghar, during the French Blockade

3. Did you ever hear about 'The French Blockade in Malta' before you saw this diorama?

Yes	
No	

4. Did you know about these defensive batteries that were built during the blockade?

Yes	
No	

5. What did you find interesting in this diorama? –

Thick (X) under the respectful selected term

Military	
Artistic Detail	

6. Did you find this diorama interesting and wish to know more about its history?

Yes	
No	

7. Did you feel that you need further explanation about this diorama through a/an:

Thick (X) under the respectful selection

Audio guide	
Label or descriptive panel	
Written pamphlet	
Guide/official	

8. If instead of a diorama, you would have:

Thick (X) under the respectful selection

- a picture/painting/print only or
- written/oral description only or
- 1 single object with an explanation,

would you understand the theme 'Maltese batteries during the French Blockade'?

Yes	
No	

9. As this diorama interprets war, did the topic create any feelings?

Yes	
No	

Express your feeling according to this topic.

Reason	
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Thank you for your time in filling this questionnaire.