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Integrated in The Region of Jijel.**

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Dedication

To my dearest father, **Nadjeem**, my king,
Whose love and sacrifices make my heart sing.

You dedicated your life to provide,
Everything I needed, with nothing to hide.

Tirelessly, you toiled day and night,
To ensure my path was bathed in light.

To my beloved mother, **Nora**, my queen,
Your presence in my life is a treasure unseen.

You watched over my comfort with unwavering care,
Your prayers lifted me up when life felt unfair.

Through every triumph and every strife,
You stood by my side, the embodiment of life.

To my shoulder, my brother, my prince, **Abdulbassite**,
Your unwavering support brought me solace and delight.

In times of need, you were my rock,
With you, dear sibling, I could weather any shock.

Our bond is unbreakable, a connection so deep,
Forever in my heart, your place I will keep.

To my right hand, my sister, my princess, **Nour El Houda**,
Your presence in my life is a gift from above.

Together we faced the world with grace,
Through every challenge, our love held its place.

Hand in hand, we shared laughter and tears,
In you, dear sister, I found solace throughout the years.

To my second moms, **Amina** and **Naima**,

Your love and care never ceased to amaze.

Like guiding stars, you illuminated my way,
Your nurturing souls brightened each passing day.

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In your arms, I found love and solace.

To my loyal **friends**, each one by name,

Your unwavering support ignited life's flame.

Through thick and thin, you stood by my side,
With encouragement and love, you never denied.

In my journey, you lent a listening ear,
Your presence brought me strength, removing every fear.

To my animation team members, my comrades in art,
Whose creative spirits played their special part.

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Guiding me through the challenges, shining bright.

Without all of you, this success I hold,
Would have remained a dream, untold.

Your love, dedication, and unwavering care,
Ignited my spirit, helped me conquer every snare.

Together, you form the tapestry of my life,
With gratitude and love, I embrace your light.

Emotions run deep as I express my gratitude,
For the unwavering love, that you have all pursued.

You have shaped my path and made my dreams come true,
Forever grateful, I owe it all to you.

Thanks

ALLAH

In the realm of words, let gratitude arise,
As I humbly offer praise to Allah, the Wise.

In the depths of my soul, I humbly bow,
With a grateful heart, I offer my vow.

To the One above, the Almighty, so profound,
For never letting me down, I am forever bound.

Thank You, Allah, for granting me strength,
With gratitude overflowing, I humbly bow,
For You are the reason I carry on, then and now.

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With unwavering grace, you extended a helping hand,
Nurturing my growth, helping me firmly stand.

Through the peaks and valleys, you were always there,
With wisdom and counsel, showing how much you care.

Your patience was boundless, your support unwavering,
You believed in my potential, forever encouraging.

With open hearts, you shared your precious time,
Helping me unlock doors, where opportunities climb.

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Like captains on a ship, you steered me through the storm,
When doubts tried to consume me, your belief kept me warm.

You shared your knowledge, your wisdom, your insight,
Unveiling hidden treasures, guiding me with all your might.

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Understanding my struggles, allaying every fear.

Your encouragement, like a gentle breeze, lifted my soul,
Reviving my spirit, making me feel whole.

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My friends, the soldiers behind the scene,
In this symphony of triumph, you played unseen.

With unwavering support, you uplifted my flight,
Grateful for your presence, forever shining bright.

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I offer my humble thanks, in countless ways.
For your guidance, your kindness, your unwavering aid,
I will be forever grateful, in every step I will make.

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A symbol of strength, radiance, and a spirit that is akin.

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A precious gem, beyond compare.

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You stood tall, never backing down, never undone.

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Your compassion and empathy, a work of art.

Like the lush green of nature, vibrant and serene,
You bring solace and peace in a world oftentimes mean.

With a heart ablaze, fierce and true,
You paved the way for dreams to pursue.

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A powerhouse of determination, with courage revealing.

Through every challenge, you rise and ascend,
A knight's spirit that knows no end.

A warrior's soul, resolute and bold,
Your resilience a story waiting to be told.

To these versions of me, warriors unbound,
In this dedication, your valour renowned.

To my fighter self, **Kohinoor Midori Ackerman**,
I honour you all, for the battles, you have won.

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LIST OF ABBREVIATIONS

AI: Artificial Intelligence.

AR: Augmented Reality.

COVID-19: COrona VIRus Disease of 2019.

ICT: Information and Communications Technology.

IoT: Internet of Things.

MP3: MPEG-1 Audio Layer 3.

PDA: Personal Digital Assistant.

VR: Virtual Reality.

**GENERAL
INTRODUCTION**

GENERAL INTRODUCTION

Introduction

Since history, culture, and nature are three subjects that are closely related but are discussed separately in academic circles, the purpose of this research is to lay out a new path that can provide insights through the study and observation of the museum.

Through every stage of modernity, museums have accompanied humanity on a never-ending journey across the boundaries of the past, present, and future. However, just like their favored subject, human civilization, museums are also constantly changing. The modern art museum is a relic of an earlier time, just as modernity is no longer integral to society.

The new format of art museums necessitates a new perspective in order to understand their complicated nature and role in a larger social context, just as new phenomena in natural sciences call for new theories to describe them.

Tourism in Algeria has been growing slowly because of the absence of national strategies and care. Therefore, it is the time to start thinking of the development of this sector, taking in account nature as well as culture. The Algerian tourism industry could make the country more attractive in Northern Africa.

Algeria is a mysterious and interesting country, but the authorities did not put much effort into its development, if not outright arrogance, furthermore, there is a lack of knowledge and skills among people towards reviving and promoting the value of Algerian heritage, culture, and history as well as nature.

The following examples might be mentioned as some of the museums serving as samples of the field of displaying the history and culture of Algeria:

- Nasreddine Dinet Museum – Bou Saada.
- Musée de Timgad – Timgad.
- Bardo National Museum – Algiers.
- Museum of Modern Art of Algiers – Algiers.
- Bardo National Museum of Prehistory and Ethnography – Sidi M'Hamed.
- National Museum of Antiquities and Islamic Art – El Djazair.
- Archaeological Museum of Cherchell – Cherchell.
- Cirta Museum – Constantine.
- Museum of Fine Arts – Mohamed Belouizdad.
- Ahmed Zabana National Museum – Oran.

- Abdul Latif House – Algiers.
- Dar Mustapha Pacha – Casbah.
- Bastion 23 – Algiers.
- Béni Abbès Museum – Béni Abbès.
- Kotama Museum – Jijel.
- Museum of Art and History in the city of Tlemcen – Tlemcen.

Although it is underutilized, the Algerian tourism potential is significantly bigger than its natural resources:

- A coastline of 1200 kilometres;
- Some locations have mountains with pristine ecosystems that allow for winter skiing;
- The majority of the Sahara, the world's largest desert, is found in Algeria;
- Remains of the Roman era, during which Algeria served as the empire's grain storage facility;
- Unconventional museums of art (fine arts among others).

The chance to swim in the Mediterranean Sea in the morning, ski in the Algerian ski resorts in the north, and sip a mint tea in the Algerian Sahara in the late afternoon are just a few of the many unique choices that Algeria provides for tourists (both domestic and foreign).

This study is part of the perspectives guidelines and design requirements for the design of museums. It takes into account local climatic factors, man's needs and environmental characteristics where the museums will be implemented and integrated. It faces and challenges the creation and construction of the architectural production of these museums, in which we deal more particularly with multidisciplinary museums of "history, culture and nature" with a national character.

Motivation

The use of interdisciplinary themes in museum exhibitions provides a unique opportunity to present a holistic perspective that connects history, culture, and nature. By showcasing the interdependence of these disciplines, museums can offer a more engaging and comprehensive experience that helps visitors appreciate the significance of cultural and natural artefacts and their relationship with the world around us. This approach encourages critical thinking about the diverse heritage of the region and promotes a deeper understanding of how different elements of history, culture, and nature interact with one another. In this way, utilizing

interdisciplinary themes can enhance the visitor experience and promote a more profound appreciation of the interconnectedness of the world.

To briefly outline the motivations for this research study on new approaches to integrate multidisciplinary museums, we aim to improve the visitor experience and enhance the educational value through the improved presentation methods.

The reasons behind conducting this research study on novel methods to integrate multidisciplinary museums can be listed as follows:

- The relevance of integrating museums in Jijel, a coastal region with a rich history and cultural heritage, can offer a comprehensive and immersive experience to visitors.
- The inadequacy of the current museum setup in Jijel may not effectively highlight the city's diverse history, culture, and natural wonders, providing an opportunity for improvement.
- The significance of integrating multidisciplinary museums in Jijel can boost the regions as well as the country's cultural tourism, generate economic benefits, and preserve its heritage for future generations.
- The contemporary issue of studying new ways of integration for multidisciplinary museums globally can provide valuable insights and be useful for other cities facing similar challenges.
- The unique opportunity provided by Jijel, a location with rich heritage and the integration of history, culture, and nature museums make it an interesting research subject.

The motivation for this research study on new approaches to integrating multidisciplinary museums can be summarized in several key points, including the need to improve the visitor experience and display the rich cultural heritage of Jijel, a coastal region with diverse history and natural wonders. Additionally, this study aims to contribute to the global discussion on new ways of integrating multidisciplinary museums, while also promoting cultural tourism and economic development in Jijel and preserving its heritage for future generations.

State of the problem

The best place to learn about Algeria's history, which is full of significant events that have affected its present, and to experience Algeria's legacy is at its museums. Some of them relate to history and the civilizations that once inhabited Algeria, while others are connected to the arts, such as sculpture or painting, as well as Archaeology and Entomology. However, there

are neither museums of nature nor museums that combine history, culture and nature in one multidisciplinary building that can present the diversity of both of nature and culture in Algeria.

The current existing museums are inadequate and need to be improved to provide better visitor experience and make the museums more inclusive, accessible, and relevant to the local community. The integration of multidisciplinary museums (of history, culture, and nature) is a challenge to overcome the current situation.

The problem of integrating multidisciplinary museums of “history, culture and nature” in Jijel region is a complex and multifaceted issue that requires a comprehensive and interdisciplinary approach. One of the main challenges is to create a coherent and integrated approach that considers the diverse needs and perspectives of the different disciplines and stakeholders involved. This requires a deep understanding of the different historical, cultural, and natural aspects, as well as the relationships between these elements. Another major challenge is to create a sustainable and inclusive approach to museum integration that considers the needs and perspectives of all stakeholders, including local communities, tourists, and the wider public. This requires the development of innovative and participatory strategies that encourage active engagement and collaboration between all stakeholders.

In addition, the integration of multidisciplinary museums in Jijel also faces significant technological and logistical challenges. This includes the development of new and innovative technologies that can facilitate the integration of different museum collections and exhibitions, as well as the development of effective communication and information systems that can support the seamless flow of information and ideas between museums.

Finally, the integration of multidisciplinary museums in Jijel also requires a strong commitment from all stakeholders to work together in a collaborative and interdisciplinary manner. This requires the development of partnerships and networks that can facilitate the exchange of ideas, expertise, and resources between different museums, organizations, and communities.

Thus, the main objective is to explore and identify new ways to integrate multidisciplinary museums in Jijel, to enhance their educational and cultural significance, and to make them more accessible and appealing to the community.

In this sense, a main question may be raised:

- **What is the most effective way to integrate multidisciplinary museums of history, culture, and nature in Jijel region to ensure a comprehensive and dynamic experience for visitors?**

The following complementary questions are necessary to clarify the main question;

- What are the current methods for integrating multidisciplinary museums in Jijel region?
- How effective are the current methods for integrating the museums?
- What are the challenges faced in integrating history, culture, and nature in these museums?
- How can these museums better serve the local and national community and attract more visitors?
- What innovative approaches can be used to enhance the visitor experience in these museums?
- What role can technology play in the integration of different disciplines in these museums?

Hypotheses

In order to provide a comprehensive response to the central inquiry of this research, it may be necessary to put forward the following hypotheses:

- **The integration of innovative technology and sustainable practices may enhance visitor experience and promote conservation efforts.**

Integrating technology and sustainability in museums creates an engaging visitor experience and promotes conservation. This includes interactive touchscreens, virtual and augmented reality, multimedia presentations, and sustainable practices like renewable energy, waste reduction, and eco-tourism. These efforts show a commitment to conservation and educate visitors on preserving heritage. Overall, this integration enhances visitor experience and promotes cultural and natural heritage preservation.

- **The collaboration of local communities and experts may ensure accurate representation and inclusion of regional perspectives.**

Collaboration with local communities and experts involves collaborating with local organizations, institutions, and individuals to incorporate their knowledge and cultural heritage into museum exhibits and programs. By working with local experts such as historians, anthropologists, and archaeologists, museums can create educational and culturally sensitive exhibits. Engaging local communities through workshops, lectures, and

cultural events builds stronger relationships and promotes a deeper understanding and appreciation of the region's heritage. Ultimately, this collaboration creates a dynamic and inclusive museum experience that represents the cultural heritage of the region.

Objectives

The objectives of this study are crucial in guiding the research towards its intended outcomes. By clearly defining the goals of the study, we aim to provide a framework for the research and ensure that the results are aligned with the purpose of the study. Thus, we will outline the main objectives of the research and provide an explanation of their significance in achieving the research goals. Primarily, the following pivotal objectives can be delineated:

- To examine new ways of integrating the national multidisciplinary museum of nature, culture, and history in Algeria.
- To improve the museum's ability to effectively communicate its cultural and scientific significance, both locally and globally, and to foster a deeper appreciation for Algeria's unique and diverse cultural heritage.
- To explore innovative methods of integrating technology, interactive exhibits, and educational programs to enhance the museum's appeal and influence.
- To improve the museum's ability to effectively communicate its cultural and scientific significance, both locally and globally, and to foster a deeper appreciation for Algeria's unique and diverse cultural heritage.

To clarify the previous ideas, we can list these complementary objectives in certain points:

- Explore new and innovative methods of integrating the National Museum of Nature, Culture, and History in Algeria into the cultural and educational landscape.
- Assess the feasibility of incorporating new technologies, such as virtual reality and augmented reality, into the museum's exhibits and programming.
- Identify and analyse the role of technology in the integration of a national multidisciplinary museum.
- Examine the potential for improving visitor engagement and enhancing the museum experience for audiences.
- Identify opportunities for strengthening partnerships between the museum and other cultural institutions, community organizations, and educational institutions.
- Evaluate the impact of integration on the preservation and promotion of Algeria's cultural heritage and natural history.

- Identify current challenges and gaps in the integration of a national multidisciplinary museum in Algeria.
- Evaluate existing strategies and approaches to museum integration.
- Make recommendations for the development and implementation of a successful integration strategy for the national multidisciplinary museum.
- Evaluate the impact of the integration of national heritage and cultural diversity on the museum's operations and services.
- Assess the financial sustainability and feasibility of the proposed integration strategies, including funding sources and cost-effectiveness.
- Identify the training and capacity-building needs of museum staff, in order to effectively implement the new integration strategies.
- Determine the most effective communication strategies to raise awareness of the museum's mission and programs among the local and international community.
- Identify the challenges in integrating history, culture, and nature in museums.
- Describe the current methods used for integrating multidisciplinary museums in Jijel.
- Evaluate the effectiveness of the current methods for integrating museums in Jijel.

The conclusion of the study would highlight the importance of modernizing the museum to ensure its relevance and impact on the public, and to preserve and display the country's rich heritage.

The study would recommend specific solutions and strategies for achieving these objectives, including increased collaboration with local organizations, the use of digital technology, and the development of educational programs and events. The study would emphasize the critical role of the museum in promoting cultural understanding, fostering national pride, and contributing to the growth and development of Algeria.

Research method

In order to better understand the theme and address the stated problem, we followed a methodological approach consisting of four levels, which can be summarized as follows:

Case study and sample collection

- Defining the scope of the case study and the research question to address. The understanding of the current state of museums in the region of Jijel and their potential for promoting local history, nature, and culture.

- Identifying a representative sample of museums in the region that include the study. It would involve consulting with local experts, reviewing existing literature, and/or conducting site visits to assess the suitability of potential museums.
- Developing a sampling plan that specifies how to select and collect data from each museum in the sample. It would involve collecting data on visitor demographics, museum exhibits, educational programming, staffing, and funding sources.
- Creating a data collection tool, such as a checklist or survey, which can be used to collect data from each museum in a standardized way.
- Using the data collected to create a chart or table that summarizes key information about each museum in the sample. It would allow us to compare and contrast the different museums and identify patterns and trends that may be relevant to the research question.

Museum information collection

- Identifying the administration and institutions that oversee museums in the region of Jijel. It would involve conducting online research and/or consulting with local experts.
- Developing a data collection plan that specifies how to gather information from each of these sources. It would involve conducting interviews, reviewing documentation, and/or conducting site visits.
- Collecting information from each of the identified sources using the chosen data collection methods.
- Creating a summary of the information collected that identifies key stakeholders, funding sources, policies, and practices that may be relevant to the research question.

Development of a survey

- Based on the information collected in first step and the second steps: the case study and sample collection; the museum information collection, developing a questionnaire that can be used to gather additional data from museum visitors and/or staff.
- The questionnaire should be designed to test specific hypotheses or research questions that have emerged from the previous steps.
- Pre-testing the questionnaire with a sample of responders to ensure that it is clear, concise, and unbiased.
- Administering the questionnaire to a representative sample of museum visitors and/or staff, depending on the research question.
- Analysing the data collected using statistical or qualitative methods to identify patterns and trends that may be relevant to the research question.

Developing new recommendations for museums

Based on the findings from the research, proposing a model for museums in the region of Jijel that takes into account the history, nature, and culture. This would involve making specific recommendations for museum exhibits, educational programming, staffing, and funding sources. The final model should be grounded in the data collected and tested against the research question that were identified at the beginning of the project.

Thesis structure

In order to achieve our research objectives and verify our study hypotheses, we have divided this work into two complementary and interrelated parts:

- A first theoretical part composed of three chapters that are based on bibliographic research.
- A second operational part in which we applied the results of our theoretical research. It contains two chapters; which are;
 - Presentation of the case study and investigation method;
 - The results, discussion and recommendations.

The organization of all the chapters is summarized in the attached diagram.

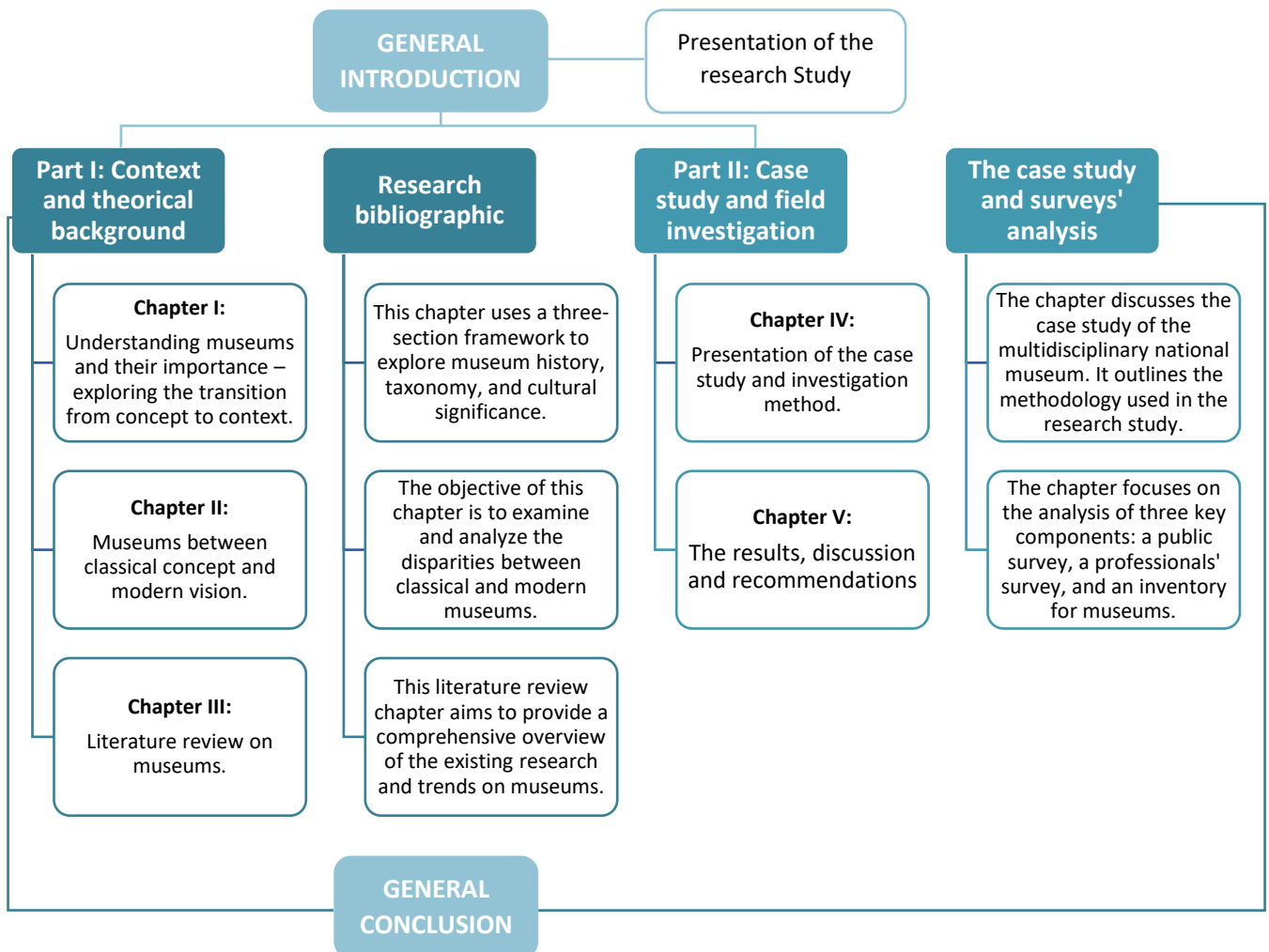


Figure 1: Thesis structure.

**PART I: CONTEXT
AND THEORETICAL
BACKGROUND**

**CHAPTER I:
UNDERSTANDING
MUSEUMS AND THEIR
IMPORTANCE –
EXPLORING THE
TRANSITION FROM
CONCEPT TO CONTEXT**

**CHAPTER I: UNDERSTANDING MUSEUMS AND THEIR IMPORTANCE -
EXPLORING THE TRANSITION FROM CONCEPT TO CONTEXT**

Introduction

Museums are an important part of human history and have served as institutions of cultural preservation and learning for centuries (Hooper-Greenhill, 1995). As these institutions evolve and adapt over time, their importance and impact on society will only increase. Understanding the complex and multifaceted nature of museums requires a comprehensive analysis that takes into account the different contexts in which museums operate.

This chapter uses a three-section framework to explore museum history, taxonomy, and cultural significance. The first section provides a conceptual framework that defines key concepts related to museums and examines their historical background and context. The second section focuses on the historical framework of museums, examining how museums have adapted to changing cultural, social, and political conditions. The third section examines the cultural framework of museums and explores their role in shaping cultural identity and presenting cultural heritage.

I.1. Conceptual framework

Museums require a conceptual framework to guide research and study of their operations, which includes essential concepts, historical context, and museum classification to better understand their impact on visitors.

I.1.1. Definition of the key concepts

The study of museums entails a number of important concepts that are necessary for comprehending their purposes, values, and relevance. We will define and study these major concepts in depth in this research to provide a full knowledge of the museum as an institution. This research aims to gain a better understanding of the museum as an institution and its position in society, as well as identify strategies to increase its efficacy and relevance in a fast changing world.

- **Museum:** *“A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment.”* (Alexander et al, 2017).

- **Museum integration:** *“Museum integration is a process by which multiple museum disciplines, departments, and activities work together to achieve a cohesive, unified, and effective museum experience.”* (Simmons, 2016).
- **Multidisciplinary museums:** *“Multidisciplinary museums are those that draw from and collaborate with diverse fields of knowledge to create innovative interpretive programs and exhibitions that reflect complex and dynamic aspects of contemporary life.”* (Carbonell, 2005).
- **Nature museums:** *“Nature museums are institutions that collect, study, and exhibit objects and information about the natural world, and provide opportunities for public education and enjoyment of these resources.”* (Devis, 1996).
- **Cultural museums:** *“Cultural museums are institutions that collect, preserve, and exhibit objects and information related to the arts, history, customs, and beliefs of particular groups of people.”* (Peers & Brown, 2003).
- **History museums:** *“History museums are institutions that collect, preserve, and exhibit objects and information related to the past, with a focus on human experiences and events.”* (Pearce, 1994).
- **Collections:** *“A museum’s collections are its raw material, the objects or groups of objects that it acquires and preserves, studies, and presents to the public as part of its mission.”* (Alexander et al, 2017).
- **Curation:** *“Curation encompasses a range of activities associated with the care and management of museum collections, including acquisition, conservation, research, and interpretation, as well as the physical organization and presentation of objects in exhibitions.”* (Ibid.).
- **Interpretation:** *“Interpretation is the process of translating the content and meaning of objects, exhibitions, and museum experiences into a form that visitors can understand and appreciate.”* (Ibid.).
- **Visitor experience:** *“The visitor experience is a complex and multifaceted phenomenon that encompasses all aspects of a visitor’s interaction with a museum, including the physical environment, the museum’s collections and exhibitions, the educational programs and interpretive materials available, and the amenities and services offered.”* (Ibid.).
- **Cultural heritage:** *“Cultural heritage refers to the material and immaterial artefacts, traditions, and practices that have been inherited from past generations and are valued for their significance to a community’s identity and history.”* (Ibid.).

- **Museum ethics:** “*Museum ethics refers to the principles and standards that guide the responsible management and operation of museums, including the acquisition, stewardship, and interpretation of collections; the relationship between museums and the communities they serve; and the ethical considerations surrounding the display of human remains, cultural objects, and sensitive or controversial topics.*” (Alexander et al, 2017).
- **Museum education:** “*Museum education is the field of practice and study that focuses on the use of museums as sites for teaching and learning, through formal and informal educational programs, resources, and outreach activities.*” (Ibid.).

I.1.2. Historical context and background

Museums have evolved into significant institutions that preserve and display cultural artefacts, serve as educational and social spaces, and have affected our view of the past and present. Researching their history can help us understand their relevance and impact.

I.1.2.1. Sixteenth and seventeenth century

While humans have been collecting and displaying objects for centuries, the modern museum as we know it today is a relatively new invention.

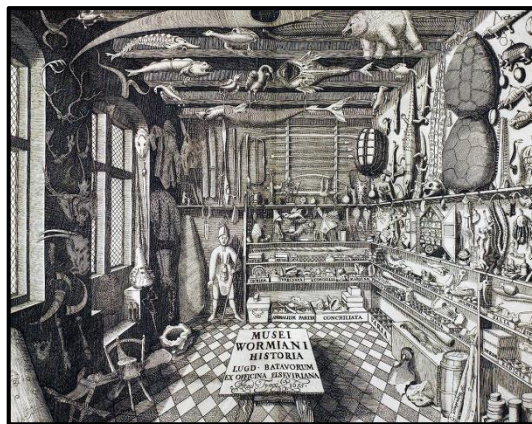


Figure I.1: Frontispiece depicting ole worm's cabinet of curiosities from *Museum Wormianum*, 1655. (Smithsonian libraries) Rodini, e. (n.d.)

The museum can be traced back to European cabinets of curiosities that first emerged in the sixteenth and seventeenth centuries as (Pearce, 1996) mentioned, “*The origins of the museum lie in the underdamper or cabinet of curiosities which began to be established in Europe from the sixteenth century onwards.*”.

These were essentially private collections, often maintained by aristocrats, which brought together objects of natural history, antiquities and art. These collections, which were not accessible to the public, were sometimes held in small rooms or private residences. “*By the*

17th century, these cabinets had evolved into public institutions, such as the Ashmolean Museum in Oxford, England, which opened in 1683 as the first public museum in the world.” (Simmons, 2016). It is important to note that the Ashmolean Museum in Oxford, England is often considered as the world's first university museum.

I.1.2.2. Eighteenth century



Figure I.2: *The British Museum, print made by Augustus Bulter. Lithograph, 1853.*



Figure I.3: *The zoological gallery in the British Museum, c. 1845.*

These «cabinets of curiosities» transformed into more organized institutions over time. “The first public museum in the world was the British Museum, which opened in London in 1759. The museum’s collections were primarily focused on natural history and antiquities.” (Pearce, 1996). Other museums, such as the Smithsonian Institution in Washington, D.C., the Vatican Museum in Rome, and the Louvre in Paris, quickly followed. As Simmons (2016) described, “These institutions were seen as a means of educating the public and promoting national identity and pride.”

I.1.2.3. Nineteenth century

Carbonell (2005) mentioned, “In the 19th century, museums underwent a period of rapid growth and expansion, as colonialism, nationalism, and industrialization fuelled the demand for museums as sites of national identity and cultural heritage.”

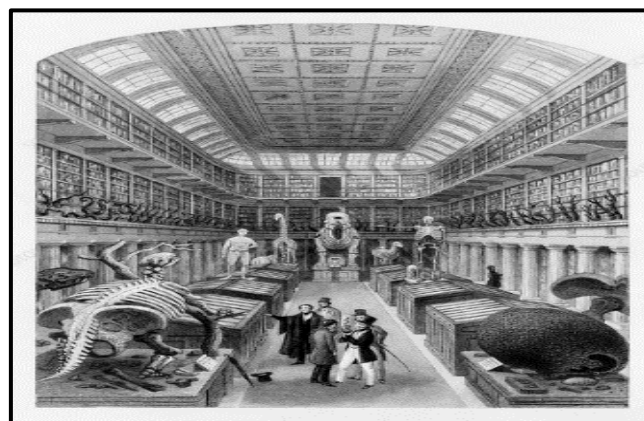


Figure I.4: *Hunterian Museum, 19th century. Shepherd, T.H, Radclyffe, E (n.d.)*

The rise of colonialism and imperialism also inspired the formation of museums dedicated to non-Western cultures and artefacts, sometimes with an emphasis on exoticism and otherness. In addition to collecting and displaying natural specimens, museums started to classify and show works of art and historical relics. “*Many museums began to focus on the display of art and historical artefacts, rather than natural specimens.*” (Carbonell, 2005).

I.1.2.4. Early twentieth century

According to Alexander et al (2017), science and technology museums first appeared in the early twentieth century. Some museums have begun to adopt innovative technologies, such as audio tours and interactive exhibitions, to engage visitors.

I.1.2.5. Late twentieth century

Based on Alexander et al (2017)’s statement, the role of museums changed dramatically in the later half of the twentieth century, with a greater emphasis placed on community participation, education, and public interaction. Museums have begun to diversify their collections and exhibits in order to reflect a broader range of perspectives and cultures.

I.1.2.6. Twenty first century

In accordance with Black (2012)’s words, museums continue to develop and adapt as the social, cultural, and technological settings change in the twenty-first century. Many institutions are currently focusing on themes of diversity, accessibility, and community involvement, while others are discussing the role of museums in a rapidly changing world.

Ultimately, in the 19th century, they were more specialised and focused on community participation and diversity. In the 21st century, they are adapting to changing circumstances and are still important for conserving culture and history.

I.1.3. Museum’s classification

Museum categorization is an important subfield of museum studies that looks at how museums function and contribute to society. Collections are central to any museum, and they determine its identity, purpose, and goal.

We can learn about museums' institutional histories, cultural priorities, and educational goals by looking at how they arrange and present their holdings.

I.1.3.1. Classification

- **Based on their collections:** As claimed by Ambrose & Paine (2012), museums can be classed in a variety of ways, the most frequent of which is based on their collections. Natural history museums, art museums, and history museums are the three basic types. Natural history museums exhibit natural world specimens, art museums exhibit works of art, and history museums exhibit artefacts connected to human history and culture.
- **Based on their size and scope:** According to the words of Goode (1896), a different approach to categorising museums is to consider their size and range. Museums can be tiny or enormous, and they can be localised or nationalised. They can have either a special concentration or a more comprehensive range of displays. Particular museums may be dedicated to showing the work of a single artist or an artistic movement, whereas others may focus on a specific culture or period in history.
- **Based on their ownership and governance:** From the viewpoint of Museums (2017)'s website, another technique of categorising museums is based on who owns and manages them. Governments, universities, private foundations, and individuals may own and administer museums. They might operate as standalone businesses or as part of a larger company.
- **Based on their purpose or mission:** Based on Goode (1896)'s perspective, the goal or objective of a museum can also be used to classify it. Several museums are dedicated to educating the public, while others are dedicated to undertaking research. Other museums aim to educate the public as well as undertake research.

I.1.3.2. Evolution of museum classification: major developments throughout history

The following is a list of significant developments in the classification of museums throughout history, as summarized by (Bautista, 2013):

- In the 18th century, museums were primarily private collections of objects and artefacts, but the first public museum was established in France in 1793, which is the Louvre museum.
- During the 19th century, museums began to incorporate educational and research functions, and the Smithsonian Institution was established in the United States in 1846.
- In the early 20th century, museums became increasingly specialized, with institutions dedicated to specific fields such as art, natural history, and anthropology.
- The mid-20th century saw museums prioritize public outreach and community engagement, as well as becoming more critical of their collections and confronting issues of colonialism, representation, and ownership.

- In the late 20th century and beyond, museums have embraced new technologies and expanded their online presence, with the idea of the “participatory museum” emerging to emphasize collaboration and co-creation with visitors.

As a summary, museums have evolved from private collections to public organisations with teaching and research activities, specialising in specialised subjects, and engaging visitors through collaboration and co-creation.

I.1.3.3. Types of museums

Bouquet (2013) contends that there are many types of museums, each with a specific focus and purpose:

- **Natural history museums:** These museums display specimens of plants, animals, and other natural phenomena, often with an emphasis on evolutionary history.
- **History museums:** These museums display artefacts, documents, and other materials that tell the story of a particular period, event, or place.
- **Anthropology and ethnography museums:** Museums that display an array of items from various cultures and societies from different parts of the world
- **Archaeological museums:** That exhibit material remains and artefacts discovered from archaeological excavations.
- **Living collections museums:** Museums that display living organisms. This could include places like botanical gardens or zoological parks, where visitors can see and interact with living plants and animals.



Based on (University of Toronto, n.d.), there exist others types of museums such as:

- **Art museums:** That gather and exhibit a diverse range of artworks such as paintings, sculptures, and other forms of visual art.
- **Science museums:** Science museums investigate various scientific principles and discoveries through exhibits that highlight topics such as physics, astronomy, and biology.
- **Technology museums:** Museums that delve into the history and evolution of technology typically have exhibits that centre on subjects such as transportation, communication, and industry.
- **Children's museums:** Children’s museums are institutions created for the sole purpose of providing interactive and hands-on exhibits and activities for children.

There also exist three other unique types of museums:

- **Military museums:** "Military museums, for example, are located on military bases or in large urban centres and use collections of weapons, vehicles, and uniforms to document the military history of a region or nation." (Carbonell, 2005).
- **Maritime museums:** "Maritime museums, for example, are typically situated in coastal locations and use collections of ships and related materials to explore the history of seafaring and the cultures associated with it." (Sandell & Janes , 2002).
- **Virtual museums:** "Virtual museums are digital platforms that allow visitors to explore collections and exhibits online. Virtual museums offer greater accessibility and reach to audiences who may not be able to visit physical museums." (Falk & Dierking, 2013).

Table I.1: Types of museums.

Natural history museum	History museum	Anthropology museums	Archaeological museums
 <p>Figure I.5: The Natural History Museum in London. Chiuchihmin (n.d.).</p>	 <p>Figure I.6: Canadian Museum of History (n.d.).</p>	 <p>Figure I.7: National Museum of Anthropology. Layung (2017).</p>	 <p>Figure I.8: Istanbul Archaeological Museum (n.d.).</p>
Art museums	Science museums	Military museums	Maritime museums
 <p>Figure I.9: Denver Art Museum. Bredt (n.d.).</p>	 <p>Figure I.10: The Canada Science and Technology (2017).</p>	 <p>Figure I.11: National Dutch Military Museum. Joop (2022).</p>	 <p>Figure I.12: National Maritime Museum of China. Zhang, T. (2020).</p>

To conclude, museums have evolved from private collections to public institutions with a focus on education, cultural heritage, community participation, and diversity. They are still adapting to changing social, cultural, and technical surroundings, with a focus on diversity, accessibility, and community involvement. Understanding museums' institutional histories, cultural agendas, and educational goals requires categorising them based on their collections, emphasis, and functions.

I.2. Historical framework

Museums have long been a part of human history, serving as a storehouse for culture, information, and heritage. Museum history examines the emergence of different types of museums, the changing nature of collections, and the evolution of museums.

I.2.1. Evolution of museums over time

Museums have grown from private collections to cultural entities over time. This section covers the many stages of their history as well as the reasons that drove their growth and evolution, offering context for their modern-day significance

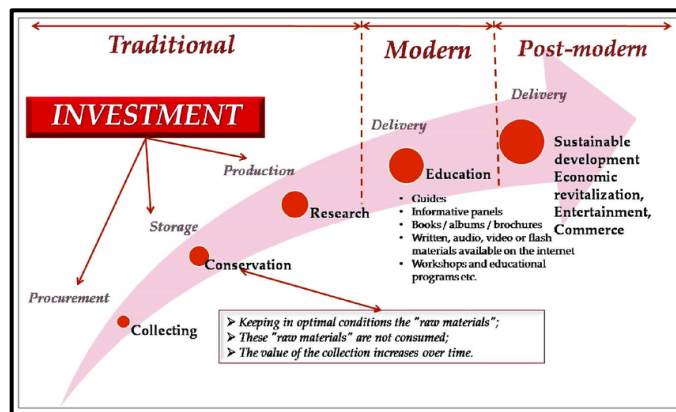


Figure I.13: The evolution of museums function. Popm I.L (2016).

- The earliest museums were private collections of curiosities or wonders accumulated by wealthy individuals to demonstrate their interests and entertain visitors. These collections included both natural specimens and cultural artefacts.
- The museum as a public institution originated from the Enlightenment era, around the 18th century, with the belief that exhibiting and accumulating objects could enhance knowledge and understanding.
- In the 19th century, nationalism and colonialism led to the creation of museums that focused on the cultural and natural heritage of specific regions or countries as (Falk & Dierking, 2013) wrote, “The rise of nationalism and colonialism led to the establishment of museums focused on the cultural heritage and natural resources of specific regions or countries”. Many of these museums were established to document, preserve vanishing cultures and ecosystems, and were closely linked to scientific research and exploration.
- During the 20th century, museums became more accessible and shifted their focus to education and public engagement, with many offering educational programs and exhibitions to attract diverse audiences and promote social justice. As claimed by

Carbonell (2005) “*Museums became more democratized and began to focus more on education and public engagement.*”.

- In recent years, museums are seen as agents of social change, emphasizing inclusivity and representing communities.

Museums have evolved from affluent people' personal collections to public institutions focused on education, public participation, and social justice. Museums are now viewed as agents of social change, and they try to be more inclusive and reflective of their communities.

I.2.2. Development of different types of museums

Museums have evolved over time, with each type having its own traits, audiences, and purposes. Understanding the development of each type of museum can provide insights into broader trends and issues in the museum industry. It is important to investigate the origins, evolution, and current state of each type of museum.

- **Natural history museums:** As stated by Falk & Dierking (2013), the origins of natural history museums can be traced back to the 16th century Cabinets of Curiosity. They were the forerunners to modern museums. Natural history museums were built to display natural items such as plants, animals, minerals, and fossils. Explorers and scientists seeking to document the natural world founded several early natural history museums.
- **History museums:** History museums aim to conserve and exhibit historical artefacts and occurrences. They may display objects associated with a specific area, society, or historical incident, and commonly feature interactive displays and instructional activities as claimed by (Falk & Dierking, 2013). Moreover, according to the words of Alexander et al (2017), “*History museums arose in the United States in the late 19th and early 20th centuries, following a trend of nationalistic fervour that led to the creation of museums celebrating local and regional history*”
- **Living history museums:** In the opinion of Magelssen (2007), there was an emergence of living history museums during the mid-20th century that were designed to recreate the everyday life and customs of a specific period and location. The inspiration for these museums came from outdoor historical sites such as Colonial Williamsburg located in Virginia.
- **Art museums:** According to the view of Falk & Dierking (2013), the origin of art museums can be traced back to the late 18th century when private collections became more readily available to the public. The Dulwich Picture Gallery, founded in London in 1811, was the first public art museum. While initially created to preserve and display art pieces, art

museums have developed into cultural and educational institutions over time. In the same vein, Alexander et al (2017) confirmed based on his research that “*Art museums were founded in the 19th century, inspired by the great public collections of Europe and the art galleries of London and Paris*”.

- **Science museums:** Based on Falk & Dierking (2013)’s statement, science museums came into existence in the 1900s and have a mission to provide public education about science and technology. These museums are known for their interactive exhibits that allow visitors to engage in scientific experiments and other related activities, as (Da Milano & Lattanzi, 2016) noted, “*Driven by a desire to promote science education and inspire young people to pursue careers in science and engineering.*”.

I.2.3. Future of museums

According to Simon (2010), the ability of museums to connect visitors and exhibits, people and ideas, and museums and their communities will shape their future. To accomplish this, effective museums must prioritize participatory experiences and embrace four crucial ingredients: openness, connection, curiosity, and joy. To develop meaningful connections with their audiences, they must constantly evaluate their programs, collections, and facilities (Simon, 2010).

As Bast et al (2017) wrote that museums must stay faithful to their basic mission of protecting and interpreting cultural heritage while adapting to new technology and changing audience demands and expectations. Museums must also become more inclusive and diverse in order to remain relevant, as well as play an active part in tackling social and environmental issues. Museums will be challenged to demonstrate their relevance, utility, and worth to the public in the face of increased competition from other knowledge sources available through digital technology.

Additionally, the future of the museum depends on finding a balance between innovation and tradition, as well as a willingness to take risks and experiment with new approaches has argued it (Garayannis et al, 2018).

In conclusion, over time, Museums have evolved from personal collections to public organisations focused on education, public participation, and social justice. The ability of museums to build connections between visitors and exhibitions, people and ideas, and museums and their communities will determine their future.

I.3. Cultural framework

Understanding a society's history, values, and traditions requires a grasp of culture and its preservation. Museums play a vital role in this regard because they are important institutions that assist build cultural identity and convey cultural heritage to the public. Museums provide a unique perspective on the cultural artefacts and traditions of many communities, both past and present, through their collections and displays.

I.3.1. The role of museums in shaping cultural identity and presenting cultural heritage

Museums provide a platform for preserving, interpreting, and presenting cultural objects, artworks, and historical artefacts to a wider audience, determining how people and society interpret their past, present, and future.

Museums play an important role in developing cultural identity and displaying cultural heritage. Museums, as numerous authors have emphasised, are not neutral reservoirs of knowledge, but rather active agents in the construction of meaning and the negotiation of identity (Message & Witcomb, 2013). Museums have the ability to generate and perpetuate cultural identity, as well as affect public conceptions of what constitutes and does not constitute cultural heritage (Wyndham, 2014).

As per (Hooper-Greenhill, 1995)'s perspective, exhibitions are never neutral or objective, but rather represent the museum's and its curators' perspectives, values, and interests, and museums must be willing to participate in debate and negotiation to ensure that their exhibitions are accurate, courteous, and inclusive. Wyndham (2014) claimed that museums have the ability to encourage intercultural dialogue and exchange, as well as contribute to the creation of more inclusive and diverse communities.

However, to attain these objectives, museums must take more collaborative and participatory methods to exhibition development, collaborating closely with communities to ensure that their viewpoints are represented in the exhibits (Wyndham, 2014). Finally, museums must balance their mission to preserve and display their communities' cultural legacy with their obligation to engage in critical reflection and interaction with those people (Message & Witcomb, 2013).

In summary, museums are important for shaping cultural identity and displaying cultural heritage. They must adopt more collaborative and participatory approaches to exhibition development to foster more inclusive and diverse societies. They can contribute to a deeper knowledge and appreciation of the diversity of human experience by combining their

responsibility to preserve and exhibit cultural heritage with their need to engage in critical thought and interaction with communities.

I.3.2. How museums preserve, present and interpret cultural artefacts and traditions

Museums are responsible for preserving, presenting, and interpreting cultural artefacts and traditions for future generations. They provide a window into the past and help us understand our shared past by showing items and practices in their historical and cultural contexts.

Museums have the dual obligation of preserving and displaying cultural artefacts and practises for future generations, as well as engaging the public. Documentation, conservation, and interpretation are among the actions involved. According to Ambrose and Paine (2012), to care for their collections, museums practise proactive conservation, object handling, and exhibition design. They also perform research and interpretation to provide narratives that assist visitors in understanding and appreciating the artefacts and civilizations they represent.

Additionally, to add context and meaning to the objects on show, museums employ interpretive tactics such as audio guides, labels, and interactive exhibits (Message & Witcomb, 2013). As noted by Bouquet (2013), museums are more than just locations to gather and display items; they also give the opportunity for individuals to learn about their own cultures and those of others, reflect on their own values and beliefs, and appreciate the diversity of human experience.

In modern museum practise, there is a growing emphasis on understanding cultural artefacts and traditions in their historical, social, and cultural settings through a variety of interpretative methodologies (Davison, 2005). Museums must also be conscious of the ethical and cultural challenges that arise when presenting cultural artefacts and practises, such as repatriation and respectful representation of indigenous cultures (Ambrose & Paine, 2012). Museums must try to display cultural artefacts in sensitive and respectful ways to the communities from which they come (Ambrose & Paine, 2012).

In conclusion, museums are essential for preserving and displaying cultural artefacts and traditions, as well as for public involvement. They participate in tasks such as documentation, conservation, and interpretation to help visitors understand and appreciate the artefacts and cultures they represent. However, museums must be mindful of the ethical and cultural challenges involved in displaying cultural artefacts and practises, and must do so in ways that are respectful of their communities of origin.

I.3.3. Significance of the museums in society

Museums are important institutions for preserving, interpreting, and exhibiting cultural and historical artefacts, promoting community interaction.

Museums are important institutions in modern culture because they serve as repositories of cultural legacy as well as locations for the creation of new knowledge through research and public programming (Message & Witcomb, 2013). Fyfe (2006) asserts that museums have an important role in moulding public attitudes and perceptions about topics such as the environment, diversity, and social justice, as well as providing a forum for discourse and debate and developing understanding and empathy across cultures and communities.

Museums are also economically important, creating jobs and contributing to local and national economies, as well as the creative economy, stimulating new forms of artistic expression and cultural creation (Fyfe, 2006; Hooper-Greenhill, 2000).

However, museums face challenges in keeping relevant and interesting to different audiences, and in order to fulfil their societal obligation, they must be transparent, interactive, and sensitive to the needs and concerns of their communities (Hooper-Greenhill, 2000; Message & Witcomb, 2013). Overall, museums serve an important role in encouraging creativity, learning, and cultural understanding, as well as contributing to communities' social and economic well-being (Fyfe, 2006).

Overall, museums are important cultural institutions that have a significant impact on society. Museums serve as cultural heritage repositories, provide new knowledge, and contribute to the economy by creating jobs and stimulating the creative economy.

To conclude, museums are important institutions for documenting, conserving, and interpreting cultural artefacts and practices, allowing people to learn about their own and others' cultures.

Conclusion

Museums have progressed from being private collections to public institutions that encourage education, community engagement, and diversity. Changes in history, culture, and technology have fuelled their growth, and the various types of museums have presented unique opportunities and difficulties. Museums' future lies on connecting people to exhibits, prioritising participatory experiences, and embracing openness, connection, curiosity, and joy.

Museums play an important role in shaping cultural identity and presenting cultural heritage as active agents in constructing meaning and negotiating identity, and they provide chances for people to study, contemplate, and appreciate the richness of human experience. Museums, on the other hand, must be cognizant of the ethical and cultural challenges involved in displaying cultural artefacts and practises, and they must do so in sensitive and respectful ways.

**CHAPTER II:
MUSEUMS BETWEEN
CLASSICAL CONCEPT
AND MODERN VISION**

CHAPTER II: MUSEUMS BETWEEN CLASSICAL CONCEPT AND MODERN VISION

Introduction

A crucial component of preserving and showcasing human history, culture, and art has always been museums. From their beginnings in antiquity, when they used to exhibit artwork and artefacts in public places and temples for religious and educational purposes, they have come a long way. The Uffizi Gallery in Florence, which is regarded as the first modern museum, opened its doors in 1765 after people began to view museums as places where the public might learn and become educated during the Renaissance (Pearce, 1996).

From there, Museums have become spaces for experimentation and innovation as curators and artists explore new ways of displaying art and artefacts. Recently, digital technology has transformed the museum experience, leading to the rise of “smart museums”. These institutions use cutting-edge technology to offer interactive exhibits, immersive installations, and personalized content that enhance the visitor experience (Alexander et al., 2017). In today’s rapidly changing cultural landscape, museums face new challenges and opportunities. They are adapting to changes in demographics and cultural attitudes while seeking to engage new audiences and address contemporary issues through their collections and programming (Black, 2012).

As we consider the role of technology in museums, we must also think about the ethical implications of these innovations. We need to be aware of issues such as privacy, data security, and the impact of technology on shaping cultural narratives.

II.1. Classical museums

Classical museums are institutions that preserve and display historical, artistic, or culturally significant objects. They have a traditional, formal feel and exhibits can be explored at their own pace. Special exhibitions, lectures, and educational programs are also held to engage visitors and promote learning.

II.1.1. The key features of classical museums

II.1.1.1. The essential elements of classical museums: a comparative analysis

Classical museums must adhere to curatorial expertise, professional standards, ethical principles, public engagement, and sustainability to provide visitors with an enriching experience.

- **Collection:** *“The collection of objects is the essential and defining feature of a museum.”* (Ambrose & Paine, 2012). Classical museums have a collection of objects that are acquired, documented, conserved, and displayed for public viewing. (Lahanier et al., 1986).
- **Display:** Objects in classical museums are exhibited in a way that enhances their aesthetic, educational, and cultural value. (Alberts & van der Veen, 2011)
- **Conservation:** *“Conservation of objects is one of the central roles of a museum.”* (Ambrose & Paine, 2012). Classical museums preserve and protect their collections for future generations through conservation, restoration, and preventive measures. (Lahanier et al., 1986).
- **Research:** *“Museums are centres for research.”* (Ambrose & Paine, 2011). Classical museums conduct research to enhance knowledge and understanding of the objects in their collections and their historical and cultural contexts. (Lahanier et al., 1986).
- **Exhibition:** *“Exhibitions are the primary means by which museums display their collections.”* (Ambrose & Paine, 2012). Traditional museums typically have permanent exhibitions that display highlights from their collections, as well as temporary exhibitions that explore specific themes or topics. (Lahanier et al., 1986).
- **Interpretation:** *“Interpretation is the means by which museums communicate with their audiences.”* (Ambrose & Paine, 2012). Classical museums provide interpretive information to help visitors understand and appreciate the objects on display, including their historical, cultural, and scientific significance. (Lahanier et al., 1986).
- **Education:** *“Museums have an important educational role”* (Ambrose & Paine, 2012). Classical museums offer educational programs and resources that promote learning and engagement with the objects and topics presented. (Lahanier et al., 1986).
- **Accessibility:** Classical museums strive to make their collections and programs accessible to diverse audiences, including those with disabilities, through inclusive design and programming. (Lahanier et al., 1986).
- **Professionalism:** Classical museums adhere to professional standards and ethics in their operations, including governance, management, and stewardship of collections. (Lahanier et al., 1986).

In closing, classic museums provide access to their collections for long-term appreciation and study, adhering to professional standards and ethics.

II.1.1.2. A comparative analysis of the essential elements of classical museums

The information provided highlights the essential elements of classical museums and can be used for comparative analysis. Here is a comparison of these elements based on different criteria:

- **Purpose:** All of these factors work together to increase the value of the museum's collections and make them more accessible to the public. However, depending on the museum's aim and concentration, the specific goals and objectives may differ.
- **Audience:** Interpretation, education, and accessibility are for museum visitors, while collection, research, and conservation are for future generations.
- **Methods:** Collection, conservation, and research require specific skills and knowledge, while display, interpretation, and teaching involve presentation and sharing of information to the public.
- **Impact:** The impact of museum features can be quantified in terms of visitor pleasure, educational outcomes, research discoveries, and conservation success. However, the extent to which they achieve their intended impact may be affected by factors such as quality, management, and relevance.
- **Challenges:** Classic museums must invest in resources, experience, and innovation to address unique issues such as collection acquisition, exhibition design, research, and accessibility standards.

II.1.1.3. Characteristics of classical museums

- **Authority:** From the viewpoint of (Barrett 2012), “*Classical museums were based on the idea of the museum as a repository of knowledge and authority.*”. Curators and researchers were believed to have the knowledge and competence to make authoritative statements about their collections.
- **Objectivity:** Museum experts sought to provide objective, scientific information without biases. As per Barrett (2012)’s perspective “*Classical museums were based on the ideal of objectivity.*”
- **Collection-based:** “*Classical museums were primarily defined by their collections.*” (Barrett 2012). Collections were essential to the museum's mission and organised according to discipline categories.
- **Didactic:** Barrett (2012) stated, “*Classical museums were didactic in their approach.*”. Presenting information about objects in collection, not immersive experiences.

- **Elite:** Classical museums were linked with the cultural and intellectual elite, and they were frequently chastised for being inaccessible or intimidating to the general people. As claimed by (Barrett, 2012) “*Classical museums were often seen as elite institutions.*”

From the perspective of Barrett (2012), we can conclude that classical museums were founded on the premise of being authoritative, objective, collection-based, educational, and elitist organisations. They aimed to provide impartial, scientific information about their collections, and were linked to the cultural and intellectual elite. They were sometimes criticized for being inaccessible or intimidating to the public.

II.1.2. Architecture and design of classical museums

Classical museum architecture and design have an important influence on visitors' experiences and impressions of the items on display. Researchers can gain insights into the most effective strategies to build entertaining and instructional museum spaces by investigating how architecture affects visitor experiences.

II.1.2.1. The classical ideal: an analysis of architectural elements in classical museums

Classical museums are characterised by a variety of features that create an impression of beauty, order, and grandeur. These include domes, columns, pediments, facades, galleries, marble and stone, friezes, and porticos.

- **Domes:** “*The dome is one of the most recognisable and iconic elements of classical architecture and it is often used in museums to create a sense of grandeur and timelessness.*” (Lahanier et al., 1986).

Domes are usually the most noticeable architectural element of a classical museum. Domes are the focal point of a classical museum, grabbing visitors' attention and expressing its importance and majesty.

- **Columns:** “*Columns are another key feature of classical architecture, and they are often used in museums to create a sense of grandeur and elegance. There are three main types of columns in classical architecture: Doric, Ionic, and Corinthian.*” (Lahanier et al., 1986).

Columns are an important element of traditional museum architecture, providing order and symmetry while supporting the structure's weight.

- **The pediments:** “*Pediments are triangular elements that are often found above the entrances of classical museums. They are typically adorned with sculptures or reliefs that depict mythological or historical scenes.*” (Lahanier et al., 1986).

The pediments of a museum serve as a focal point and add to the overall symmetry and balance of the museum.

- **Facades:** *“The facade of a classical museum is often characterised by its grandeur and symmetry. It is typically made of high-quality materials like marble or stone, and may feature decorative elements like friezes, cornices, and mouldings.”* (Lahanier et al., 1986).

Facades are the exterior faces of museums, embellished with columns, pediments, and friezes to add to their grandeur and elegance. The front sets the tone for the rest of the experience.

- **Galleries:** *“Galleries are the main exhibition spaces in classical museums. They are typically long, rectangular rooms with high ceilings, and they may be lined with columns or other decorative elements.”* (Ibid.).

Galleries are interior spaces of a museum that allow visitors to browse the museum in a planned and ordered fashion, expressing a sense of grandeur and sophistication.

- **Marble and Stone:** *“High-quality materials like marble and stone are often used in classical museums to emphasise the sense of permanence and cultural significance associated with these institutions.”* (Thomas & Uzunlar, 2018, p. 55)

Marble and stone are used in classical museum architecture due to their strength and aesthetic appeal, which adds to the overall splendour and elegance associated with classical museums.

- **Friezes:** *“Friezes are horizontal bands of decorative art that can be found on the exterior or interior of classical museums. They are often used to depict historical or mythological scenes, and can be a powerful tool for conveying the museum’s message or theme.”* (Lahanier et al., 1986).

Friezes are decorative bands seen over classical museum columns and pediments, adorned with sculptures or reliefs to enhance the overall aesthetic appeal of the museum.

- **Porticos:** *“Porticos are covered walkways that are supported by columns or other architectural elements. They are often used to provide shade and shelter, and to create a grand entrance to the museum.”* (Ibid.).

Porticos are covered entranceways that provide a sense of excitement and protection from the weather for visitors entering and exiting the museum.

II.1.2.2. Shaping perceptions: the role of architectural design in shaping visitor experiences at classical museums

The importance of architectural design in establishing a favourable visitor experience at classical museums cannot be emphasised. According to Gilman (1924), the architectural layout of a museum, exhibit arrangement, and lighting all influence how visitors engage with and interpret the presented artefacts. Furthermore, as Smith (2010) points out, while designing spaces that improve the visitor experience and stimulate engagement with the exhibits, architects must consider variables such as lighting, acoustics, circulation, and spatial layout. Furthermore, Falk and Dierking (2013) suggest that design decisions can influence visitors' emotions, moods, and behaviours, consequently influencing their level of engagement with the museum's collections.



Figure II.1: National Museum of Natural History, c. 1911. (n.d.).



Figure II.2: National Gallery of Art west building. Photo by Flickr user iainr. (n.d.).

As a result, architects must create museum rooms that are experienced not only via visual perception but also through all other senses such as sound, smell, touch, and movement, as these are crucial to the visitor's experience (Gilman, 1924; Smith, 2010). Ultimately, classical museum design should motivate visitors to appreciate the art and artefacts on display. (Smith, 2010; Falk & Dierking, 2013).

II.1.2.3. The power of light: the use of lighting design in highlighting classical artefacts in museums

In the field of museum conservation and curation, lighting is a crucial factor. Gobbato (2021) highlights the importance of lighting in museum rooms, particularly when showing classical artefacts. They find that lighting design can considerably improve visitors' perception of on-display artefacts, allowing them to fully appreciate their beauty and distinctiveness. To ensure the preservation of light-sensitive classical materials, however, careful regulation of

light levels and exposure length is essential. According to Hunt (2009), lighting is essential for the presentation of museum exhibits, as it can create attention, contrast, and change the mood and ambiance. Additionally, Ajmat et al. (2011) notice that lighting design is important in bringing out the features and textures of classical artefacts as well as generating a feeling of time and place. Finally, lighting design is clearly a useful instrument for museum conservation and curation.

II.1.3 Examples of classical museums

The following research summaries highlight key aspects of three notable classical museums from around the world:

II.1.3.1. The Louvre Museum in Paris, France: iconic art and architecture

The Louvre Museum: history, culture, and art: The Louvre Museum is one of the largest and most important museums in the world, with 38,000 items of art and artefacts in its collection. (McClellan, 2012). The museum's architecture includes ancient structures dating back to the medieval period, as well as the distinctive glass pyramid entrance designed by architect I.M. Pei in 1989 (Louvre Museum, n.d.). The Louvre is a popular tourist destination, featuring works such as the Mona Lisa, Victory of Samothrace, and Venus de Milo. (Louvre Museum, n.d.).



Figure II.3: Louvre Museum, Paris, with pyramid designed by I.M. Pei. © Encyclopædia Britannica, Inc. (n.d.).

The architecture of the Louvre Museum: The Louvre's neoclassical architecture is characterized by symmetry, balance, and harmony, with a central axis design and materials such as stone and glass (Louvre Museum, n.d.). The interior of the museum is equally impressive, with vast galleries, high ceilings, and intricate patterns that allow visitors to admire the artwork (McClellan, 2012).

The Louvre's design: The Louvre's neoclassical architecture takes inspiration from ancient Greek and Roman architecture, creating a sense of timelessness and grandeur (Yoshimura et

al., 2014). The interior of the museum is equally impressive, with vast galleries and intricate patterns that allow visitors to admire the artwork (Louvre Museum, n.d.).

II.1.3.2. The British Museum in London, UK: collecting and displaying global history

The history and accessibility of the British Museum: The British Museum was founded in 1753 to collect and present artefacts from various cultures, resulting in one of the world's largest and most diverse collections (Duthie, 2011). The museum offers visitors guided tours, audio guides, and interactive exhibitions, and strives to increase accessibility by providing wheelchair access and sign language interpreting for exhibitions and activities (British Museum, 2022).



*Figure II.4: British Museum, London.
© Edmund Chai (n.d.).*

Architecture of the British Museum: symbolism and design: The architectural concept behind the British Museum is to create a building that reflects the power and influence of the British Empire, with its grandeur and elegance serving as a symbol of the nation's wealth and cultural influence (Wei et al., 2011). The British Museum follows the principles of symmetry and proportion, with a central courtyard as its focal point. Materials such as Portland stone and bronze add to its elegance and grandeur, while neoclassical elements such as columns, pediments, and friezes add to its classical appeal (Paddon, 2014).

Interior design of the British Museum: a grand and captivating space: The British Museum is a grand, spacious, and awe-inspiring space that displays its extensive collections of artefacts (Yasaitis, 2010). The central courtyard, with its glass roof and elegant design, serves as the heart of the museum, allowing natural light to filter through the space and create a serene atmosphere. The domed reading room is another highlight of the museum's interior, with its impressive size and intricate design adding to the building's grandeur (British Museum, 2022)..

II.1.3.3. The Metropolitan Museum of Art in New York city, USA: artistic traditions across continents

The history and mission of the Metropolitan Museum of Art: The Metropolitan Museum of Art was founded in 1870 with the goal of collecting, preserving, and exhibiting art from all over the world and from various times (Tomkins, 1991). The museum has over 2 million works of art spanning 5,000 years of world culture (The Metropolitan Museum of Art, 2022). The Met's collections highlight the artistic traditions of various continents and cultures, and its architecture is a combination of styles, with the main structure in the Beaux-Arts style (De Montebello, 1994).



Figure II.5: The Metropolitan Museum of Art in New York. © Erik Pendzich (n.d).

Metropolitan Museum of Art: The Met offers a variety of experiences to visitors, including guided tours, audio guides, and interactive exhibitions, and has worked to increase accessibility for impaired visitors (The Metropolitan Museum of Art, 2022). The museum's collection and exhibition of art from diverse countries and civilisations has implications for cultural representation, interpretation, and ownership, and will need to adapt to changing social and cultural settings (Tomkins, 1991).

The interior design of the Metropolitan Museum of Art: The Metropolitan Museum of Art is an impressive example of Beaux-Arts architecture that highlights grandeur, elegance, and sophistication. According to Tomkins (1991), the architectural design of the museum incorporates classical elements such as columns, pediments, and friezes, creating a sense of symmetry, balance, and harmony. De Montebello (1994) notes that the central axis design of the museum allows for an easy flow from one section to another, with the grand entrance serving as a focal point. The interior is impressive, with vast galleries, high ceilings, and intricate patterns. Materials such as marble, limestone, and bronze add to the building's elegance and grandeur, while the extensive galleries allow visitors to explore the vast collections.

The significance of beaux-arts architecture at the Metropolitan Museum of Art: The Metropolitan Museum of Art reflects the power and influence of New York city, with a grand staircase, galleries, and intricate patterns. Natural light and open spaces enhance the overall experience, creating a sense of awe and wonder (The Metropolitan Museum of Art, 2022).

II.2. Modern museums

Modern museums have evolved over the last few decades, including interactive displays, educational programmes, and community engagement projects. They must also address social fairness, cultural diversity, and environmental sustainability. Digital experiences and online collections have made their resources more accessible to a wider audience.

II.2.1. Evolution of modern museums

Museums have experienced changes and technological developments in recent years, such as multimedia and interactive exhibitions, digital technologies, and online collections.

II.2.1.1. Changes and technological advancements in museums in the modern era

Museums have been essential for civilisation for centuries, preserving and displaying artefacts and improving visitor experiences.

To keep up with technological breakthroughs and shifting visitor expectations, today's museums are undergoing tremendous transformations (Ambrose and Paine, 2018). Museums have implemented multimedia and interactive exhibits to engage visitors and improve their understanding of collections. Social media platforms, mobile apps, and online collections have all revolutionised the way museums engage with their audiences because of digital technology (Ibid.).

According to Simon (2023), interactive exhibits and digital archives are examples of how technology has been used to engage visitors and expand their understanding of collections. Museums have used digital marketing and technology to attract a wider audience and preserve their treasures for future generations (Ibid.).

II.2.1.2. The impact of changes on the museum experience

Museums have transitioned from traditional permanent exhibits to dynamic, changing exhibits in recent years to meet the changing expectations of their viewers. This has resulted in a greater emphasis on engaging visitors through interactive and immersive digital technology-enabled experiences. In order to attract new and diverse audiences and create a deeper understanding of complicated themes, museums have turned their focus in recent years towards enhanced visitor engagement and interaction (Marstine, 2011). This tendency has been fuelled by advances in digital technology, which have enabled museums to provide more immersive and informative experiences for visitors (Kador et al., 2018). Furthermore, museums are

becoming more inclusive by rethinking old exhibition tactics and creating more inclusive environments (Macdonald, 2013).

As a result, dynamic, changing exhibits and flexible spaces are becoming increasingly important for museums to accommodate a variety of exhibits and programming (Hooper-Greenhill, 2000). These developments reflect a growing realisation among museums that they must evolve and adapt in order to remain relevant and appealing to their viewers.

II.2.1.3. The role of data analytics and machine learning in smart museum practice

Museums are using data analytics and machine learning to improve visitor experience, optimise resources, and increase sustainability by understanding visitor preferences and attitudes. Data analytics and machine learning have become more crucial tools for museums in recent years. According to Lemieux (2022), these techniques can be used to better assess the visitor behaviour and preferences, which can then be utilised to inform exhibit design and programming decisions. Wang (2019) explained that smart museums use real-time data analytics to make data-driven decisions about exhibit design, visitor flow, and staffing. Data analytics, according to Sookhanaphibarn and Thawonmas (2018), museums can optimise resources and improve financial sustainability through revenue-generating opportunities.

In the perspective of Puspasari et al. (2022), Museums can use machine learning to analyse visitor feedback and sentiment, enabling them to tailor visitor experiences, increase engagement, and manage resources for increased efficiency and sustainability.

II.2.2. Technology in smart museums

Smart museums use technology to improve visitors' interactions with art and cultural artefacts, such as interactive displays, augmented and virtual reality, and mobile apps.

II.2.2.1. Examples of modern and smart museums

The following research summaries highlight key aspects of three notable Smart Museums from around the world:

- **The museum of the Future in Dubai, UAE**



Figure II.6: The museum of the Future in Dubai. Credit...Karim Sahib (2021) / Agence France-Presse — Getty images.

Mission and goals: According to its website, the Museum of the Future's purpose is "to become a platform to investigate the future of humanity and a testing ground for developing technologies, designed to inspire and provoke creative minds around the world" (Museum of the Future, n.d.). By innovation, experimentation, and co-operation, the museum's mission is to create a venue for visitors to engage with futuristic technologies and ideas.

Content development: The museum's exhibits and events are designed to stimulate curiosity, foster innovation, and spark imagination (Museum of the Future, n.d.). The exhibitions include a wide range of issues, such as artificial intelligence, robotics, space exploration, and sustainability, among others.

Technology integration: The Museum of the Future's goal is to highlight cutting-edge technology. Innovative technologies such as 3D printing, augmented reality, and interactive displays are included. In addition, the museum uses data analytics to better understand the visitor behaviour and preferences, allowing it to tailor exhibitions and activities to the requirements of visitors (Museum of the Future, n.d.).

Visitor experience: The museum provides a unique experience with cutting-edge technologies such as robots, virtual reality simulations, workshops and events, and facial recognition and digital assistants (Museum of the Future, n.d.).

Sustainability: The Museum of the Future is designed to be ecologically friendly and long-lasting, using solar panels, green roofs, and water recycling systems to promote sustainability (Museum of the Future, n.d.).

Evaluation and feedback: The museum collects visitor behaviour and feedback data through a range of platforms, including questionnaires, social media, and analytics. The museum uses this data to evaluate the performance of its exhibits and programmes, as well as to make modifications depending on visitor comments (Museum of the Future, n.d.).

- **China Art Museum**



Figure II.7: Night view of the China pavilion at Shanghai world expo 2010, CFP (2010).

Mission and goals: The China Art Museum was established in 1956 and recently underwent a refurbishment and expansion to support the development of Chinese art and culture. It aims to create an international platform for Chinese art and promote cultural exchange between China and the rest of the world (China Art Museum, n.d.).

Content development: The China Art Museum features 14,000 works of art, including modern and traditional Chinese art, with a focus on works from the twentieth and twenty-first century (China Art Museum, n.d.).

Technology integration: The China Art Museum has incorporated technology into its displays and visitor experiences. The museum uses multimedia displays, interactive exhibits, and digital art to enhance the visiting experience and engage audiences. The museum also offers a virtual tour of its galleries, allowing visitors from across the world to learn more about the museum's collection (China Art Museum, n.d.).

Visitor experience: The China Art Museum offers educational programmes and events, as well as a library and research centre for scholars and researchers interested in Chinese art and culture (China Art Museum, n.d.).

Sustainability: With its operations and displays, the China Art Museum is committed to encouraging ecologically responsible methods. The museum has built energy-efficient lighting and climate control technologies to lessen its environmental effect. The museum also uses recycled materials in the design of its exhibitions and promotes ecologically friendly habits among its personnel and visitors (China Art Museum, n.d.).

Evaluation and feedback: The China Art Museum regularly assesses its exhibitions and programmes to ensure that they fulfil the requirements and interests of its visitors. By questionnaires and other means, the museum collects visitor feedback and uses it to improve its exhibitions and services (China Art Museum, n.d.).

- **The National Museum of Emerging Science and Innovation in Tokyo, Japan**



Figure II.8: The National Museum of Emerging Science and Innovation Miraikan (n.d).

Mission and goals: The museum's purpose is to encourage people to interact with science and technology, display new scientific discoveries and their implications, and inspire future generations of scientists and innovators through interactive exhibits and public programming (Miraikan, n.d.).

Content development: Miraikan works with universities, research institutions, and business partners to ensure its information is accurate and up-to-date, and collaborates with other museums and science centres to share knowledge and resources (Miraikan, n.d.).

Technology integration: Miraikan values the incorporation of technology into its exhibits and events. Visitors can interact with cutting-edge robots in real time, take part in virtual reality simulations, and learn about cutting-edge scientific research. The museum also uses digital signage and multimedia displays to enhance the tourist experience (Miraikan, n.d.).

Visitor experience: Miraikan's exhibits and programmes are designed to be interactive and interesting for visitors of all ages, offering hands-on activities, guided tours, and educational activities (Miraikan, n.d.).

Sustainability: It is committed to environmental sustainability through green measures such as energy-efficient lighting, heating, recycling, and trash reduction campaigns (Miraikan, n.d.).

Evaluation and feedback: Miraikan seeks feedback from visitors to improve its displays and programming, using questionnaires, focus groups, and other evaluation tools. It also collaborates with university scholars to study public awareness (Miraikan, n.d.).

II.2.2.2. Smart tools in smart museums

Museums are adopting smart tools to enhance the visitor experience as technology progresses. Smart tools have transformed the way museums function by incorporating new technologies to improve visitor experiences.

- **Augmented Reality (AR) and Virtual Reality (VR) applications:** AR and VR technologies can provide museum visitors with immersive experiences. According to an article by Bachiller et al. (2023), AR and VR have the potential to transform museum experiences by allowing visitors to interact with exhibits in a more engaging and immersive manner. AR applications superimpose digital material on real-world displays, while VR apps mimic ancient ruins or distant planets.
- **Internet of Things (IoT) sensors and data analytics:** According to a study by Alam et al. (2020), IoT sensors and data analytics are essential tools for museums to collect and analyse data on visitor behaviour and preferences. They can track visitors' movements, exhibits they spend the most time at, and their interactions with interactive exhibits. This data can be used to spot trends and optimise exhibit design and visitor movement.
- **Artificial Intelligence (AI) and machine learning algorithms:** Museums can utilise AI and machine learning algorithms to provide tailored experiences for visitors based on their interests and preferences. According to Vidu et al. (2021), AI and machine learning can be used to analyse data generated by IoT sensors and provide insights about visitor behaviour and preferences. AI-powered recommendation engines can suggest exhibits or tours based on a visitor's preferences, creating a more engaging and personalised experience.
- **Interactive exhibits and personalized visitor experiences:** According to an article by Ponsignon, And Derbaix, (2020), interactive exhibits and customised experiences can help museums attract and retain visitors by providing them with a more engaging and personalised experience. Interactive exhibits allow visitors to touch, manipulate, or contribute to the exhibit, while customised experiences allow visitors to tailor their experience depending on their interests and choices. This can lead to a memorable visit that motivates people to return.
- **Smart lighting, climate control, and energy management systems:** Based on a study by Viani et al. (2019); Ankersmit et al. (2018), museums can create a more comfortable, sustainable, and cost-effective atmosphere by integrating smart lighting, climate control, and energy management technologies. These systems can alter the museum environment based on visitor traffic, weather, or time of day, and optimise energy usage to save expenditures.

From the given information, we can conclude the following:

- AR and VR technologies have the potential to alter the standard museum experience into one that is interactive and immersive.
- IoT sensors and data analytics can help museums detect patterns and develop more engaging and personalised exhibits.
- AI and machine learning algorithms can be used to analyse data generated by IoT sensors to tailor experiences for visitors.
- By providing a more engaging and individualised experience, interactive displays and personalised experiences can help museums attract and keep visitors.
- Smart lighting, climate control, and energy management technologies can make museums more comfortable, sustainable, and cost-effective.

II.2.2.3. Examples of museums using smart tools

Museums have embraced smart tools to enhance visitor engagement, conserve collections, and reduce environmental impact; here are five examples, an example for each tool:

- **The Art Science Museum in Singapore, which uses AR and VR to enhance visitor engagement:** The Art Science Museum in Singapore uses AR and VR technologies to provide visitors with interactive experiences. The "Story of the Forest" augmented reality experience brings a 69-panel artwork to life. Visitors can scan the panels with a mobile app to view animations and noises that match to the different scenarios. , The Future World exhibition at the museum includes interactive exhibits that use augmented reality to overlay digital images onto physical spaces and virtual reality to recreate environments. (ArtScience Museum, n.d.).



Figure II.9: VR exhibition hyperrealities at Art Science Museum, Singapore. Marina Bay Sands. (n.d).

- **The Smithsonian National Museum of Natural History in Washington, D.C., which uses IoT sensors to monitor and conserve its collections:** The Smithsonian National Museum of Natural History monitors and conserves its holdings using IoT sensors, which are linked to a central system that warns museum employees if levels fall beyond the recommended range (Burkhalter, 2019).

- **The Van Gogh Museum in Amsterdam, which uses AI and machine learning to analyse and digitise its collection:** The Van Gogh Museum in Amsterdam digitises and analyses its collection using AI and machine learning. The Digitisation Lab at the museum employs algorithms to find patterns in Van Gogh's work, such as brushstrokes and colour choices (Ouchhh, n.d). Furthermore, the museum has created an interactive exhibit to bring Van Gogh's life and work to life.
- **The American Museum of Natural History in New York City, which uses interactive exhibits to create personalized visitor experiences:** The American Museum of Natural History offers unique visitor experiences through interactive exhibitions and the Explorer app. According to The American Museum of Natural History (n.d.) the Rose Centre for Earth and Space and the Hall of Saurischian Dinosaurs offer interactive displays to learn about the universe and dinosaurs.
- **The Museum of Tomorrow in Rio de Janeiro, which uses smart lighting and climate control systems to reduce energy consumption and environmental impact:** To reduce energy usage and environmental effect, the Museum of Future in Rio de Janeiro employs smart lighting and climate control technology. The museum's structure has a sun-responsive facade, which reduces the demand for air conditioning (Museu do Amanhã, n.d.)

In conclusion, the smart museums described the use of technology in their exhibitions and tourist experience, while also prioritising sustainability and visitor feedback evaluation. They offer a variety of educational activities and events for visitors of all ages, with the goal of encouraging cultural interaction and the advancement of arts, science, and technology in their particular locations. Overall, technology is playing a critical role in the development and evolution of museums towards a more personalised, interactive and sustainable future.

II.2.3. Challenges facing modern museums

Museums serve an important role in preserving and disseminating cultural heritage, but the management and operations landscape has become increasingly complex. Museum professionals must stay up-to-date to remain relevant and accessible.

- **Balancing preservation and innovation in smart museum exhibitions:** Museums must balance preservation and innovation to attract a diverse audience and preserve cultural artefacts for future generations (Barinaga et al., n.d.).
- **Adapting to changing visitor demographics and expectations in smart museums:** Museums must adapt to changing visitor demographics and expectations in the digital age (Barinaga et al., n.d.). Museums must adapt to stay relevant in order to remain relevant.

- **Challenges in making collections accessible and relevant to diverse audiences in smart museums:** Smart museums have struggled to make their collections accessible and relevant to broad audiences due to their size and limited display space (Barinaga et al., n.d.). Smart museums, on the other hand, are harnessing these technologies to provide visitors with interesting and immersive experiences.
- **Sustainability and ethical concerns in smart museum operations:** The museum sector must address sustainability and ethics in smart museum operations, such as the use of energy and resources and the ethical implications of collecting, storing, and sharing visitor data (Barinaga et al., n.d.).
- **Addressing issues of privacy and security in smart museum technologies:** Resolving privacy and security concerns in smart museum technology. According to Barinaga et al. (n.d.), museums must take steps to ensure that their data is acquired and handled responsibly and ethically.

II.3. Comparison between classical and modern museums

This comparison examines the key elements that distinguish classical and modern museums, providing a thorough examination of their strengths and weaknesses.

II.3.1. Similarities between classical and modern museums

Museums have evolved to meet society's needs, but both classical and modern museums aim to inform, educate, and inspire visitors.

- There are striking parallels between classical and modern museums, since both attempt to show and explain cultural artefacts in order to educate and inspire their visitors.
- Both classical and modern museums strive to show things in a way that informs, educates, and inspires its viewers.
- Both classical and modern museums strive to inspire awe and astonishment in its visitors by displaying artefacts that are beautiful, rare, or historically significant.
- The purpose of both classical and modern museums is to display objects to the public, but the style of presentation may differ.
- Classical and modern museums share the goal of providing educational value, but their approaches differ. Conventional museums use labels and guided tours, while modern smart museums use interactive exhibits and multimedia displays.
- Classical and modern museums preserve cultural heritage by conserving and restoring artefacts, while modern smart museums use technology to do so.
- Both classical and modern museums are open to the public, but entry rates vary.

II.3.2. Differences between classical and modern museums

Table II.1: Differences between classical and modern museums.

	Classical museums	Modern museums
Object-centred vs. Visitor-centred	Tend to be object-centred, focusing on the display of artefacts and artworks.	Often more visitor-centred, focusing on providing engaging experiences and interactive exhibits.
Use of technology	Typically rely on traditional display methods, such as glass cases and labels.	Use technology to engage visitors through multimedia displays, interactive exhibits, and virtual reality.
Audience and community engagement	May focus more on attracting a certain elite or educated demographics.	Place a greater emphasis on engaging diverse audiences and building relationships with their communities.
Interactive exhibits	Tend to focus on static displays.	Often feature interactive exhibits that allow visitors to engage with the content in a more hands-on way.
Multidisciplinary approach	Tend to focus on a single discipline.	Often take a multidisciplinary approach, incorporating elements of art, science, and history into their exhibits.
Focus on the visitor	Prioritize engaging and educating visitors through interactive exhibits, guided tours, and other forms of visitor participation.	Tend to be more visitor-focused than classical museums
Design and architecture	Tend to be grand and ornate, with a focus on creating order and hierarchy.	Tend to be more innovative and experimental, with a focus on creating movement and fluidity.
Funding models	Often funded by government grants and private donations	Maybe funded by a combination of public and private sources, including corporate sponsorships and partnerships.

II.3.3. Advantages and disadvantages of classical and modern museums

Table II.2: Advantages and disadvantages of classical and modern museums.

	Advantages	Disadvantages
C.M	<ul style="list-style-type: none"> • Object conservation: Classic museums prioritize object conservation and restoration to ensure future generations can appreciate and study them. • In-depth understanding: Classical museums offer guided tours and informative labels to help visitors gain a deeper understanding of the artworks on display. • Formal atmosphere: Classic museums offer a formal and traditional atmosphere with dim lighting, silent environment, and carefully chosen displays to create a sense of wonder and reverence. 	<ul style="list-style-type: none"> • Static displays: Visitors to classical museums are limited in their ability to interact with artefacts and gain a greater understanding of their cultural context. • Limited engagement: Visitors may feel as if they are being lectured instead of allowed to study the exhibits on their own terms in traditional museums. • Accessibility: Classical museums may not appeal to all visitors due to their formal atmosphere and expensive admission costs.

	<ul style="list-style-type: none"> • Authenticity: Classic museums present artefacts in their original form, providing visitors with a sense of history and cultural value. • Cultural heritage: Classical museums preserve and display cultural heritage, leading to increased pride and awareness of cultural identity. 	<ul style="list-style-type: none"> • Lack of innovation: Classical museums may lack the opportunity for experimentation and creativity, making them less lively and fascinating than modern museums. • Conservation limitations: Conserving objects in their original form can lead to restrictions on their display or accessibility, which is a strength of classical museums.
M.M	<ul style="list-style-type: none"> • Interactive displays: Smart museums use technology to provide visitors with interactive experiences, such as interactive displays, multimedia exhibits, and augmented reality. • Accessibility: Modern museums can be made more accessible by incorporating technology, such as sign language interpreters and audio descriptions. • Innovation: Modern museums prioritize innovation and experimentation to create a more dynamic and interesting experience for younger people. • Preservation: Technology can be used to preserve and share cultural heritage through digital scanning and 3D printing. • Customisation: Modern museums can create a more personalised experience for visitors by allowing them to construct their own exhibits or access additional information. 	<ul style="list-style-type: none"> • Cost: Technology adoption and upkeep can lead to higher entry rates for tourists. • Technical difficulties: Unexpected technical difficulties can detract from a visitor's experience. • Over-reliance on technology: Contemporary smart museums may focus too much on technology, reducing the sense of awe and wonder that classical museums strive for. • Short lifespan of technology: Displays can become obsolete quickly, leading to expensive and time-consuming upgrades and updates. • Limited human interaction: Interactive exhibits may limit human interaction and discourse, leading to a less sociable or collaborative experience.

Conclusion

While there are many advantages to current smart museums, there are also disadvantages to take into account. Potential drawbacks that could detract from the tourist experience include high costs, technological obstacles, an overreliance on technology, the finite lifespan of technology, and little human interaction. Museum designers must balance technology development and the preservation and display of cultural content in a form that is accessible, engaging, and lasting. Based on the advantages and disadvantages of traditional museums and contemporary smart museums, it can be concluded that modern museums offer a number of advantages over traditional museums, making them potentially more appealing to younger audiences and those who value innovation and interaction. Utilizing technology, modern museums may offer more individualized and flexible experiences, boost accessibility, and offer immersive encounters.

**CHAPTER III:
LITERATURE REVIEW
ON MUSEUMS**

CHAPTER III: LITERATURE REVIEW ON MUSEUMS**Introduction**

In recent years, museums have undergone a transformation from being seen as institutions that solely preserve and display artefacts to ones that actively engage with their audiences, promote diversity and inclusion, and integrate digital technologies. This has resulted in a surge of interest in museum studies as an interdisciplinary field that draws on areas such as history, anthropology, art history, education, and management. The current trends in museum studies can be broadly categorised into diversity and inclusion, audience engagement and participation, digital technologies and innovation, sustainability and environmental responsibility, and cultural heritage and identity.

This literature review chapter aims to provide a comprehensive overview of the existing research on museums, with a focus on lighting and visual comfort, accessibility and inclusion, museum education, museum management, cultural heritage and tourism, and digital technologies and innovation. By examining the previous studies in these areas, this review aims to identify gaps in the literature and areas where future research could be conducted.

Additionally, this chapter addresses the shortcomings and inadequacies in current research on museums, such as the absence of longitudinal studies, the lack of diversity in the samples, and the insufficient focus on non-traditional museums. By filling in these knowledge gaps, this review hopes to advance our understanding of how museums fit into society and how they might advance environmental sustainability, cultural legacy, and social justice.

III.1. Overview of current trends in museum studies

Museum studies is a multidisciplinary field that encompasses the study of museums and their role in society. In recent years, several key trends have emerged in the field of museum studies, shaping the way museums operate, engage with audiences, and contribute to broader societal issues. This research provides an overview of five major trends in museum studies, including diversity, inclusion, and social justice; audience engagement and participation; digital technologies and innovation; sustainability and environmental responsibility; and cultural heritage and identity.

III.1.1. Diversity, inclusion and social justice

Over the past few years, there has been a growing recognition of the importance of diversity, inclusion, and social justice in the field of museum studies. This trend is largely influenced by the critical museum studies literature that challenges traditional museum

practices and calls for more inclusive and socially just approaches (Kinsley, 2016; Sarraf, 2022).

Sandell and Nightingale (2012) note that museums are increasingly recognising the need to be inclusive and representative of diverse communities and voices. As such, they are making efforts to diversify museum collections, exhibitions, and programming, as well as to address issues of social justice and promote equity within the museum field. This includes decolonisation, repatriation, and restitution efforts to acknowledge and address the colonial histories of collecting practices. Museums are also actively working towards making their spaces more accessible and inclusive for people with disabilities and marginalised communities.

Overall, this shift towards a more diverse, inclusive, and socially just approach in museums is an important step towards creating a more equitable and representative cultural sector.

III.1.2. Audience engagement and participation

In addition to the growing focus on diversity, inclusion, and social justice, audience engagement and participation have become major trends in museum studies. Museums are moving away from a traditional model of passive observation towards a more interactive and participatory approach (Black, 2012). This involves engaging visitors in meaningful ways, such as through hands-on exhibits, interactive displays, and participatory programs that encourage active engagement and dialogue.

Black (2018) notes that museums are increasingly involving their audiences in co-creation, interpretation, and decision-making processes. Participatory exhibits, interactive installations, and community-based initiatives are becoming more common in museums as they seek to foster meaningful connections with their audiences and create spaces for dialogue and collaboration. Furthermore, museums are using audience feedback and evaluation to shape their exhibitions and programming to better meet the needs and interests of their visitors. Overall, the trend towards audience engagement and participation is an important shift towards creating more dynamic, interactive, and inclusive museum experiences.

III.1.3. Digital technologies and innovation

The use of digital technologies and innovation is transforming the museum field in various ways. Museums are incorporating digital technologies into their exhibitions and programming, including virtual reality, augmented reality, and interactive online experiences.

These tools can enhance visitor experiences, expand access to collections, and enable remote participation (Giannini & Bowen, 2018).

Furthermore, digital technologies are also being used for collection management, conservation, and research purposes. They facilitate innovative approaches to curating, preserving, and interpreting museum collections, as well as creating immersive and interactive exhibits (Giannini & Bowen, 2019). In addition, museums are leveraging social media and other online platforms to connect with audiences and engage them in virtual museum experiences, particularly during the COVID-19 pandemic (Giannini & Bowen, 2022). The use of digital technologies and innovation is an important trend in museum studies that is transforming the field and providing new opportunities for museums to engage with their audiences and enhance the visitor experience.

III.1.4. Sustainability and Environmental Responsibility

In recent years, sustainability and environmental responsibility have become important considerations in museum studies. Museums are acknowledging their impact on the environment and are taking steps to reduce their carbon footprint and promote sustainable practices. This includes adopting energy-efficient lighting, reducing waste, and designing sustainable buildings. In addition, museums are using their collections and programming to raise awareness about climate change, conservation, and environmental justice. Some museums are even taking on the role of advocates for environmental action, inspiring visitors to become more environmentally responsible (Pop et al, 2019).

As museums continue to prioritise sustainability and environmental responsibility, they can play a vital role in promoting positive change and influencing visitor behaviour towards more sustainable practices.

III.1.5. Cultural heritage and identity

Cultural heritage and identity are at the forefront of museum studies, as museums strive to address issues of cultural representation and interpretation. In recent years, there has been a growing emphasis on developing more inclusive and culturally/ sensitive practices, particularly in the context of contested histories and cultural diversity. Museums are working towards more nuanced narratives that challenge dominant narratives, highlight marginalised voices, and promote intercultural understanding. Collaboration with source communities and the incorporation of indigenous knowledge and perspectives are also becoming increasingly important in museum exhibitions and collections (Bondarets, 2021).

As Bondarets (2021) notes, museums are asking critical questions about cultural representation, ownership, and interpretation, and are striving to promote a more nuanced understanding of cultural heritage and identity. By engaging with diverse cultural communities and promoting inclusive narratives, museums are working towards a more equitable and representative museum landscape.

In conclusion, it can be stated that museum studies is a dynamic field that is constantly evolving to reflect the changing needs and interests of museums and their audiences. The trends discussed in this research, including diversity, inclusion, and social justice; audience engagement and participation; digital technologies and innovation; sustainability and environmental responsibility; and cultural heritage and identity, have significant implications for the future of museums. These trends highlight the importance of museums as socially responsible and inclusive institutions that engage with audiences in meaningful ways and contribute to broader societal issues.

III.2. Review of existing researches on museums

III.2.1. Lighting and visual comfort in the museums

Several studies treat the lighting aspects in the museums:

- **Review of lighting deterioration, lighting quality, and lighting energy saving for paintings in museums.** By Huijiao Tan, Rui Dang.

The article emphasises the importance of considering “*reducing lighting deterioration, improving lighting quality and lighting energy saving*” for paintings in museums, which are highly sensitive to their lighting environment. The authors argue that it is necessary to review research on museum lighting based on parameters such as “*the spectral power distribution of light sources, the spectral response of painting materials, the irradiance or illuminance, and the irradiation time*” in order to meet these requirements. The article also notes the need for further research on “*the lighting deterioration evaluation, the formulation of lighting quantity standards, and the spectral control and adjustment*” to better conserve paintings. Furthermore, the authors stress the importance of studying the relationship between lighting quality and its related parameters, such as “*colour perception and visual comfort*”, in order to optimise lighting applications. Finally, the article discusses strategies for achieving lighting energy savings, such as “*the replacement and control of energy-saving lamps*” and controlling illuminance and irradiation time. Overall, the review highlights the complexity of museum lighting design and suggests areas for future research.

- **Lighting design for artefacts preservation purposes and visual comfort in museums.** By Levin Yohardi, Ova Candra Dewi Ova, J Sandrasari, Widyarta Mohammad Nanda.

As the abstract notes, the paper addresses the challenge of maintaining a balance between the preservation of artefacts and the visual comfort of visitors. Specifically, the paper seeks to “*maintain overall brightness for artefacts preservation purposes while at the same time, keep the acuity of visitors’ visual comfort*” through the use of case studies at two museums in Jakarta. The study aims to use visitor questionnaires and lighting intensity measurements to better understand the relationship between perceived brightness and the use of lighting in the museums. Ultimately, the study hopes to show that by achieving a balance between visual comfort and preservation, museums can enhance visitor satisfaction.

III.2.2. Accessibility and inclusion

Several studies treat the Accessibility and Inclusion aspects in the museums:

- **Blind and visually impaired visitors’ experiences in museums: increasing accessibility through assistive technologies.** By Roberto Vaz, Diamantino Freitas, António Coelho.

“*People with visual impairments generally experience many barriers when visiting museum exhibitions*” due to the ocular centrality of museums. The lack of physical, intellectual and sensory access to exhibits or replicas is further exacerbated by the unavailability of ICT-based communication resources that can enable different interactions to sighted visitors. “*Few studies analyse applications of assistive technologies for multisensory exhibit design and relate them with visitors’ experiences.*” The article provides an overview of the experiences and expectations of blind and visually impaired visitors based on a literature review and surveys assistive technologies used to enhance the experiences of visitors with vision loss while visiting museum exhibitions and spaces. “*From this, it is highlighted that adopting hybrid technological approaches, following universal design principles and collaborating with blind and visually impaired people, can contribute to integrate access across the continuum of visits.*”. The article stresses the need for museums to adopt inclusive approaches and utilise assistive technologies to improve accessibility for visually impaired visitors.

- **The art of access: a practical guide for museum accessibility.** By Heather Pressman, Danielle Schulz.

According to the research, the guide includes “*Consultation with leaders in the field and calling on practitioners from across the disciplines (art, science, history, business, living collections)*” as well as “*Concrete examples and specific resources*” to help museums build a comprehensive approach to accessibility. The book covers a range of topics, including “*Physical/environmental access,*” “*Sensory access,*” and “*Inclusive spaces, exhibitions, and programs.*” The guide aims to help museums better engage with audiences who would otherwise not visit by illuminating “*the incremental ways in which accessibility can be easily integrated into the fabric of museums.*” Each chapter presents “*practical actions that any museum or cultural institution*” can take to better welcome visitors of all ages and abilities, regardless of their size, budget, or scope

III.2.3. Museum education

Several studies treat the Museum Education aspects in the museums:

- **Museums and education: purpose, pedagogy, performance.** By Eilean Hooper-Greenhill.

In “Museums and education: purpose, pedagogy, performance” by Eilean Hooper-Greenhill, the author discusses the challenges that museums face in the 21st century, particularly in the context of learning and culture. The author highlights the need for museums to review their educational purposes, redesign their pedagogies and account for their performance in response to demands for social justice and cultural democracy. The author argues that if culture acts as a process of signification, learning in museums and other cultural organisations is potentially dynamic and profound, producing self-identities. However, the author questions how this complexity can be measured, and what the measurement can reveal about the character of museum-based learning. The author presents the case study of three national evaluation studies carried out between 2003 and 2006 in England, using the conceptual framework of Generic Learning Outcomes. Through this data, the author reveals the power of museum pedagogy, and raises questions about traditional museum culture and the potential and challenge for museum futures. Overall, the article highlights the crucial role of museums in shaping learning and culture, and emphasises the need for museums to adapt to changing social and economic contexts in order to continue to serve as valuable cultural institutions.

- **Museums and the future of education.** By Scott Kratz, Elizabeth Merritt.

In the article “Museums and the future of education” by Scott Kratz and Elizabeth Merritt, the authors discuss the changing landscape of education in the US and the role that museums will play in this transformational change. The paper highlights the unique capabilities of museums in developing core skills such as critical thinking, synthesising information, ability to innovate and think creatively, and collaboration. The authors suggest that scaling up the educational resources and skills provided by museums through online access, better indexing of online resources, physically incorporating museums into schools and schools into museums, and making museums central points for teacher training will ensure equitable access to these unique resources. The paper concludes that by applying forecasting techniques to the field of education, potential futures can be glimpsed as seen in the vibrant innovations in education currently taking place outside traditional schools. Therefore, museums can provide a valuable contribution to the new educational landscape by enhancing the development of these core skills in learners.

III.2.4. Museum management

Several studies treat the Museum Management aspects in the museums:

- **Museum management.** By Kevin Moore.

According to Moore (1994), “*Cuts in public funding have pushed museums into the marketplace where they must compete for visitors, market their ‘product,’ and generate their own income and sponsorship*”. The book “Museum Management” highlights the importance of effective management and marketing for museums to survive and prosper into the next millennium. The contributors of the book address various strategic management issues, such as human resource management, financial management, policy formulation, corporate planning, and performance measurement. The book emphasises the need for museums to find effective management and marketing strategies as “*museums are criticised as being dull and boring compared to new heritage and leisure attractions*” (Moore, 1994). Hence, the book provides valuable insights into the challenges faced by museums and the key areas of future development in management and marketing practice.

- **The manual of strategic planning for museums.** By Gail Dexter Lord, Kate Markert.

In their book “The Manual of Strategic Planning for Museums,” Lord and Markert (2007) argue that strategic planning is an essential tool for museum management, despite some people’s reluctance to engage in the process. According to the authors, strategic planning can

help museums improve their quality, motivate their staff and board members, adapt to environmental changes, and prepare for future initiatives. The book offers practical guidance on how to develop and implement effective strategic plans in museums, based on the authors' extensive experience in the field. Overall, the book emphasises the importance of strategic planning for museums to achieve their mission and vision, and to respond to the challenges and opportunities they face in today's rapidly changing world.

III.2.5. Collection care and conservation

Few studies treat the Collection Care and Conservation aspects in the museums

- **Managing conservation in museums.** By Suzanne Keene.

The research highlights the content of a book that explores the integration of mainstream management techniques in conservation and collection preservation. The book aims to offer practical guidance to museum staff and conservation specialists by critically reviewing management procedures such as performance indicators and strategic planning. Additionally, the book provides solutions to the challenges faced in the business of conservation and collection preservation, such as quantitative planning and condition surveying. The new edition of the book considers changes in the sector, including the arrival of the Heritage Lottery Fund, policies for access, and the growing convergence of museums, libraries, and archives. It also recognises the role of digital collections and information and communication technology in conservation and collection preservation. Overall, this book could be a valuable resource for those seeking to integrate mainstream management techniques into conservation and collection preservation practices

III.2.6. Cultural heritage and tourism

Several studies treat the Cultural Heritage and Tourism aspects in the museums:

- **The role of museums in cultural and heritage tourism for sustainable economy in developing countries.** By Kamani Perera.

According to Kamani Perera's on "The role of museums in cultural and heritage tourism for sustainable economy in developing countries" presented at the International Conference on Asian Art, Culture and Heritage in 2013, cultural and heritage tourism has gained much attention over the past decade, and is defined as "*travel directed toward experiencing the arts, heritage, and activities that represent the stories and people of the past and present.*" (Perera, 2013). The author emphasises that developing countries require support from the international community in safeguarding their precious heritage, and cultural heritage tourism is a powerful

economic development tool. The abstract highlights that museums play a vital role in this industry and cannot expect visitors to arrive without effort. Museums need to change their roles to attract more audiences to remain relevant in the ever-changing tourism industry. Overall, the abstract emphasises the importance of cultural and heritage tourism, and museums' roles in promoting and sustaining it for economic development in developing countries.

- **Cultural tourism and business opportunities for museums and heritage sites.** By Ted Silberberg.

According to Ted Silberberg's on "Cultural tourism and business opportunities for museums and heritage sites," published in *Tourism Management* in 1995, cultural tourism can be a significant source of economic benefit for museums and heritage sites. The author stresses that during challenging economic times, cultural and heritage facilities must find ways to increase attendance and generate revenue while controlling expenses. To achieve this, they must carefully examine their operating policies and practices and focus on issues such as customer service, partnerships, and packaging opportunities. They should also be open to entrepreneurial approaches while fulfilling their mandates for heritage preservation and education. Overall, the abstract emphasises the importance of cultural tourism for museums and heritage sites to remain financially sustainable while fulfilling their mission.

III.2.7. Digital technologies and innovation

Several studies treat the Digital Technologies and Innovation aspects in the museums:

- **Digital technologies and the museum experience: Handheld guides and other media.** By Jonathan Bowen, James Bradburne, Alexandra Burch, Lynn Dierking, John Falk, Silvia Filippini Fantoni, Ben Gammon, Ellen Giusti, Halina Gottlieb, Sherry Hsi, Peter Lonsdale, Julia Meek, Ross Parry, Paul Rudman, Peter Samis, Mike Sharples, Jeffery K Smith, Pablo PL Tinio, Giasemi Vavoula, Kevin Walker

According to "Digital Technologies and the Museum Experience: Handheld Guides and Other Media," published in 2008 by Jonathan Bowen and his colleagues, the integration of technology into a museum exhibits is currently the most significant trend in the exhibit design. The authors focus on exploring the potential of mobile technologies such as cell phones, digital cameras, MP3 players, and PDAs for enhancing visitor interaction and learning in museums. The authors draw on established practices to identify guidelines for future implementations. This abstract suggests that museums should embrace the use of technology to create innovative and interactive experiences for visitors. It also highlights the need for guidelines and standards

in the incorporation of technology to ensure that the museum experience remains educational and informative while incorporating the latest digital advancements.

- **Museums and digital technology: a literature review on organisational issues.** By Francesca Taormina Sara, Bonini Baraldi Sara.

According to the article “Museums and digital technology: a literature review on organisational issues” published in *European Planning Studies* in January 2022, museums have relied heavily on digital technologies in the past 20 years to achieve their objectives and innovate their functions. The COVID-19 pandemic has further emphasised the importance of digital tools as the sole means for museums to reach the public during lockdowns. However, the scientific community has not adequately examined the impact of digital solutions on daily museum organisation and management. This paper aims to consolidate the existing body of knowledge on the subject to provide further insight and useful suggestions. The literature review identified three core topics, including business models, digital professions, and digital strategy, and examined whether changes driven by digital technology within museums represent radical innovation or gradual adaptation. The paper concludes by highlighting the significant implications of digital technologies for museums, policymakers, and scholars. Overall, this paper sheds light on the critical role of digital technologies in museum operations and suggests avenues for further research in this area.

III.3. Limitations and gaps in recent studies and researches of museums

According to the previous research and trends, we can mention that there are more many limitations and gaps in recent studies and researches of museums.

- **Limited diversity in the samples**

Most studies on museums have focused on Western, European or North American museums, leaving out other regions and cultures. This means that the findings from these studies may not be generalizable to other contexts.

- **Lack of longitudinal studies**

Most museum studies are cross-sectional and do not follow up on participants over time. Longitudinal studies are essential to understanding the long-term impact of museums on individuals and communities.

- **Bias in the research design**

Some museum studies have been criticised for being biased in their research design, such as not accounting for the potential influence of external factors, like socioeconomic status or prior knowledge, on visitor experiences.

- **Limited empirical evidence**

Many studies on museums rely on self-reported data, which may be biased or unreliable. There is a need for more objective measures of the impact of museums, such as physiological or behavioural measures.

- **Lack of collaboration**

There is a need for more interdisciplinary collaboration between museum professionals, researchers, and other stakeholders to create a more comprehensive understanding of the role of museums in society.

- **Limited focus on the impact of museums on marginalised communities**

Many museum studies focus on the impact of museums on general populations, but there is a need for more research on the role of museums in serving marginalised communities, such as ethnic or religious minorities, people with disabilities, and low-income groups.

- **Inadequate attention to non-traditional museums**

Most museum studies focus on traditional museums such as art or natural history museums, but there is a need for more research on non-traditional museums, such as science centres, children's museums, and virtual museums.

- **Limited attention to sustainability**

Although sustainability is one of the current trends in museum studies, there is a need for more research on how museums can integrate sustainable practices into their operations and engage visitors in sustainable behaviours.

- **Lack of attention to the role of museum management**

Although museum management is a crucial factor in the success of museums, there is a need for more research on how effective management practices can enhance the overall museum experience for visitors.

- **Lack of attention to the impact of technology**

Although digital technologies and innovation are a current trend in museum studies, there is a need for more research on the impact of technology on visitor experiences, learning outcomes, and the preservation of collections.

- **Lack of integrated approaches**

Many studies on the museums focus on a single aspect, such as education or conservation, and do not consider the complex interplay between different factors, such as nature, culture, and history.

Conclusion

This literature review has explored the current trends in museum studies and reviewed existing research on various aspects of museums, including lighting and visual comfort, accessibility and inclusion, museum education, museum management, cultural heritage and tourism, and digital technologies and innovation. However, there are still many limitations and gaps in recent studies of museums, such as limited diversity in the samples, a lack of longitudinal studies, bias in research design, and limited empirical evidence. To address these limitations and gaps, future studies should focus on more diverse and representative samples, employ longitudinal research designs, integrate interdisciplinary approaches, and use more objective measures of the impact of museums. Additionally, research on non-traditional museums and the role of technology in museums should be expanded to gain a more comprehensive understanding of the role of museums in society and promote their continued growth and success.

**PART II: CASE
STUDY AND FIELD
INVESTIGATION**

**CHAPTER IV:
PRESENTATION OF THE
CASE STUDY AND
INVESTIGATION
METHOD**

CHAPTER IV: PRESENTATION OF THE CASE STUDY AND INVESTIGATION METHOD

Introduction

This chapter discusses the case study of the multidisciplinary national museum of nature, culture, and history in Algeria. It emphasizes the importance of accessibility, organization, design, sustainability, and adaptability in museum design. Jijel is chosen for its suitability to promote national unity and dialogue. It highlights the potential of a comprehensive museum to highlight Algeria's heritage and foster understanding and cooperation among diverse communities. It outlines the methodology used in the research study on integrating multidisciplinary national museums in Jijel, Algeria. It involves conducting surveys, analysing a museum report, and studying inspirational examples from other countries to gain a comprehensive understanding of the state of Algerian museums.

IV.1. Presenting of the case study

IV.1.1. The context of the case study

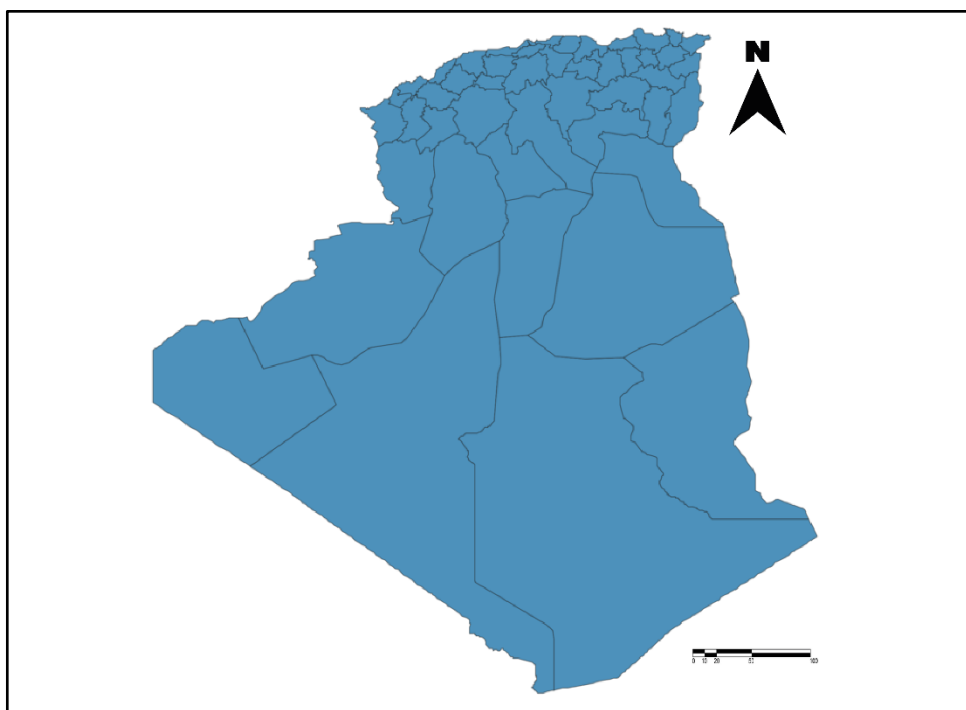


Figure IV.1: The Algerian map: the context of the case study.

Algeria is a vast and diverse country with a rich history, culture, and natural landscapes. Currently, the museums in different regions of Algeria tend to focus on specific aspects of the history and culture of their respective areas, making it difficult for visitors to gain a comprehensive understanding of the country as a whole. This is especially problematic for tourists who may have limited time and resources to visit multiple museums in different regions.

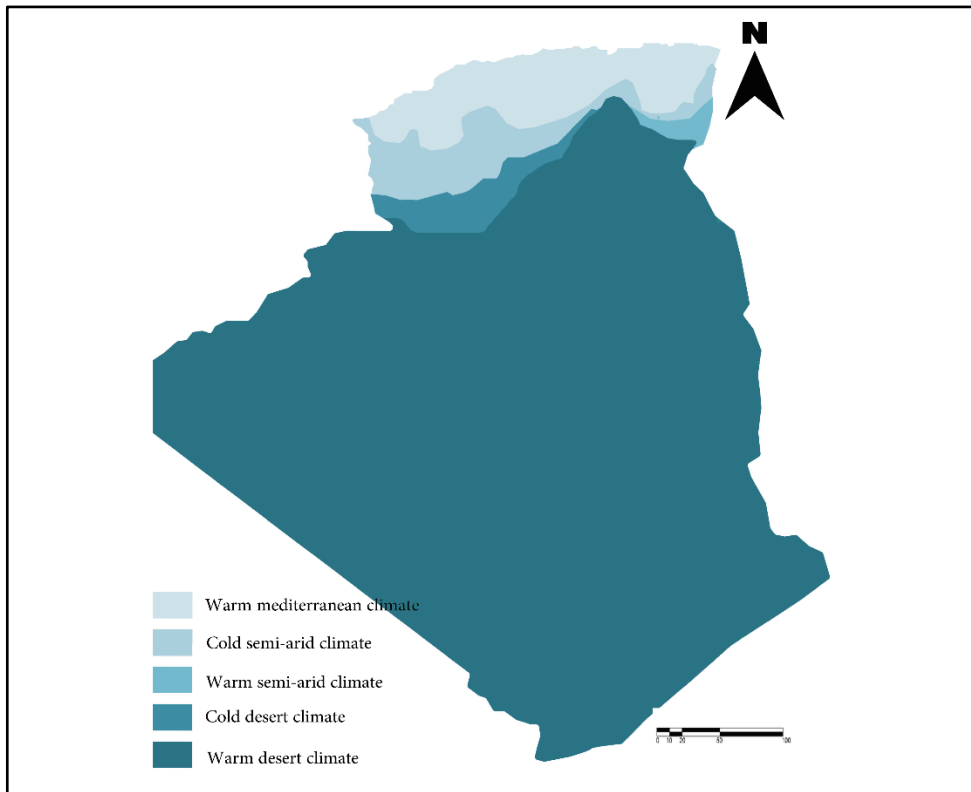


Figure IV.2: Natural landscape of Algeria (climate) (map adapted by author from Daroda, 2020).

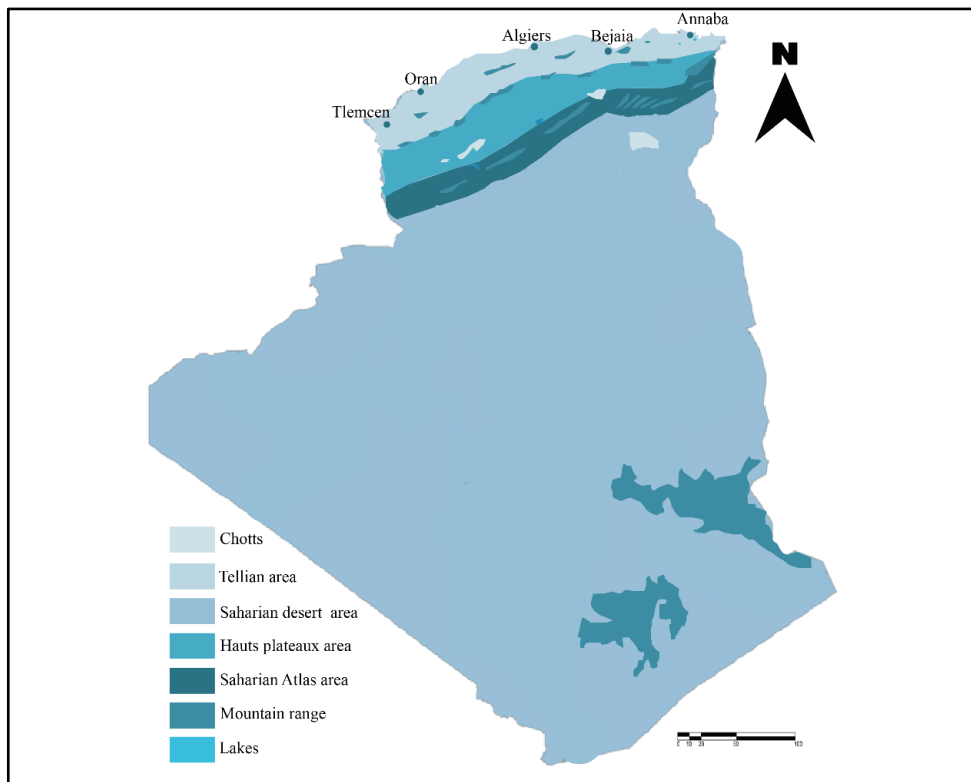


Figure IV.3: Natural landscape of Algeria (relief) (map adapted by author from Amrani, 2018).

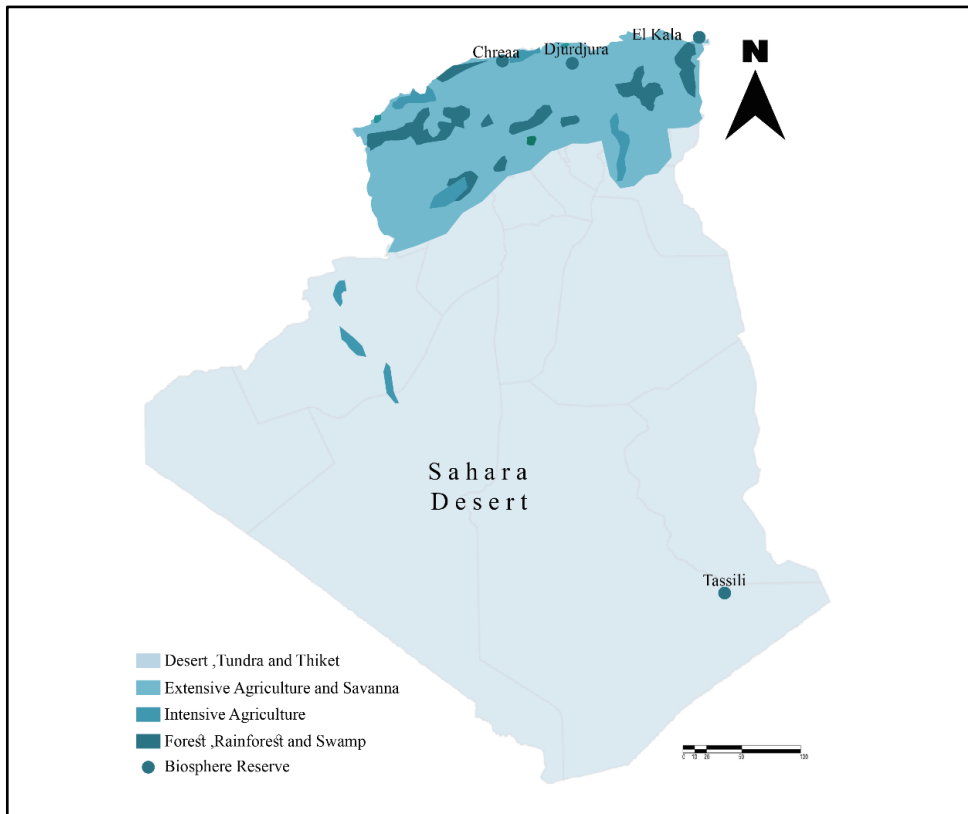


Figure IV.4: Natural landscape of Algeria (vegetation) (map adapted by author from Netmaps. Leading Mapping Company. (n.d.).

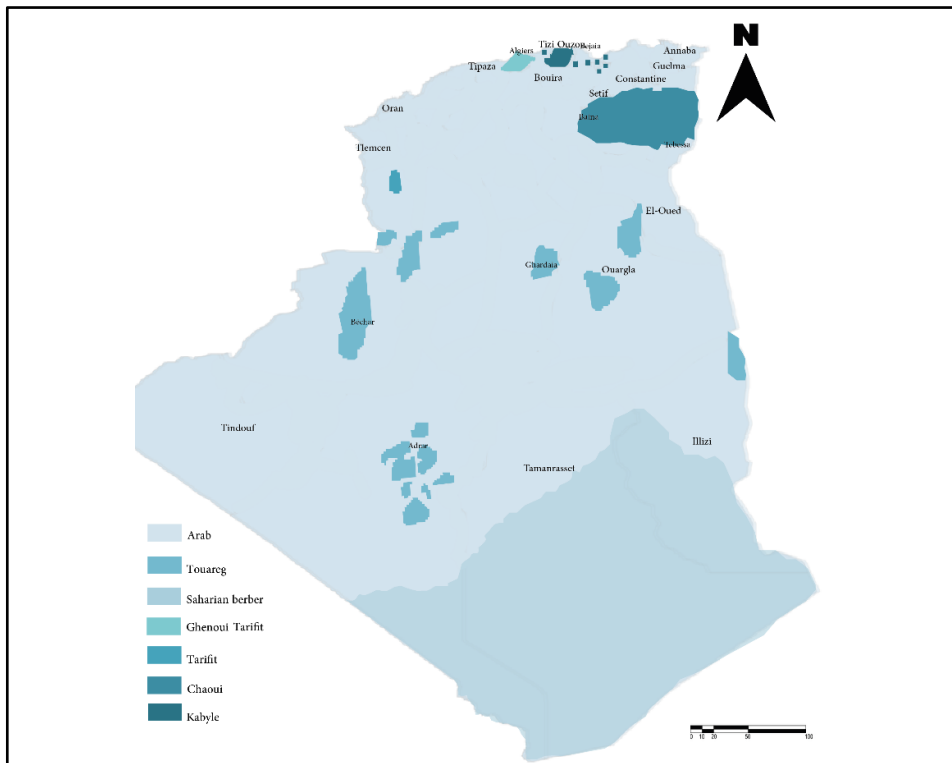


Figure IV.5: Cultural landscape of Algeria (map adapted by author from Jacques Lecterc, 2014).

A multidisciplinary national museum of nature, culture, and history in Algeria could be an excellent solution to this problem. Such a museum would bring together the various aspects of Algeria’s heritage in a comprehensive and integrated manner, providing visitors with a

- One important factor to consider is the city's accessibility. Jijel is easily accessible by air, land, and sea, making it a convenient base for tourists to explore the region and learn about its natural heritage, cultural history, and current social dynamics.
- Another key consideration is the region's natural environment. Jijel is known for its natural landscapes, and the museum can capitalize on this by highlighting the region's natural heritage, promoting environmental awareness, and providing interactive experiences to explore and learn about the natural world.
- Jijel is home to a diverse range of ethnic and linguistic communities, making it an ideal location for a museum to display Algeria's cultural heritage. It could include exhibits on local art, music, literature, and cuisine, as well as workshops and performances.
- Jijel is an important economic centre in Algeria, known for its agriculture, fishing, and tourism industries. By locating the museum in Jijel, it can contribute to the region's economic development, creating new jobs and opportunities for local residents.
- The need for a new museum in Jijel is urgent due to the paucity of museums in the region, with only one extant. This museum can bridge the gap and provide an avenue to explore and learn about the region's natural heritage, cultural history, and social dynamics.
- Jijel is an ideal centre for promoting national unity and dialogue, as it has a rich and diverse cultural heritage. It could serve as a platform for cultural exchange and dialogue, bringing together people from different backgrounds to learn, share, and celebrate their common heritage.

Jijel is an ideal location for a multidisciplinary national museum of nature, culture, and history in Algeria due to its accessibility, natural and cultural heritage, economic importance, and potential to promote national unity and dialogue.

IV.1.3. Background

Overview of the current state of museums in Algeria:

IV.1.3.1. Number of museums and their location

There are approximately 50 museums in Algeria, including national, regional, and local museums.

According to [Algerie.cz](#) (n.d.) website, this is a list of national museums in Algeria, with their locations and the types of collections they have:

CHAPTER IV: PRESENTATION OF THE CASE STUDY AND INVESTIGATION METHOD

Table IV.1: List of national museums in Algeria.

Museum	Location	Collections
National Museum of Fine Arts.	Hamma Algiers.	Modern arts, paintings, drawings, sculptures, and engravings.
National Museum of Antiquities and Islamic Art	Freedom Park Algiers.	Classical and Muslim antiquities, as well as Muslim arts.
Museum of Modern Art of Algiers (MAMA).	Rue Larbi Ben M'hidi in Algiers.	Collection of modern art pieces including paintings, drawings, sculptures, and engravings.
Museum of Popular Arts and Traditions	Rue Mohamed Akli Malek – Casbah in Algiers.	Craft collection and popular arts and traditions.
Bardo National Museum of Prehistory and Ethnography.	3 Rue Franklin Roosevelt in Algiers.	Ethnography, prehistory, and African collections.
Museum of the Palace of the Dey.	Monument Palace of the Dey in Algiers	History and architecture.
National Museum of Jihad.	Riadh El Feth Algiers.	Collections related to the national liberation struggle and the revolution.
Army Museum.	Riadh El Feth Algiers.	Weapons, costumes, paintings, and documents.
Jardin d'Essais.	Hamma Algiers	Fauna.
Mont Riant Museum.	Mont Riant Park in Algiers.	This museum is a pre-museum for children.
Ahmed Zabana National Museum.	Bd Zabana in Oran.	Prehistory, antiquities, modern arts, and ethnography.
Museum of Art and History The city of Tlemcen.	Place Amir Abd Elkader, Tlemcen.	Fine arts, ethnography, archaeology, islamic art.
Tipaza Museum	Tipaza	Ancient sculpture and archaeology.
Cherchell Open Air Museum.	Parc Bocquet Cherchell (Tipaza).	Ancient mosaic.
Cherchell Museum.	Cherchell (Tipaza).	Archaeology, including Egyptian, Greek, and Roman antiquities.
Acquarium.	Bousmail Tipaza.	Marine fauna.
Botanical and Zoological Park.	Beni Saf – Tlemcen (Fisheries Institute).	Flora and fauna.
Tlemcen Museum.	Mosque of Sidi Bel Hacène – Tlemcen.	Antiquities, Islamic Arts.
Musée de Djemila.	Djemila (Setif).	Classical antiquities.
Setif Museum.	Setif.	Classical antiquities and ethnography.
Tazoult Museum.	Tazoult (Batna).	Classical antiquities.
Timgad Museum.	Timgad (Batna).	Classical antiquities, sculptures, and numismatic mosaics.

Ifri Museum.	SOUTHERN ALGERIA	Ifri (Béjaïa).	Revolution, collection of the National Liberation Struggle.
Bejaia Museum.		Béjaïa.	Archaeology and natural sciences.
Guelma Theater Museum.		Guelma.	Sculptures and numismatics.
Hippo Museum.		Annaba.	Classical antiquities.
Temole Museum of Minerva.		Tebessa.	Prehistory, antiquities, and local art.
Cirta National Museum.		Plateau Coudiat in Constantine.	Prehistory, antiquities, Muslim arts, and painting.
El – Oued Museum.		El-Oued.	Prehistory, ethnography, and handicrafts.
Folklore Museum of Ghardaïa.		Ghardaia.	Crafts and a folklore collection.
Saharan Museum of Ouargla.		Ouargla.	Prehistory, ethnography, and crafts.

These museums offer visitors a glimpse into Algeria’s rich and diverse cultural heritage, spanning from ancient times to the present day.

IV.1.3.2. Location

Museums in Algeria are distributed across the country, with a concentration in major cities such as Algiers, Oran, Constantine, and Telmcen.

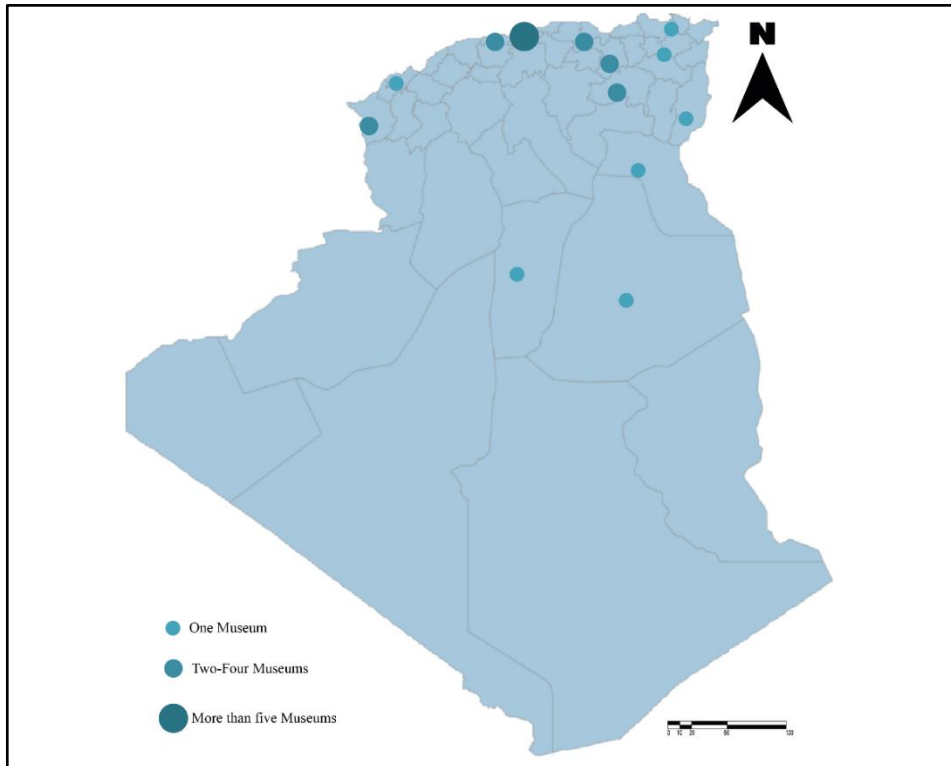


Figure IV.7: Distribution's density of museums in Algeria.

Algeria has a rich cultural heritage and history, and has numerous museums that display its history, art, and culture. To analyse the distribution of museums, we can categorize them by region and highlight the most notable ones.

In conclusion, museums in Algeria are concentrated in the central and eastern regions, providing visitors with a comprehensive understanding of the country's history, art, and culture.

IV.1.3.3. Overview of museum distribution and factors influencing placement in Algeria

- **Geographic distribution of museums in Algeria:** Museums in Algeria are concentrated in the northern central and eastern region, particularly in Algiers, Oran, and Constantine due to their higher population density and development.

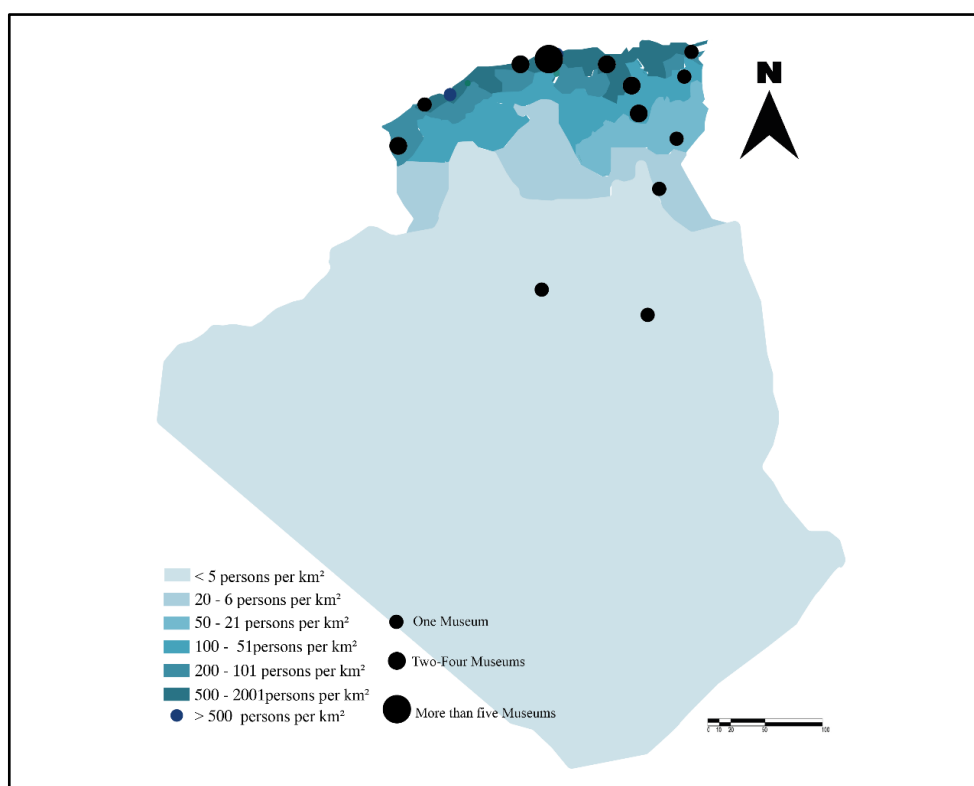


Figure IV.8: Museums distribution VS population density. (the population density map of Algeria adapted by author from Geo-Ref.net, 2020).

- **Proximity of museums to major population centres in Algeria:** Most museums in Algeria are located in or near major population centres such as Algiers, Oran, and Constantine. This makes them easily accessible to visitors and residents of these cities, and allows for greater exposure to the cultural and historical heritage of the country.
- **Correlation between historical sites and museum locations in Algeria:** Many museums in Algeria are located in close proximity to historical sites and landmarks, such as ancient ruins and archaeological sites. This highlights the importance of

preserving and displaying Algeria's rich history and heritage, and allows visitors to learn about the country's past through interactive exhibits and displays.

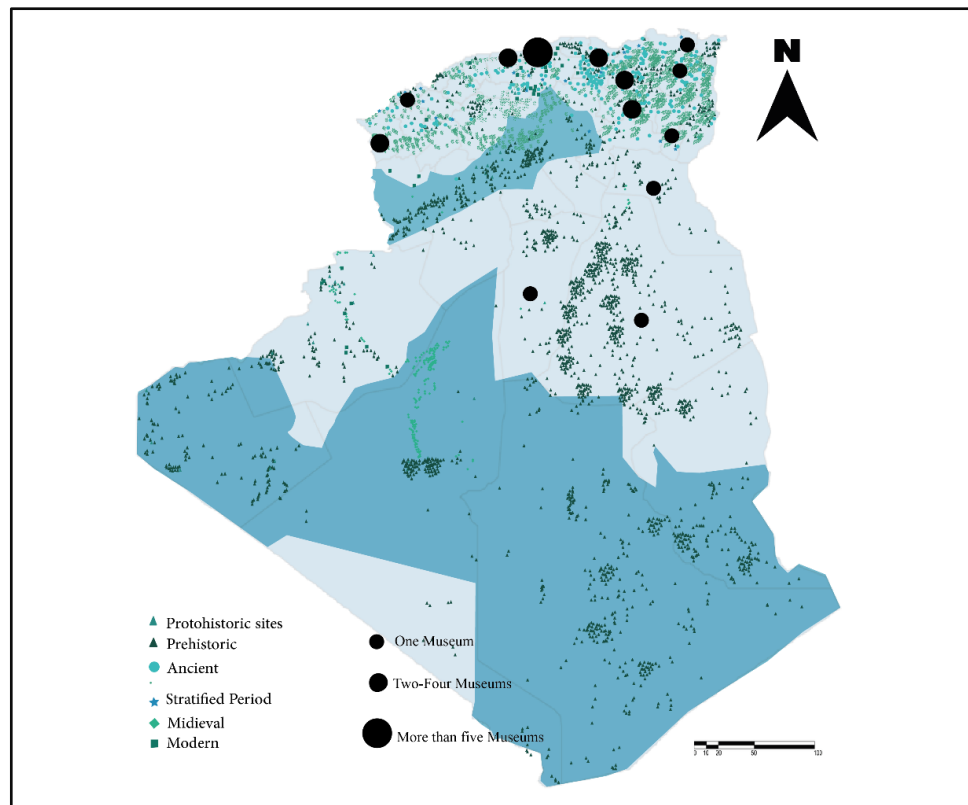


Figure IV.9: Museums distribution VS historical sites. (the archaeological map of Algeria adapted by author from Ministry of Culture and Art, 2020).

- **Influence of political and economic factors on museum placement in Algeria:** The placement of museums in Algeria has been influenced by political and economic factors, such as the government's role in the establishment and funding of museums, as well as economic factors such as tourism.
- **Accessibility of museums in Algeria to different regions and social groups:** Accessibility to museums in Algeria varies depending on location, with urban areas being more accessible and wealthier areas being more accessible to those with higher incomes.
- **Comparison of the museum density in urban versus rural areas in Algeria:** Museums are more densely located in urban areas due to population density, economic factors, and government investment.
- **Demographic factors influencing museum placement and utilization in Algeria:** Demographic factors such as age, education level, and income can influence the placement and utilization of museums in Algeria.

- **Historical trends in museum placement and their impact on local communities in Algeria:** Museums have been used to preserve cultural heritage, promote national identity, and engage and educate local communities in Algeria.
- **Identification of gaps in museum coverage in Algeria and potential strategies for improvement:** Increase government investment in cultural institutions, expand outreach and educational programming, and promote greater diversity and inclusion in the museum exhibits and programming to address gaps in museum coverage in Algeria.
- **Impact of tourism on museum placement and development in Algeria:** Tourism has had a significant impact on museum placement and development in Algeria, leading to increased investment and attention, but also a concentration of museums in certain areas, leaving other regions with fewer cultural resources.

IV.1.3.4. Type

Museums in Algeria cover a wide range of subjects, including history, archaeology, ethnography, fine arts, and natural sciences. Some examples are:

- **Historical and archaeological museums:** National Museum of Antiquities and Islamic Art, Cirta National Museum, Tlemcen National Museum.
- **Ethnographic museums:** Bardo National Museum of Prehistory and Ethnography.
- **Art museums:** Museum of Modern Art of Algiers (MAMA).
- **Natural science museums:** National Museum of Natural Sciences (Algiers).

However, there is no museum that contains diversity of aspects, displaying the intersectionality of these subjects. A museum that combines historical artefacts, cultures, and contemporary art and science would be a unique addition to Algeria's cultural landscape. It could attract visitors from all over the world and provide a platform for local artists, scientists, and historians to display their work. It could also serve as an educational tool for the younger generation, promoting cultural awareness and appreciation.

IV.1.3.5. Challenges

Museums in Algeria face several challenges, such as:

- **Limited funding:** Insufficient financial resources can lead to inadequate maintenance, preservation, and promotion of the museums.
- **Lack of trained staff:** A shortage of qualified professionals in museum management, conservation, and education can hinder the development and growth of museums.

- **Inadequate infrastructure:** Many museums are housed in old buildings that may not meet modern standards for accessibility, security, and environmental control.
- **Low visitor numbers:** Limited awareness and promotion of museums can result in low visitor numbers, which in turn affects the revenue generation and sustainability.

These obstacles hinder their maintenance, development and sustainability, posing barriers to the promotion and preservation of Algeria's cultural heritage.

IV.1.3.6. Suggestions for improvement

The following suggestion might improve the situation of the Algerian museums:

- **Increase funding:** Allocate more resources to museums for maintenance, preservation, and promotion.
- **Capacity building:** Invest in training and professional development for museum staff to improve their skills in management, conservation, and education.
- **Upgrade infrastructure:** Renovate and modernize museum buildings to meet international standards for accessibility, security, and environmental control.
- **Enhance visitor experience:** Develop engaging and interactive exhibits, educational programs, and events to attract more visitors and encourage repeat visits.
- **Promote museums:** Implement marketing and communication strategies to raise awareness of museums and their cultural significance, both locally and internationally.
- **Foster partnerships:** Encourage collaboration between museums, universities, and other cultural institutions to share resources, expertise, and best practices.

By addressing these challenges and implementing the suggested improvements, Algeria's museums can become more sustainable, accessible, and engaging cultural institutions that contribute to the preservation and promotion of the country's rich heritage.

IV.2. Investigation methodology

We conducted this study by employing two types of surveys—one targeted at the public and the other at professionals. Additionally, we analysed a report on the current state of several Algerian museums and drew inspiration from similar examples from abroad.

The first survey aims to collect data on public perceptions of museums in Algeria, while the second survey is geared towards professionals to understand the challenges and opportunities facing Algerian museums.

The study analyses a report on some Algerian museums to provide a better understanding of the current state of museum affairs in the country. It will also analyse inspirational examples of museums from abroad to serve as models for best practices in museum operations. By using a multi-faceted approach that includes surveys, reports, and international examples, this research study aims to provide a comprehensive analysis of the state of museums in Algeria.

IV.2.1. Survey for the public

The survey is designed to gather relevant information about the current state of museums in Algeria, visitor experiences, and potential improvements. It is well written and anonymous, providing clear details about the purpose and outcomes.

The demographic questions are simple and straightforward, focusing on age, gender, occupation, educational background, nationality, and residence to better understand survey respondents and their backgrounds. The questions on familiarity with the history, culture, and environment of Algeria and the Jijel region will provide insight into the level of interest and engagement in cultural heritage and museums. They will also provide information on the current quality of museum experiences in the country. The importance-rating question allows respondents to indicate their preferences for different aspects of museum exhibits and programs, which can be used to inform future museum development strategies. The open-ended questions provide an opportunity for respondents to share their opinions and ideas on how museums can better represent Algerian history, culture, and nature. The challenges question provides insight into the barriers museum's face when trying to integrate multidisciplinary exhibits.

The survey was structured to gather important information from a diverse group of respondents to inform future museum development strategies in Algeria.

Sample size

Calculation of the size of a representative sample of a population (Infinite population):

$$Ss = \frac{Z^2 \cdot P \cdot (1 - P)}{E^2}$$

Ss = sample size

Z = critical value which depends on the level of confidence (NC) desired.

E = level of precision or margin of error desired.

P = proportion of the population that has the attribute (particular trait) in question or degree of variability. For an unknown population take P=0.5 which produces the maximum possible sample size.

P=0.5; Z=1.645 for an NC of 90%; E=0.07

$$Ss = \frac{1.645^2 \cdot 0.5 \cdot (1 - 0.5)}{0.07^2} = 138 \text{ person}$$

IV.2.2. Professional survey

This survey aims to understand the strategies, challenges, and opportunities for developing museums that integrate nature, culture, and history in Jijel, Algeria. The first section collects personal information such as name, occupation, organization/institution, and years of experience in the field. The second section focuses on the museum experience of respondents, asking how often they visit museums and which types of museums they visit most frequently. The third section focuses on technology, sustainability, and smart museums. The fourth section focuses on integrating nature, culture, and history in museums and identifying the main challenges in doing so. The final section focuses on collaboration with local communities and experts.

The survey is designed to cover a wide range of topics, has both closed and open-ended questions, is clear, concise, and easy to understand, and acknowledges the importance of anonymity.

IV.2.3. Museums and staff inventory

The survey incorporates a clear introduction and ensures anonymity. It covers a range of topics, including museum information, technology, smart museum concepts, collaboration with local communities and experts, diversity of factors, and educational programs. The questions are open-ended, allowing respondents to provide detailed and nuanced responses that can provide valuable insights for the study.

IV.2.4. Analysis of inspiring (referential) examples

IV.2.4.1. Museum of the Future in Dubai

Technology and smart museum techniques

The Museum of the Future is a futuristic museum that uses innovative technologies to highlight the latest developments in science and technology. It utilizes the artificial intelligence, virtual reality, augmented reality, and other cutting-edge technologies to create immersive experiences for visitors. For example, the “Self-Driving Cars” exhibit uses augmented reality to allow visitors to explore the technology behind self-driving cars. The museum also employs smart museum techniques such as interactive displays, 3D printing, and robotics to provide visitors with a more engaging and personalized experience.

Diversity and inclusion

The Museum of the Future emphasizes on the importance of diversity and collaboration in shaping the future. The museum has exhibits that explore the social, cultural, and ethical

implications of emerging technologies. For example, the “The Ethics of Artificial Intelligence” exhibit explores the potential risks and benefits of AI, while the “Innovating for Social Good” exhibit features examples of how technology can be used to address social and environmental challenges. The museum also highlights the perspectives and ideas of different cultures and communities from around the world, with exhibits that feature stories and artefacts from diverse backgrounds.

IV.2.4.2. Museum of Tomorrow in Rio de Janeiro, Brazil

Technology and smart museum techniques

The Museum of Tomorrow is a science museum that uses innovative technologies to explore the future of science and technology. The museum has exhibits that use interactive displays, augmented reality, and other technologies to provide visitors with an immersive and engaging experience. For example, the “Sea of Clouds” exhibit uses augmented reality to allow visitors to explore the Earth’s atmosphere. The museum also uses smart museum techniques such as mobile apps and virtual tours to provide visitors with a more personalized experience.

Diversity and inclusion

The Museum of Tomorrow has a strong focus on diversity and inclusion, with exhibits that explore the social, cultural, and environmental challenges facing Brazil and the world. The museum has exhibits that highlight the cultural heritage and contributions of different peoples from around the world, such as the “Indigenous Peoples” exhibit, which explores the history and culture of indigenous peoples in Brazil. The museum also has exhibits that highlight the importance of sustainability and environmental conservation, such as the “Climate Change” exhibit.

IV.2.4.3. National Museum of African American History and Culture in Washington, D.C. in the USA

Technology and smart museum techniques

The National Museum of African American History and Culture is a history museum that uses innovative technologies to display the history and culture of African Americans. The museum has exhibits that use interactive displays, multimedia installations, and other technologies to provide visitors with an immersive and engaging experience. For example, the “Power of Place” exhibit uses multimedia installations to explore the importance of place and geography in African American history. The museum also uses smart museum techniques such as mobile apps and virtual tours to provide visitors with a more personalized experience.

Diversity and inclusion

The National Museum of African American History and Culture focuses on diversity and inclusion, with exhibits that explore the contributions and experiences of African Americans. Examples include the "Music and Performing Arts" exhibit, which explores the history and influence of African American music, and the "Slavery and Freedom" exhibit, which highlights the challenges and struggles faced by African Americans.

Finally, with immersive and engaging experiences. They also prioritize diversity and inclusion, displaying the perspectives and experiences of different cultures and communities. There are several keys take away from these museums that can inspire the research study and design project:

- **Incorporating innovative technologies:** These museums use cutting-edge technologies such as AR, VR, and multimedia installations to create immersive experiences that engage visitors.
- **Prioritizing diversity and inclusion:** All three museums prioritize diversity and inclusion to create spaces that are inclusive and welcoming to people from diverse backgrounds.
- **Emphasizing sustainability and environmental conservation:** The Museum of Tomorrow's focuses on sustainability and environmental conservation can inspire the research and design project to create more sustainable buildings and spaces.
- **Using smart museum techniques:** All three museums use smart museum techniques such as interactive displays, mobile apps, and virtual tours can be used to create more engaging and interactive environments that cater to individual interests.

In conclusion, these museums provide excellent examples of how innovative technologies, diversity and inclusion, sustainability, and smart museum techniques can be incorporated in design projects and research studies.

Conclusion

In this chapter, we have presented the case study and provided a comprehensive overview of the methodology employed for investigation. The case study involved two types of surveys, one targeting the public and the other focusing on professionals. Additionally, we conducted an analysis of the current state of Algerian museums and sought inspiration from successful examples abroad. The survey was thoughtfully structured, featuring a clear introduction and ensuring respondent anonymity. Furthermore, we explored how the museum leverages cutting-edge technologies like artificial intelligence, virtual reality, and augmented reality to deliver immersive experiences to its visitors.

**CHAPTER V:
RESULTS, DISCUSSION
AND
RECOMMENDATIONS**

CHAPTER V: RESULTS, DISCUSSION AND RECOMMENDATIONS

Introduction

The chapter focuses on the analysis of three key components: a public survey, a professionals' survey, and an inventory for museums. This assessment evaluates the richness, diversity, and relevance of museum collections in relation to public interests and professional expectations.

Recommendations resulting from this analysis provide valuable guidelines for museum administrators, curators, and stakeholders in their pursuit of creating integrated and multidisciplinary national museum experiences. By incorporating these suggestions, museums can foster engagement, inclusivity, and educational enrichment, aligning with the desires and expectations of both the public and professionals. This chapter will explore the analysis in detail, unravelling the insights and laying the foundation for transformative museum experiences.

V.1. Analysis of the public's survey

V.1.1. Demographics data

Based on the provided survey data, it is important to note the demographics of the respondents:

- **Age**

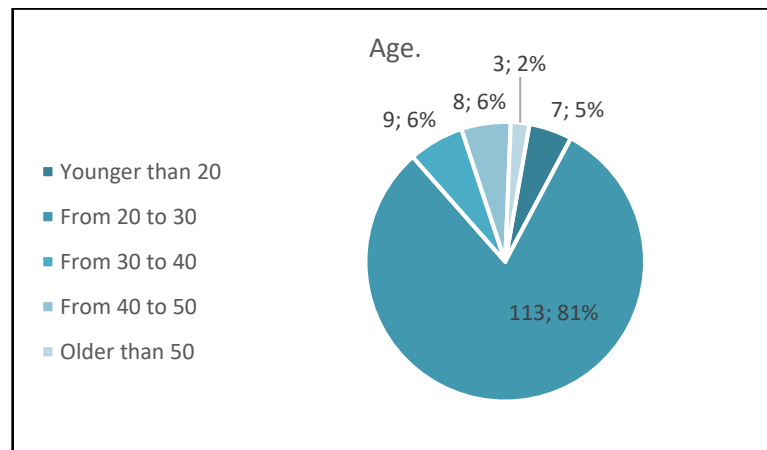


Figure V.1: Distribution of survey respondents by age.

The majority of respondents fall within the age range of 20 to 30, representing **81%** of the participants.

- **Gender**

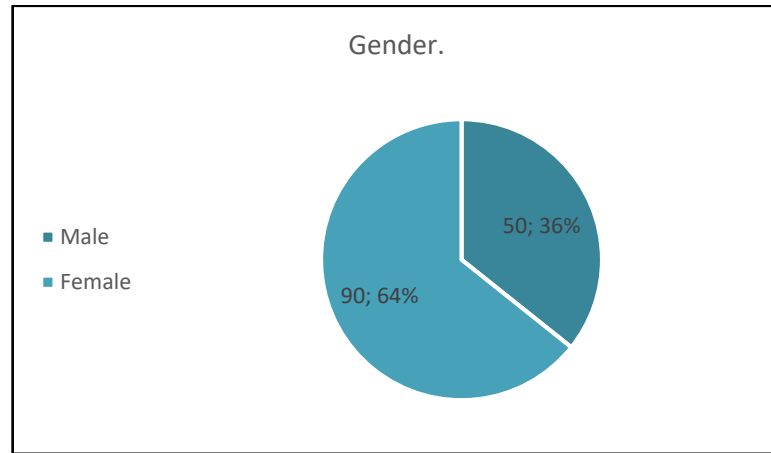


Figure V.2: Survey respondents by gender.

Female respondents make up **64%** of the participants, while male respondents comprise **36%**.

- **Occupation**

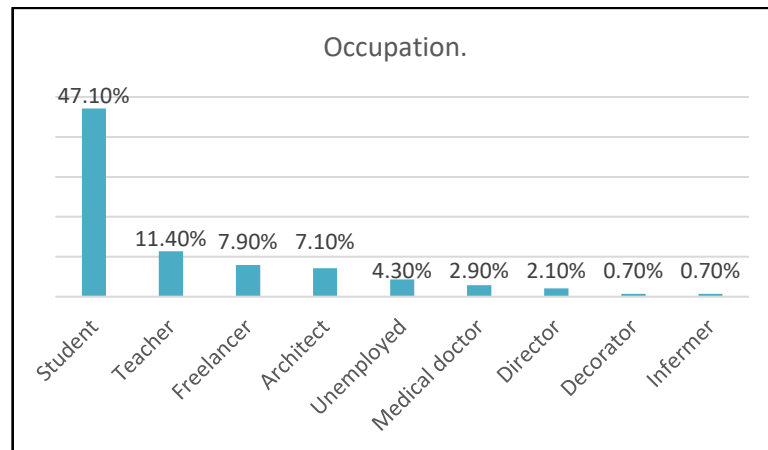


Figure V.3: Survey respondents by occupation.

Students are the largest group of respondents, followed by teachers, freelancers, architects.

- **Residence**

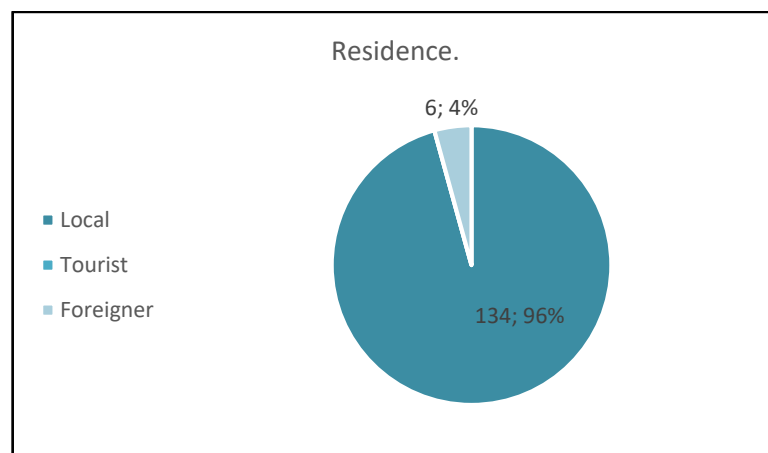


Figure V.4: Survey respondents by location.

The majority of the respondents **96%** are locals, while **4%** are foreigners.

V.1.2. Familiarity with the history, culture and natural environment of Algeria

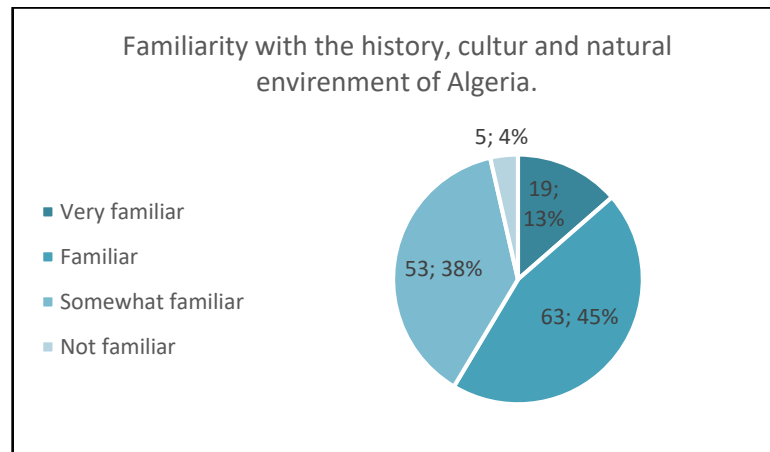


Figure V.5: Survey respondents' familiarity with Algeria's historical, cultural and natural aspects.

The majority of respondents **45%** consider themselves familiar with the history, culture, and natural environment of Algeria, while **38%** feel somewhat familiar. This indicates that a significant portion of the audience has some background knowledge that can be utilized in designing integrated multidisciplinary museum experiences.

- **Previous museum visits in Algeria**

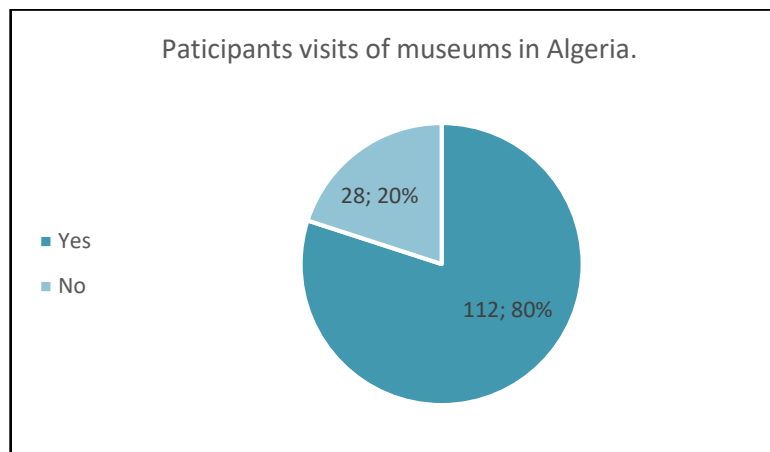


Figure V.6: Participants' visits to museums in Algeria.

A large majority of respondents **80%** have visited museums in Algeria before. This suggests that there is an existing interest in museums and cultural heritage among the surveyed population.

- **The museums that have been visited by the participants**

Participants visited a diverse range of museums in Algeria, such as Algiers, Constantine, Tlemcen, Setif, Oran, indicating a level of interest and engagement with cultural and historical heritage. These include the Bardo National Museum, Martyrs Museum, El Moudjahid Museum, Museum of Fine Arts, and Cirta Museum.

- **Popular museums**

The most frequently mentioned museums include:

- El Moudjahid Museum (Algiers).
- Bardo National Museum (Algiers).
- Museum of Fine Arts (Algiers).
- Martyrs Museum (Algiers).
- Constantine Museum.
- Tlemcen Museum.

- **Geographic distribution**

The data shows a concentration of museums in Algiers, which means a disparity in the distribution of cultural institutions across different regions. Additionally, there is a lack of multidisciplinary museums that integrate nature, culture, and history outside the capital. Algiers' concentration of museums is due to its political and administrative importance and the availability of resources. To address this issue, investment and support for multidisciplinary museums in other regions of Algeria is needed to provide visitors with diverse experiences that connect nature, culture, and history. Collaboration and partnerships between local communities, experts, and stakeholders can ensure accurate representation and inclusion of regional perspectives.

In conclusion, to address the disparity in cultural institutions in Algeria, efforts should be made to establish multidisciplinary museums outside the capital, promote equitable access to cultural resources, and foster appreciation for the unique heritage of various regions.

- **Ratings of overall museum experience**

Based on the provided data, the average rating for the overall museum experience in Algeria is **3.5** out of **5**. This suggests that there is room for improvement in order to enhance visitor satisfaction.

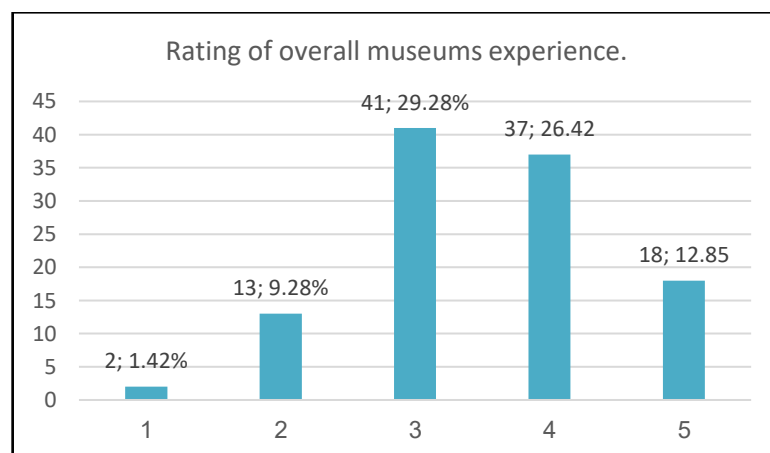


Figure V.7: Participants' ratings of overall museums experience.

It is important to note that the majority of respondents **29.28%** rated their experience as a **3**, indicating an average or satisfactory level of satisfaction. On the other hand, a significant portion of respondents **26.42%** rated their experience as a **4**, indicating a good level of satisfaction. However, only a small percentage of respondents **12.85%** rated their experience as a **5**, indicating an excellent level of satisfaction.

The data provided indicates that there is a need for improvement in the museum experience in Algeria.

V.1.3. Frequency of museum visits

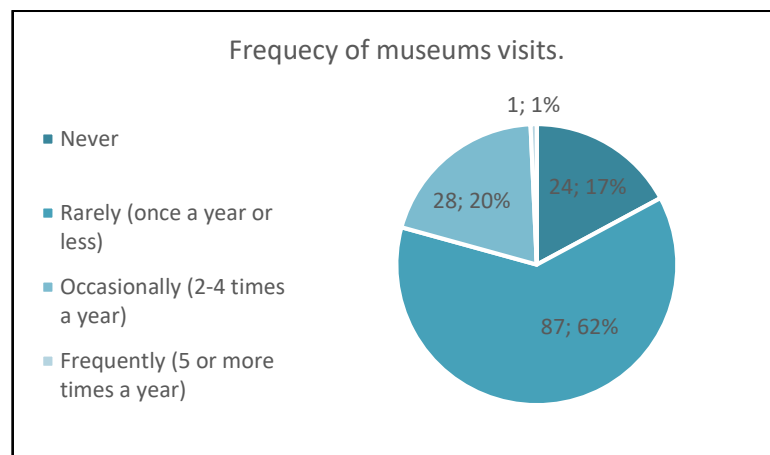


Figure V.8: Participants' frequency of museums visits.

The data shows that the surveyed population tends to visit museums rarely **62%**. This suggests a need to offer innovative and engaging experiences to attract visitors.

V.1.4. Importance ratings of different aspects

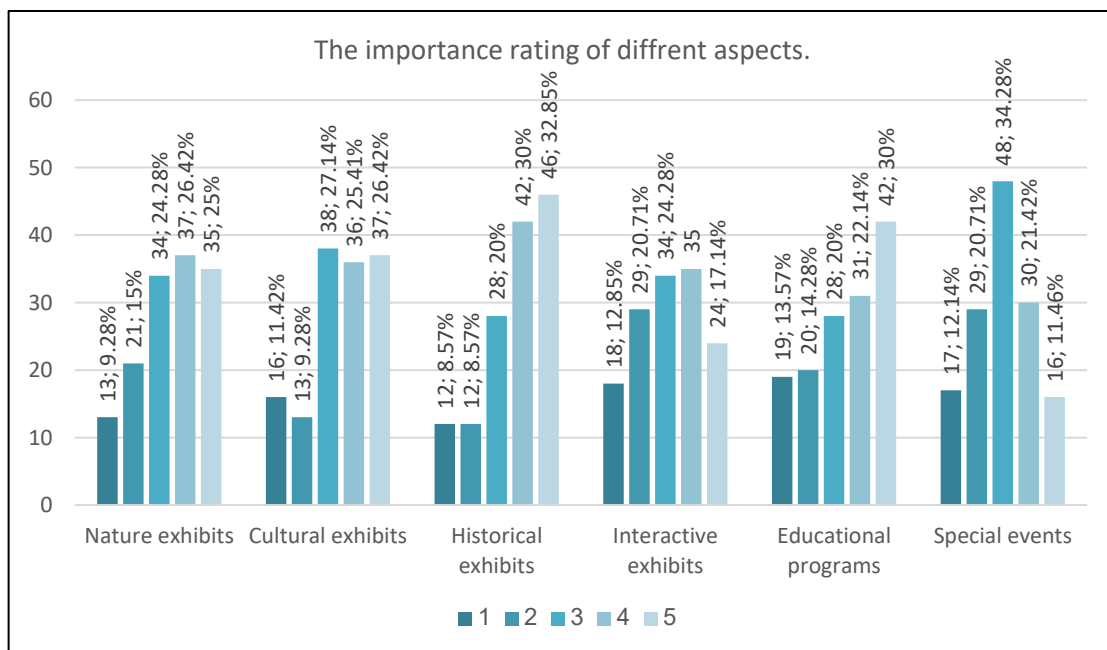


Figure V.9: The importance rating of different aspects.

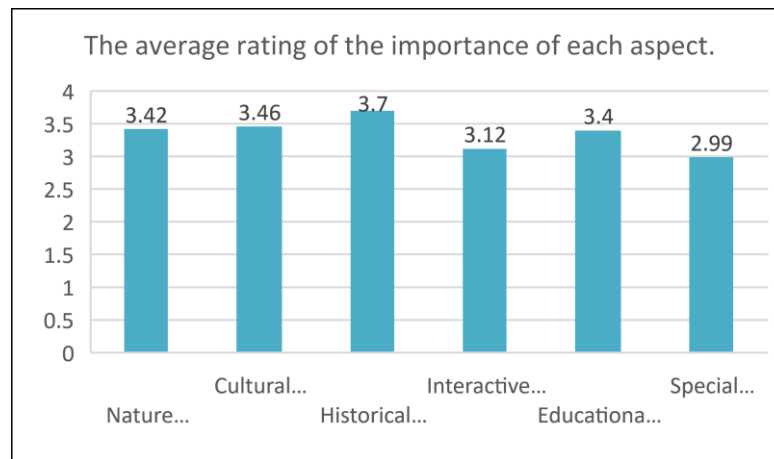


Figure V.10: Survey respondents' average importance rating.

Historical exhibits received the highest rating, reflecting the importance of learning about Algeria's history. Cultural and Natural exhibits also received high ratings, while interactive exhibits received lower ratings. Special events received the lowest rating, suggesting potential for improvement.

V.1.5. Exploring preferences: multidisciplinary exhibits and programs desired at museums in Algeria

The survey participants expressed a range of interests and desires for multidisciplinary exhibits or programs at museums in Algeria. These include historical exhibitions, cultural exhibitions, nature and environment exhibits, artistic exhibitions, educational and scientific exhibits, interactive and modern exhibitions, focus on history and heritage preservation, outreach and cultural promotion, and the incorporation of modern technologies such as VR and AR. Cultural exhibitions were highly mentioned, highlighting the importance of promoting Algerian culture and traditions. Nature and environment exhibits were also mentioned, highlighting the diverse natural landscapes of Algeria. Artistic exhibitions, both traditional and contemporary, were mentioned frequently. Educational and scientific exhibits were also mentioned, highlighting the importance of providing educational and informative experiences for visitors. Interactive and modern exhibitions were also mentioned, highlighting the importance of preserving and promoting Algeria’s history, heritage, and cultural identity.

The findings suggest that museums in Algeria should offer a multidisciplinary approach, incorporating historical, cultural, artistic, educational, and scientific elements, while also leveraging modern technologies to create engaging and interactive experiences. Additionally, efforts to preserve and promote Algeria's history, heritage, and cultural identity are essential for fostering national pride and identity.

V.1.6. Assessing the representation of Algerian history, culture, and nature in current museums

The opinions on the representation of Algerian history, culture, and nature in current museums are diverse. Some believe that Algerian museums effectively represent the nation's history, while others feel that representation is lacking or inadequate.

- **Historical emphasis:** Several respondents mentioned that Algerian museums primarily focus on historical periods such as the Algerian revolution, Roman and Numidian eras, and French colonialism.
- **Cultural preservation:** Many respondents acknowledged the importance of museums in preserving Algerian culture, heritage, and national identity. Room for Improvement: Numerous comments highlighted the need for improvement in Algerian museums.
- **Lack of specialization:** A few respondents expressed concerns about the specialized focus of Algerian museums. Political and Social Factors:
- **Awareness and education:** Some respondents highlighted the educational role of museums, advocating for increased awareness, authenticity, and a deeper understanding of Algerian history and culture.
- **Preservation and revitalization:** Concerns were raised about the preservation of historical sites, monuments, and architectural structures.
- Several comments alluded to political interference, lack of governmental support, and insufficient public interest as contributing factors to the current state of Algerian museums.

Algerian museums need to improve in terms of variety, interactivity, promotion, preservation, and capturing the essence of Algerian identity to ensure a more comprehensive representation of its heritage.

V.1.7. Challenges faced by museums in Algeria in integrating multidisciplinary exhibits

The data provided regarding the challenges faced by museums in Algeria in integrating multidisciplinary exhibits. The responses indicate various obstacles that hinder the successful implementation of such exhibits. These challenges suggest that efforts should be made to enhance public engagement and raise awareness about the value and significance of multidisciplinary exhibits.

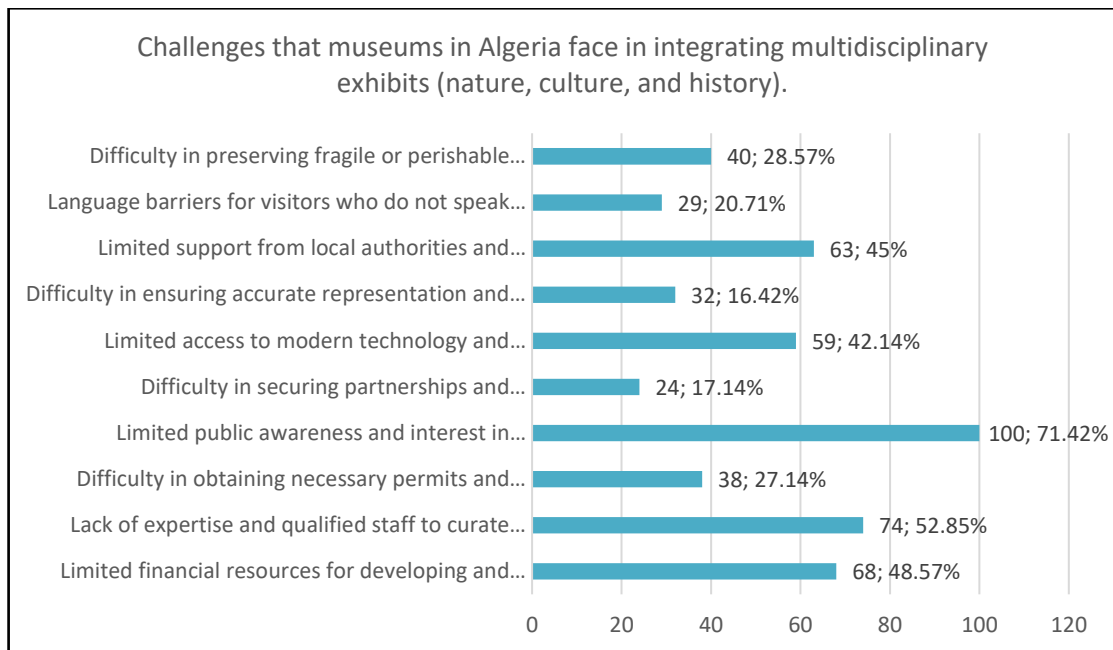


Figure V.II: Challenges faced by museums in integrating multidisciplinary exhibits (nature, culture, and history).

The survey revealed that museums in Algeria face limited access to modern technology and equipment for creating interactive exhibits, difficulty in ensuring accurate representation and inclusion of regional perspectives, limited support from local authorities and government agencies, language barriers for visitors who do not speak the local language, and difficulty in preserving fragile or perishable materials in multidisciplinary exhibits. Collaborations can bring diverse perspectives, shared resources, and expertise, enriching the multidisciplinary nature of exhibits. However, limited access to modern technology and equipment hampers the creation of interactive exhibits, difficulty in ensuring accurate representation and inclusion of regional perspectives, limited support from local authorities and government agencies, language barriers for visitors who do not speak the local language, and difficulty in preserving fragile or perishable materials in multidisciplinary exhibits

V.1.8. Enhancing Algerian museums: improvements and additions for a comprehensive representation of history, culture, and nature

The most important details from the data and survey responses regarding improvements or additions desired in the museums of Algeria to better represent Algerian history, culture, and nature are: Expansion and Accessibility, Digitization and Technology, Preservation and Care, Public Awareness and Promotion, Education and Interpretation, Integration of Modernity and Tradition, Balancing modernity and tradition in museum presentations and exhibitions, Showcasing traditional dresses, food, customs, and architecture, and Incorporating Algerian poetry, books, and various forms of art to express Algeria’s identity and heritage.

Based on these responses, it is clear that there is a strong desire for museums in Algeria to evolve and adapt to the modern era while preserving and representing the country’s rich history, culture, and natural resources. Improving accessibility, technology, public awareness, and preservation are key areas for development, as well as integrating modern art, education, and interpretation to engage both generations.

V.1.9. The importance of integrating multidisciplinary exhibits in museums in Algeria

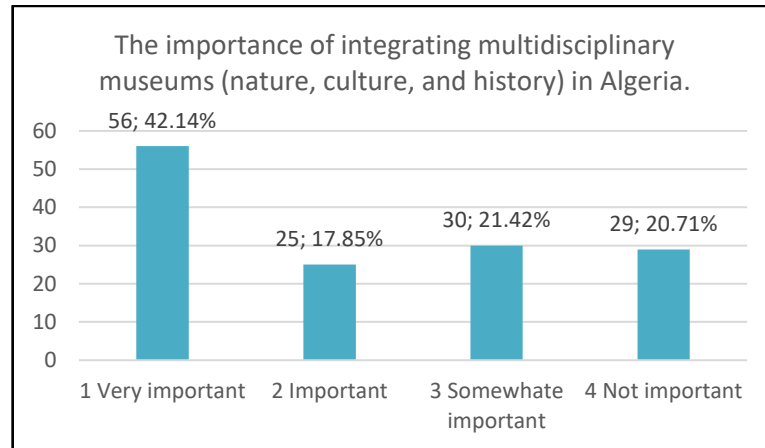


Figure V.12: The importance of integrating multidisciplinary museums (nature, culture, and history) in Algeria.

The majority of participants in Algeria believe it is important for museums to integrate multidisciplinary exhibits, with **42.14%** believing it is very important, **17.85%** believing it is important, **21.42%** believing it is somewhat important, and **20.72%** not important. This suggests a strong demand and recognition for the value of combining nature, culture, and history in museum exhibits.

V.1.10. Visitor preference for museums featuring multidisciplinary exhibits in Algeria

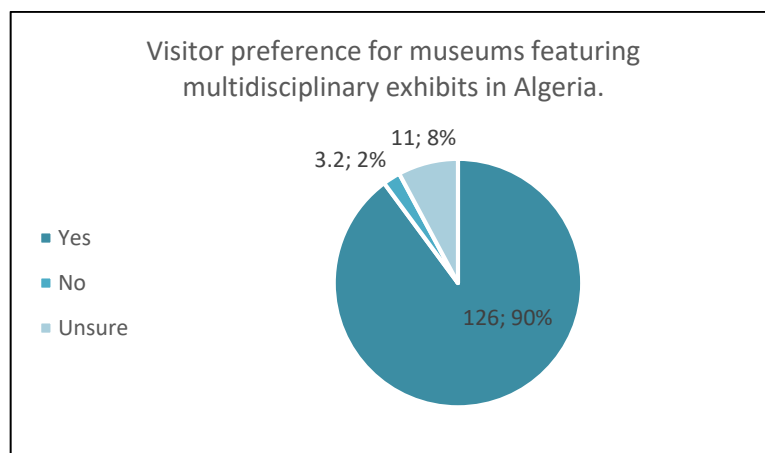


Figure V.13: Visitor preference for museums featuring multidisciplinary exhibits in Algeria.

90% of participants expressed a strong interest in visiting a museum in Algeria with multidisciplinary exhibits. Only **2%** responded negatively, suggesting a small minority may not be motivated. **8%** were unsure, suggesting ambivalence or uncertainty regarding the impact

of multidisciplinary exhibits on their likelihood of visiting a museum. Further exploration or clarification is needed.

V.1.11. Stakeholder feedback on integrating multidisciplinary museums in Algeria

From the responses, we can see a variety of opinions and suggestions regarding the integration of multidisciplinary museums in Algeria. Some participants expressed the need for more museums, highlighting the benefits of providing a comprehensive and immersive experience for visitors. Several participants expressed their support for multidisciplinary museums, highlighting the benefits of providing a comprehensive and immersive experience for visitors. There were also suggestions for specific themes and aspects that should be incorporated into multidisciplinary museums, such as traditional clothes, jewellery, agricultural exhibitions, and exhibits related to the nature and species found in Algeria. There were also suggestions for practical considerations, such as regular maintenance of museums, affordable ticket prices, and the provision of public facilities near museums to enhance the visitor experience.

In conclusion, Multidisciplinary museums in Algeria have a positive attitude, with suggestions and comments providing valuable insights for their development.

V.2. Analysis of the survey for the professionals in the field of Architecture

V.2.1. Personal information

- **Occupation distribution**

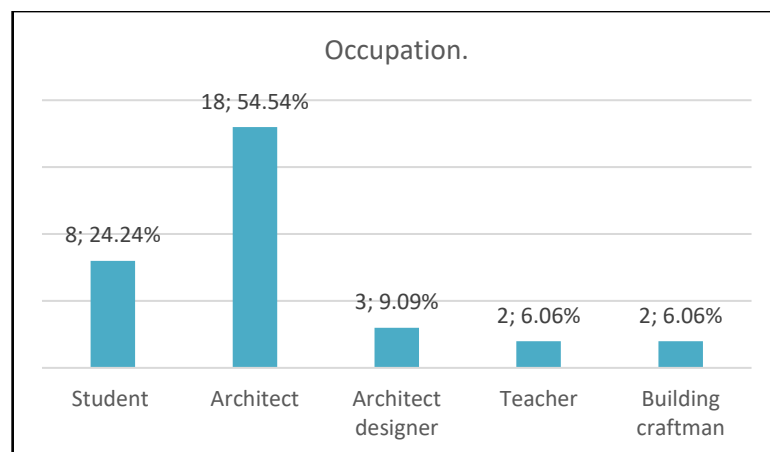


Figure V.14: Survey respondents by occupation.

The majority of the respondents in the sample **54%** are architects, followed by students **24%**. Architect designers, teachers, and building craftsmen each constitute a smaller portion of the sample.

- Years of experience distribution**

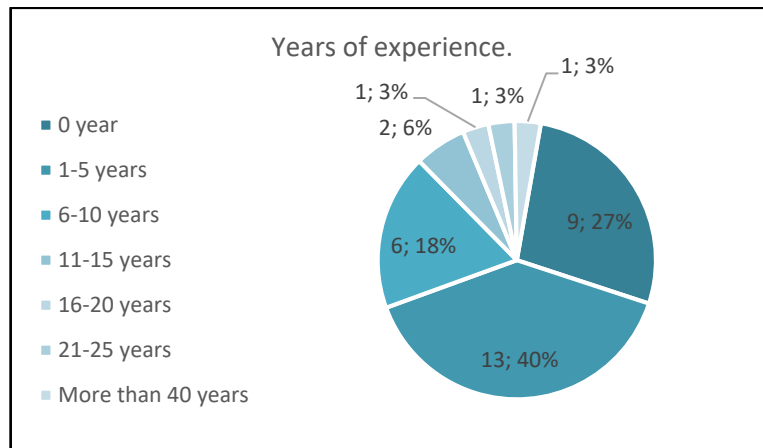


Figure V.15: Years of experience among participants.

The percentage of respondents with 1-5 years of experience decreases as the years of experience increase, with a smaller portion having 6-10, 11-15, 16-20, 21-25, and more than 40 years.

V.2.2. Museum experience

- Frequency of museum visits**

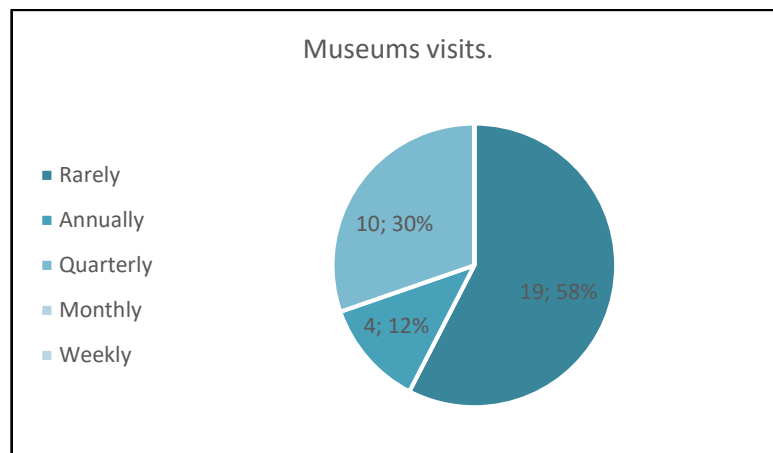


Figure V.16: Participants' frequency of museums visits.

The majority of respondents **58%** indicate that they rarely visit museums, while **30%** visit on a quarterly basis and **12%** visit annually.

- Types of museums visited most frequently**

History, archaeological, culture, and art museums are the most popular types of museums, while other types have lower visitation rates, according to the following chart data:

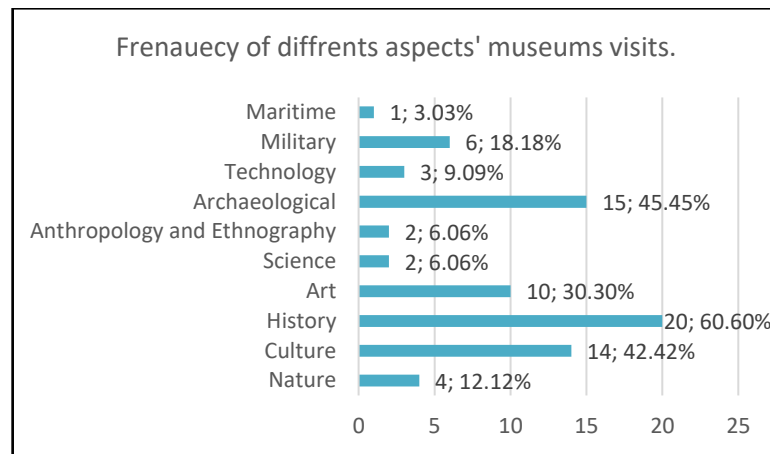


Figure V.17: Participants' visitation patterns by aspects.

These findings suggest that museums that focus on history, culture, and archaeology are preferred, while museums focused on nature, science, anthropology, technology, military, and maritime topics may attract a smaller audience.

- Strategies to attract more visitors and increase public awareness of multidisciplinary exhibits and programs in Algerian museums**

These strategies involve encouraging young people to share their artistic work or innovations in museums, using publicity, marketing, digital platforms, conceptual and functional strategies, diversity and innovation, collaboration and partnerships, enhanced visitor experience, social media and online presence, temporary exhibitions and cultural events, technology, local awareness and cultural sensitization, and a multidisciplinary approach.

V.2.3. Technology and smart museums

- Importance of technology in enhancing the museum experience**

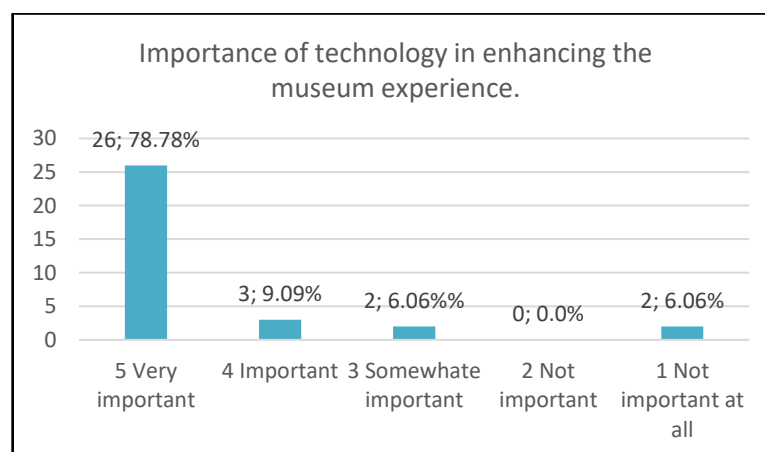


Figure V.18: The significance of technology in enriching.

The majority of respondents **79%** believe technology is essential for improving the museum experience, with an average rating of **4.54/5**.

- Familiarity with the concept of smart museums**

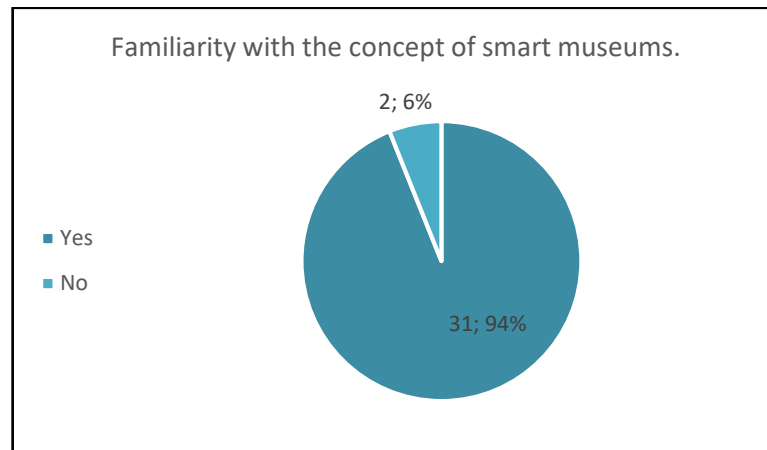


Figure V.19: Familiarity with the concept of smart museums.

A significant majority of respondents **94%** are aware of the concept of smart museums, suggesting a reasonable level of awareness.

- Essential features for a smart museum**

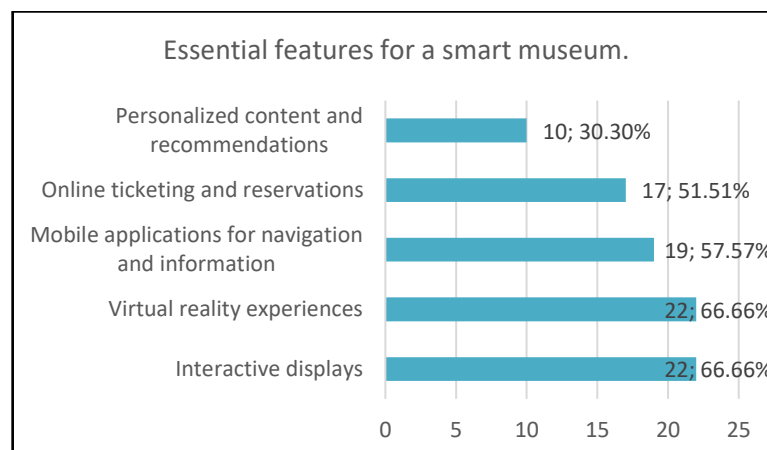


Figure V.20: Exploring the essential features for a smart museum.

The responses highlight that the interactive displays, virtual reality experiences, mobile applications, online ticketing and reservations, and personalized content and recommendations are essential features for a smart museum.

Overall, the survey data highlights the importance of technology in museums and the desired features and functionalities of a smart museum, emphasizing interactive displays, virtual reality experiences, mobile applications, and personalized content.

- Harnessing technology and digital media to showcase Algerian heritage, culture, and nature**

Respondents suggest developing smartphone applications that provide detailed information on exhibits, artwork, Algerian history, and culture. Virtual tours are suggested to make Algerian history and culture accessible to a wider audience. Interactive content is

suggested to attract visitors’ attention and enhance their understanding of Algerian history and culture. Multimedia resources such as documentaries, audios, and presentation slides can supplement visitors’ knowledge. Social media platforms are recommended to promote museum events, exhibitions, and share relevant content related to Algerian history and culture. Distance Education is suggested to provide distance education on Algerian history and culture. Access to Cultural Heritage is suggested to provide access to Algerian cultural heritage and history, including virtual tours and virtual guides

- **Exploring museums in the region: enhancing visitor experience by integrating innovation technology**

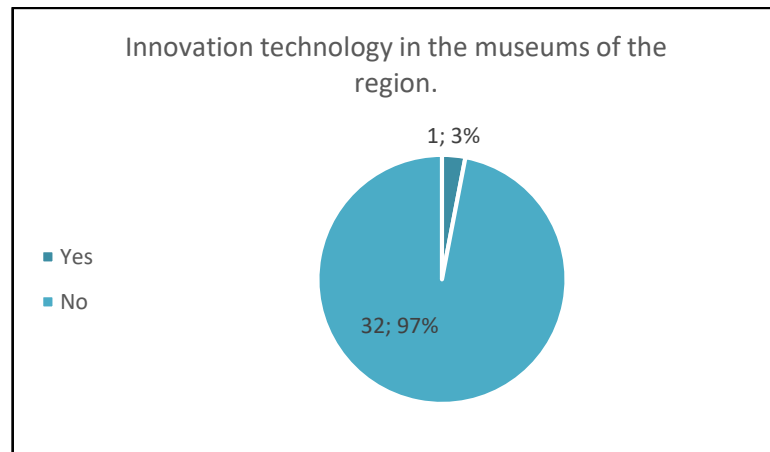


Figure V.21: Innovation technology in the museums.

The survey found that only **3%** of respondents are aware of museums in their region that have integrated innovative technology to enhance visitor experience and promote conservation efforts.

V.2.4. Collaboration with local communities and experts

- **Importance of collaboration in enhancing the museum experience**

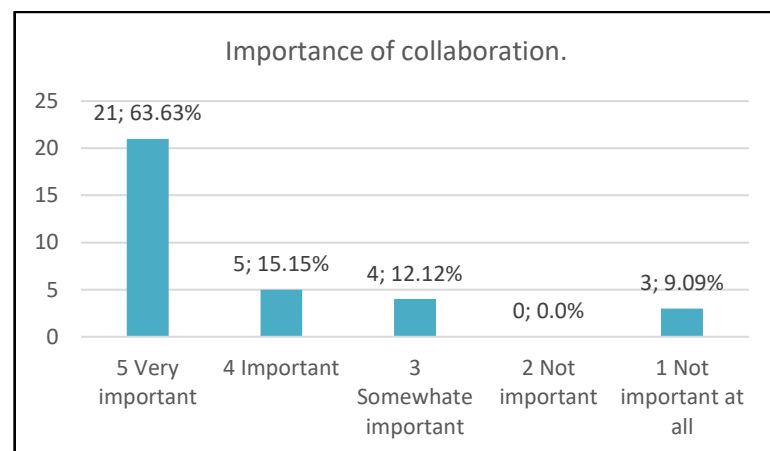


Figure V.22: Exploring the importance of collaboration.

Museums should collaborate with local communities and experts to accurately represent regional perspectives in exhibits and programs, with an average rating of **4.24/5**.

- **Collaboration with local communities and experts**

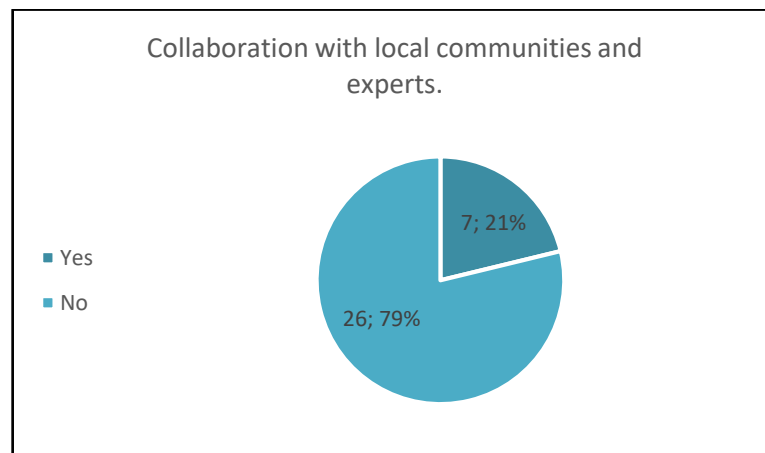


Figure V.23: Collaboration between museums and local communities and experts.

Only **21%** of respondents have seen museums collaborate with local communities and experts in their region, indicating a potential gap in effective collaboration between museums and local stakeholders.

- **Strategies for collaboration:** Effective strategies include preserving historical values, developing exhibitions and programs, establishing partnerships, engaging cultural and educational associations, and appealing to local expertise.
- **Barriers to collaboration:** Lack of communication, financial resources, mutual understanding, interest/awareness, and infrastructure are the main barriers to collaborating with local communities and experts.
- **Benefits of collaboration:** Museums should collaborate with local communities and experts to enrich content, foster innovation, attract more visitors, increase awareness, and gain local knowledge.
- **Ensuring accurate representation:** Museums should focus on open communication, collaboration, diversity and inclusion, research, and documentation to accurately represent regional perspectives.
- **Communicating contributions:** Communication strategies to promote local communities and experts include guided tours, social media, interactive exhibits, community events, and educational programs to engage visitors and raise awareness.
- **Additional suggestions:** Organised efforts, community engagement, and long-term planning are needed to promote a fusion of culture and nature, create specific organizations, and align collaboration strategies.

In conclusion, museums must collaborate with local communities and experts to accurately represent regional perspectives in exhibits and programs.

V.2.5. Diversity of factors: integrating nature, culture, and history

- Importance of different aspects**

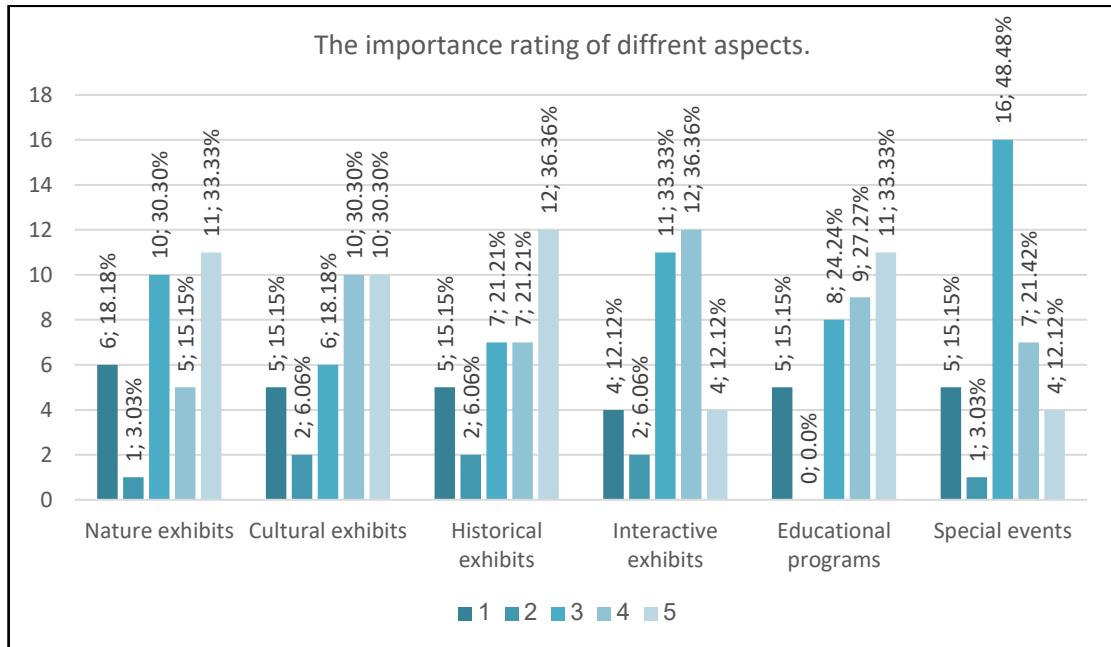


Figure V.24: The importance rating of different aspects.

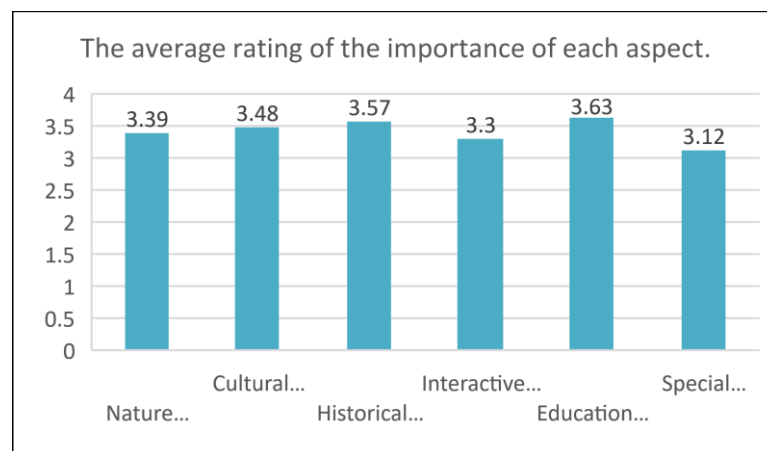


Figure V.25: Survey respondents' average importance rating.

The average rating of nature exhibits, cultural exhibits, historical exhibits, interactive exhibits, educational programs, and special events is **3.39/5**, **3.48/5**, **3.57/5**, **3.3/5**, **3.63/5**, and **3.12/5**. These ratings suggest that respondents consider nature exhibits to be moderately important, cultural exhibits to be moderately important, historical exhibits to be slightly higher, interactive exhibits to be moderately important, educational programs to be relatively more important, and special events to be less important.

- **Integration of multidisciplinary exhibits**

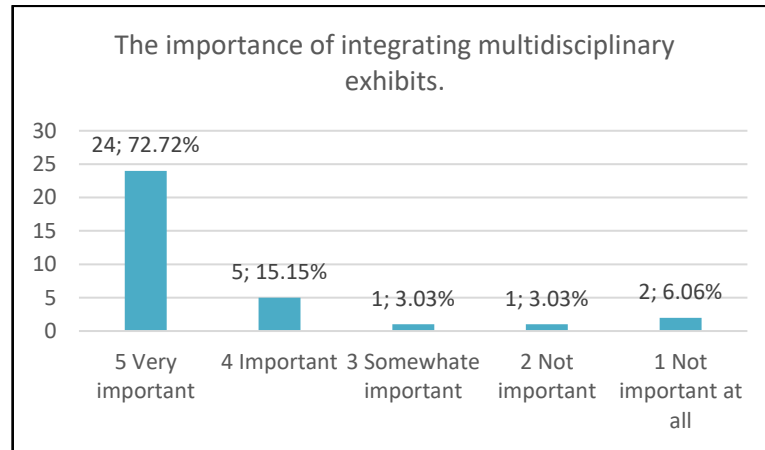


Figure V.26: The importance of integrating multidisciplinary exhibits.

The survey data highlights the importance of integrating nature, culture, and history in museums in Algeria, with **72.72%** rating it as very important and an average rating of **4.45/5**.

- **Strategies for museums in Algeria to promote Algerian history, culture, and nature among the local community**

Organize cultural events and programs to celebrate Algerian culture and educate visitors about the country's history and nature. Create interactive exhibits to encourage active participation and engagement. Collaborate with schools and universities to offer educational programs and internship opportunities. Utilize social media platforms to share content, promote events, offer guided tours, cooperate with associations and institutions, create virtual sites, enhance communication, promote the importance of museums, digitize collections, establish a dedicated committee for promotion, build strong relationships with the local community, implement comprehensive marketing campaigns targeting the local public and tourists.

- **Enhancing multidisciplinary exhibits and programs in Algerian museums through partnerships with local organizations, educational institutions, and government agencies**

Museums in Algeria can collaborate with local organizations, educational institutions, and government agencies to create multidisciplinary exhibits and programs. Key strategies include identifying potential partners, establishing partnership relationships, designing multidisciplinary projects, and co-creating exhibitions and programs. Promoting joint projects through various communication channels is important for reaching a wider audience.

It can be concluded that the survey data highlights the importance of collaboration local organizations, educational institutions, and government agencies to create multidisciplinary exhibits and programs that promote Algerian history, culture, and nature.

V.3. Analysis of the museums and staff inventory

V.3.1. Museum information

- Year of establishment

From the provided data, we can observe that there are seven museums included in the survey. The establishment dates range from **1931** to **2012**. This information provides insight into the historical context of these museums.

- Type of museums

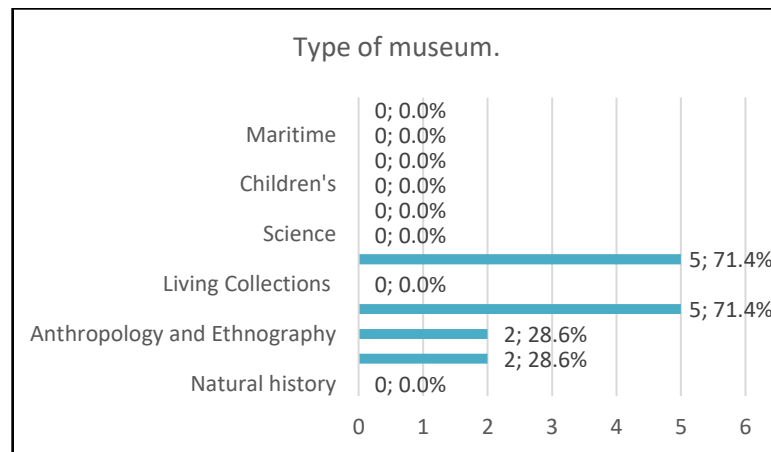


Figure V.27: Type of the surveyed museums.

The survey data indicates that archaeological museums have the highest representation, art museums have **71.4%**, history and anthropology/ethnography museums have **28%**, and other types of museums have **0%** representation. This suggests that the surveyed museums do not have diversity in their exhibits.

V.3.2. Technology

- Use of digital technology

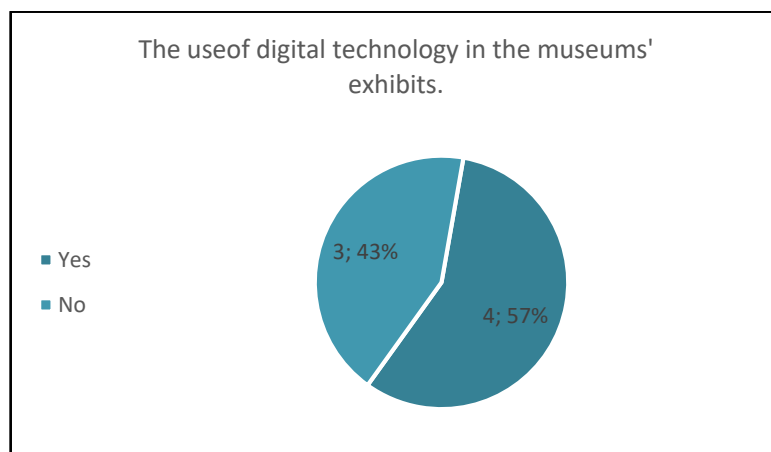


Figure V.28: Exploring the intersection of art and technology: unveiling the museum's digital exhibits.

From the data, it is evident that a majority of the surveyed museums, **57%**, utilize digital technology in their exhibits, while **43%** do not.

- Types of technology use

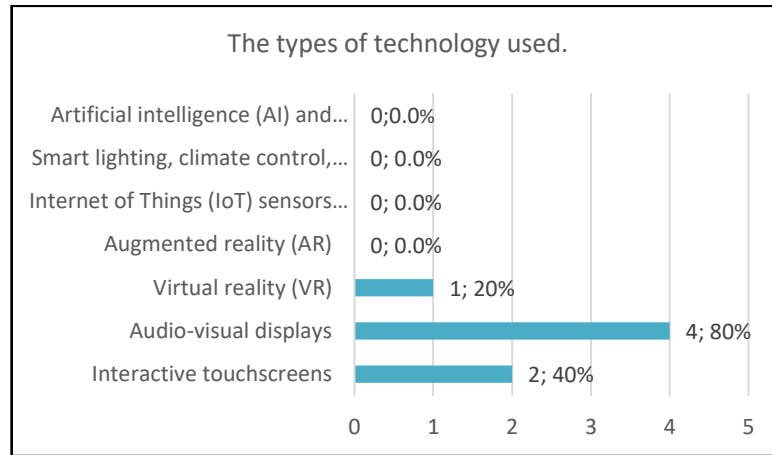


Figure V.29: Exploring the types of technology use.

While the survey indicates that some museums utilize audio-visual displays **80%** and interactive touchscreens **40%**, the absence of other technological tools suggests a lack of comprehensive technological integration. By not adopting these advanced technologies, museums miss opportunities to provide more immersive and interactive experiences for visitors.

- Utilizing technology for visitor engagement and learning experiences

Museums use technology to enhance visitor engagement and learning experiences through social media, websites, virtual visits, and interactive screens, which still traditionally and far from the concept of a smart museum.

- Online resources or virtual tours

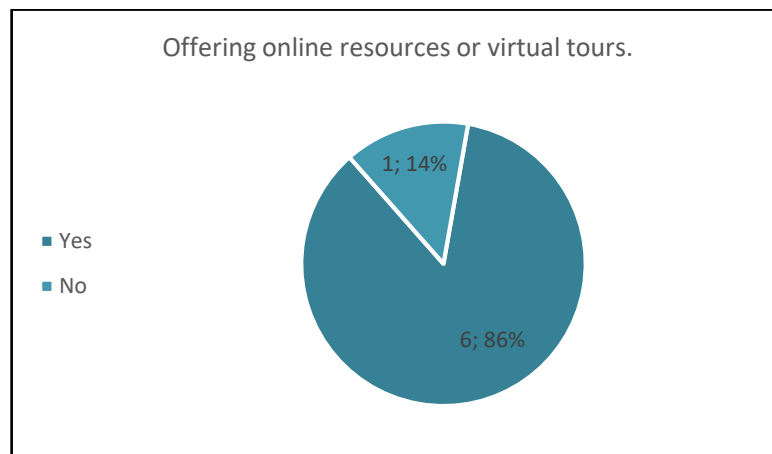


Figure V.30: Unveiling online resources and virtual tours.

While the majority of museums surveyed **86%** claim to offer online resources and virtual tours, the descriptions provided are relatively basic. The reliance on social media platforms like Facebook and limited offerings such as short videos fails to fully utilize the potential of online platforms. By not providing more comprehensive virtual experiences,

museums miss an opportunity to engage with a wider audience and extend their reach beyond physical visits.

- **Description of online resources or virtual tours**

Museums provide online resources and virtual tours through social media platforms, including Facebook, Twitter, Instagram, and YouTube. Videos of exhibits are shared, and short videos are created to introduce cultural heritage and historical monuments. Virtual visits are facilitated through the official website. Yet still traditional and far from the smart museums.

- **Staying up-to-date with technological advancements**

The survey responses indicate that museums primarily rely on social media and partnerships to stay up-to-date with technological advancements. However, these efforts do not guarantee a comprehensive understanding of emerging technologies or effective incorporation into exhibits. Museums should invest in dedicated technology experts or departments to actively research and experiment with new technologies, ensuring that they remain at the forefront of technological innovation. Additionally, museums should embrace technology as a means to enhance visitor experiences, provide deeper educational insights, and engage a broader audience.

In conclusion, museums should actively explore and incorporate emerging technologies to enhance visitor engagement, education, and museum experiences, leveraging the full potential of digital tools.

V.3.3. Collaboration with local communities and experts

- **Collaborations with local communities and institutions**

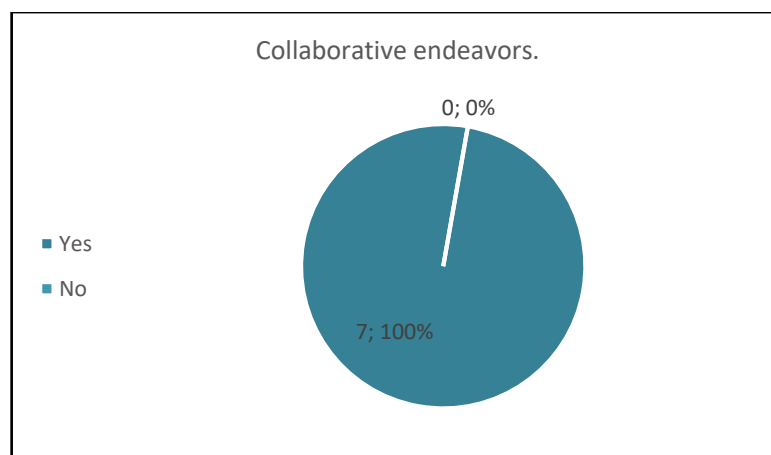


Figure V.31: Museum's partnerships with local communities, organizations, and educational institutions.

100% of surveyed museums collaborate with local communities, organizations, or educational institutions, but the extent and depth of these collaborations is difficult to assess.

Some museums have formal agreements with educational institutions, while others involve local communities through cultural activities.

- **Involvement of local experts and community members**

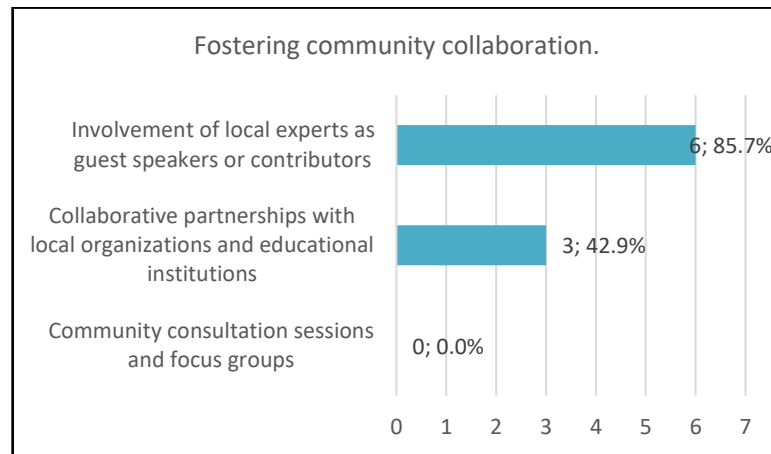


Figure V.32: Fostering community collaboration: the museum's approach to engaging local experts and community members in exhibit development and programming.

Local experts and community members are involved in the development and curation of exhibits and programming, but there is a lack of community consultation sessions and focus groups. Collaboration partnerships with local organizations and educational institutions are reported by **42%** of museums, raising questions about the extent to which local perspectives and voices are truly incorporated.

- **Prioritizing regional perspectives**

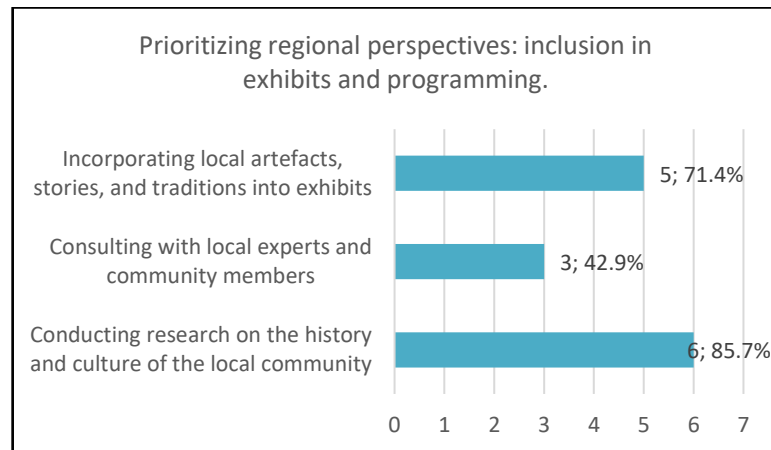


Figure V.33: Elevating regional perspectives: a commitment to inclusion in the museum's exhibits and programming.

The survey data indicates that Museums show some commitment to prioritizing regional perspectives in exhibits and programming, with **71.4%** incorporating local artefacts, stories, and traditions. However, consulting local experts and community members **42.9%** and conducting research on the history and culture of the local community **85.7%** show room for improvement.

- **Engagement with local businesses, artisans, and entrepreneurs**

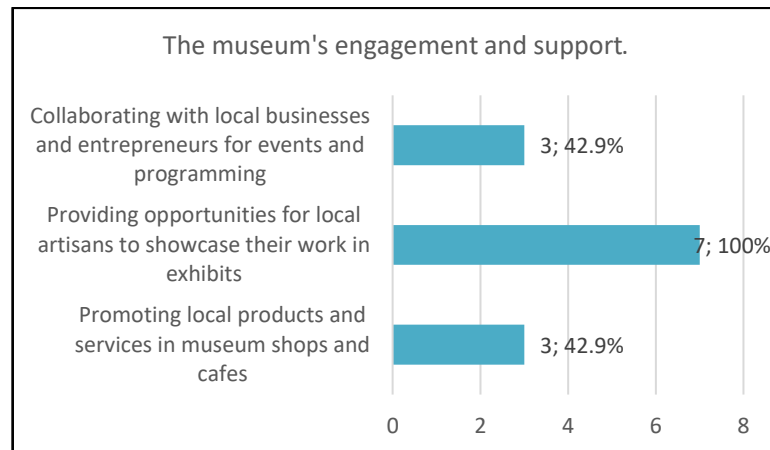


Figure V.34: Empowering local communities: initiatives and programs by the museum for sustainable development.

While the data suggests that **100%** museums provide opportunities for local artisans to highlight their work in exhibits, there is room for improvement in engaging with and supporting local businesses and entrepreneurs. Collaborations with local businesses and entrepreneurs are reported by only **42.9%** of museums, indicating a missed opportunity to support the local economy.

In conclusion, while the survey data shows positive aspects of collaboration, representation, and engagement with local communities, there are areas that require improvement. Museums should strive to improve their collaborations by involving local experts and community members, conducting thorough community consultations, and prioritizing regional perspectives. Additionally, they should engage with and support local businesses, artisans, and entrepreneurs to strengthen their relationship with the local community and contribute to the regional economy.

V.3.4. Diversity of factors

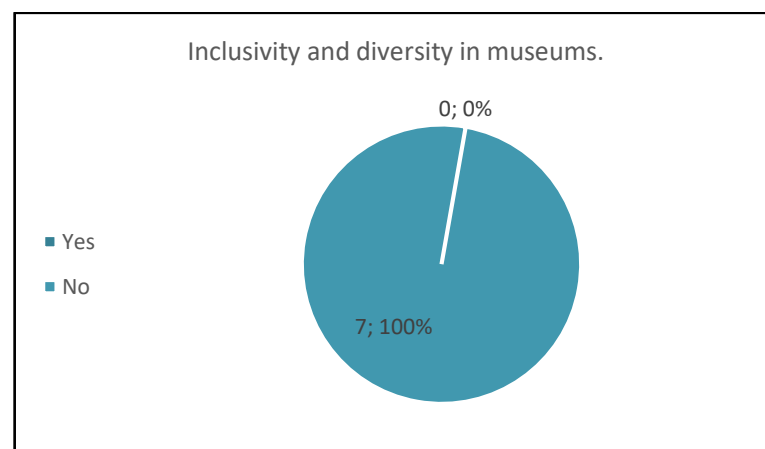


Figure V.35: A spotlight on the museum's exhibits and programming.

The survey data indicates that museums do not prioritize inclusivity and diversity in their exhibits and programming, raising concerns about their ability to effectively represent and engage with diverse audiences.

V.4. Recommendations

V.4.1. Scenario 1: integration of innovative technology and sustainable practices

Hypothesis: The integration of innovative technology and sustainable practices may enhance visitor experience and promote conservation efforts.

In this scenario, the multidisciplinary museum in Jijel, Algeria, implements the hypothesis by incorporating innovative technology and sustainable practices to enhance the visitor experience and promote conservation efforts. The following scenario outlines the steps involved:

- 1. Technology integration:** The museum invests in the latest technological advancements to create immersive and interactive exhibits. They install (AR) and (VR) devices throughout the museum to create immersive and interactive exhibits, allowing visitors to explore ancient ruins and historical artefacts in a realistic and interactive manner.
- 2. Sustainable practices:** Museum adopts sustainable practices to minimize environmental impact and promote conservation, such as installing energy-efficient lighting and recycling programs, and partnering with local environmental organizations.
- 3. Interactive exhibits:** Museums use innovative technology to enhance visitor experience, such as touch-screen displays and interactive games and simulations to educate about the interconnectedness of nature, culture, and history.
- 4. Conservation programs:** The museum organizes conservation programs to raise awareness and involve visitors in conservation efforts, such as workshops and educational programs on topics such as biodiversity, climate change, and sustainable living.
- 5. Community Collaboration:** The museum collaborates with local communities and experts to ensure accurate representation and inclusion of regional perspectives, fostering a sense of ownership and appreciation for their cultural and natural heritage.
- 6. Visitor engagement:** Museums engage visitors through social media, online forums, and interactive exhibits to create a sense of community and encourage them to revisit the museum and become ambassadors for its mission.

By integrating innovative technology and sustainable practices, the multidisciplinary museum in Jijel, Algeria, successfully enhances the visitor experience, promotes conservation efforts, and fosters a deeper understanding of the interconnectedness of nature, culture, and history of Algeria.

V.4.2. Scenario 2: collaboration with local communities and experts

Hypothesis: The collaboration of local communities and experts may ensure accurate representation and inclusion of regional perspectives.

In this scenario, the multidisciplinary museum in Jijel, Algeria, implements the hypothesis by actively collaborating with local communities and experts to ensure accurate representation and inclusion of regional perspectives. The following scenario outlines the steps involved:

1. Community engagement: The museum uses community engagement programs to involve local communities in shaping its exhibits and programs, ensuring it reflects the region's cultural diversity and heritage.

2. Partnerships and collaborations: The museum collaborates with local organizations to develop joint projects, exchange knowledge and resources, and co-create exhibits and programs, allowing the community to contribute.

3. Inclusion of regional perspectives: The museum seeks input from local experts to ensure its content is accurate, authentic, and representative of the region's cultural and scientific heritage.

4. Storytelling and Oral History: The museum uses storytelling and oral history to preserve and share regional perspectives, allowing visitors to learn directly from the community and appreciate local culture and traditions.

5. Cultural exchange programs: The museum organizes cultural exchange programs to create opportunities for cultural exchange, dialogue, and mutual learning, through workshops, demonstrations, and performances.

6. Community events and festivals: The museum hosts community events and festivals to promote pride, ownership, and cultural preservation among the local community.

By actively collaborating with local communities and experts, the multidisciplinary museum in Jijel, Algeria, ensures accurate representation and inclusion of regional perspectives. This collaboration fosters a deeper appreciation for the local culture, engages visitors in meaningful experiences, and strengthens the museum's connection with the community.

V.4.3. Scenario 3: integration of technology, collaboration with local communities, and sustainable practices

Hypotheses: The integration of innovative technology and sustainable practices, along with collaboration with local communities and experts, may enhance visitor experience, promote conservation efforts, and ensure accurate representation of regional perspectives.

In this scenario, the multidisciplinary museum in Jijel, Algeria, combines the two hypotheses by integrating technology, collaborating with local communities and experts, and implementing sustainable practices. The following scenario outlines the steps involved:

- 1. Technology-enhanced exhibits:** The museum uses innovative technology to create immersive and educational exhibits, allowing visitors to explore virtual reconstructions of historical sites, interact with digital representations of artefacts, and access detailed information.
- 2. Collaboration with local communities and experts:** The museum collaborates with local communities and experts to ensure accurate representation and inclusion of regional perspectives, including local historians, artists, scientists, and community members.
- 3. Sustainable practices:** The museum uses sustainable practices to minimize its environmental impact and promote conservation efforts, such as installing energy-efficient lighting systems, using renewable energy sources, and implementing recycling programs. Visitors are educated about the importance of sustainable living.
- 4. Community-driven programs:** The museum fosters a sense of ownership and pride among the local community by organizing workshops, lectures, and cultural events to share their knowledge and skills with visitors.
- 5. Technology for conservation:** The museum uses technology to educate visitors about biodiversity, sustainable practices, and environmental conservation. Visitors can participate in virtual experiences and digital activities to promote conservation initiatives, creating awareness and empowering them to take action.
- 6. Visitor engagement and feedback:** Museums engage visitors through social media, online forums, and interactive exhibits to foster a sense of community, encourage repeat visits, and improve offerings based on visitor input.

By combining innovative technology, collaboration with local communities and experts, and sustainable practices, the multidisciplinary museum in Jijel, Algeria, creates a holistic and immersive experience for visitors. This approach enhances the visitor experience, promotes conservation efforts, ensures accurate representation of regional perspectives, and fosters a deeper understanding and appreciation of Algeria's cultural and natural heritage.

Conclusion

Based on the analysis of the public survey, the analysis of professionals, and the analysis of inspirational examples, and in order to improve integration of multidisciplinary national museums in Jijel, the following conclusions are drawn:

- **Integrate technology and sustainable practices**

- Incorporate innovative technology such as interactive displays, augmented reality, virtual reality, and multimedia installations to enhance visitor engagement and provide a more immersive and educational museum experience.
- Implement sustainable practices in museum operations and design to promote conservation efforts and environmental responsibility.

- **Collaborate with local communities and experts**

- Establish partnerships and collaborations with local communities, educational institutions, cultural centres, and experts to accurately represent regional perspectives and ensure the inclusion of diverse voices and knowledge.
- Involve local stakeholders in the development and curation of exhibits and programs to create a sense of ownership and cultural relevance.

- **Promote multidisciplinary exhibits**

- Create exhibits that integrate nature, culture, and history to provide a comprehensive and interconnected narrative that promotes a deeper understanding of Algeria's unique heritage.
- Design interactive exhibits, educational programs, and special events that celebrate Algerian culture, engage visitors, and foster a lifelong interest in the multidisciplinary aspects of museums.

- **Utilize technology and digital media**

- Develop smartphone applications, online platforms, and virtual tours to provide detailed information on exhibits, offer remote access to museum content, and engage a wider audience.
- Utilize social media platforms, multimedia resources, and digital games to share content, promote museum events, and enhance visitor interaction.

- **Strengthen collaboration with local organizations and government agencies**

- Establish strong partnerships with local organizations, educational institutions, government agencies, and businesses to create multidisciplinary exhibits and programs.
- Seek support from experts and stakeholders in preserving heritage, promoting cultural identity, and educating the community.

- **Enhance visitor engagement and outreach**

- Focus on enhancing visitor engagement through interactive exhibits, educational workshops, and playfulness.
- Pay attention to the architectural aspects of museums, urban aesthetics, and the inclusion of play areas to create a welcoming and enjoyable environment for visitors.
- Utilize social media platforms, improved websites, online ticketing platforms, temporary exhibitions, and cultural events to promote the museum and reach a wider audience.

- **Improve communication and awareness**

- Develop effective communication strategies to highlight the contributions of local communities and experts.
- Utilize various communication channels, guided tours, interactive exhibits, community events, and educational programs to engage visitors and raise awareness about the museum's cultural and scientific significance.

- **Invest in staff training and development**

- Provide staff with training and development opportunities to ensure they have the necessary skills and knowledge to effectively communicate exhibits' cultural and scientific significance, provide engaging experiences for visitors, and stay updated with technological advancements.

By implementing these combined recommendations, multidisciplinary museums in Jijel, Algeria can enhance the visitor experience, improve educational value, promote cultural heritage, and foster a deeper understanding of the interdependence of nature, culture, and history.

GENERAL CONCLUSION

GENERAL CONCLUSION

The integration of multidisciplinary museums has gained significant attention in recent years due to its potential to enhance the visitor experience and foster a deeper understanding of the interconnectedness of history, culture, and nature. By employing innovative presentation methods and incorporating interdisciplinary themes, museums can offer a comprehensive and engaging platform for exploring the diverse heritage of a city or region. This research study aims to address the inadequacy of the current museum setup in Jijel, Algeria, which fails to effectively highlight the country's rich history, culture, and natural wonders. By examining new ways of integrating a multidisciplinary national museum of nature, culture, and history, this study seeks to improve the museum's ability to communicate its significance and provide visitors with a dynamic and enlightening experience.

The current museum setup in Jijel, Algeria, lacks an effective integration of history, culture, and nature, which limits its ability to provide a comprehensive and engaging experience for visitors. The absence of a multidisciplinary museum that combines these elements poses a significant challenge in presenting the country's diverse heritage. As a result, visitors are unable to fully grasp the interconnectedness of Algeria's historical, cultural, and natural significance. Addressing this problem is crucial to ensure that the museum effectively displays the country's unique identity and fosters a deeper appreciation for its rich cultural heritage.

This study concludes with compelling evidence that supports the hypotheses put forth at the outset of the research:

- The integration of innovative technology and sustainable practices has the potential to enrich the visitor experience and contribute to conservation efforts.
- Collaborating with local communities and experts ensures accurate representation and inclusivity of regional perspectives.

These findings validate the importance of incorporating technology, sustainability, and community engagement in the design and operation of multidisciplinary museums. By embracing these principles, museums can offer enhanced experiences that foster a deeper understanding of history, culture, and nature while promoting conservation and inclusivity.

At the culmination of this study, several global recommendations have emerged, encompassing the key findings and insights gained throughout the research process:

- Integrate technology and sustainable practices
- Collaborate with local communities and experts
- Promote multidisciplinary exhibits
- Utilize technology and digital media
- Strengthen collaboration with local organizations and government agencies
- Enhance visitor engagement and outreach
- Improve communication and awareness
- Invest in staff training and development

This research was faced by some limitation, but still able to generate valuable insights and provide meaningful recommendations. The limitations were limited time and small sample size of museums, which restricted the researchers' ability to visit a larger number of museums. Future studies could benefit from allocating additional time and resources to visit a larger number of museums across different locations, allowing for a more comprehensive and robust analysis of integration practices and their impact on visitor experiences.

While this study sheds light on important findings, it also opens the door to several intriguing questions. Delving deeper into its recommendations may prompt us to explore further complexities and consider additional factors that could influence the outcomes:

- What strategies can be implemented to ensure that the integration of technology in museums does not overshadow or diminish the authenticity and tangible experiences that physical artefacts and exhibits provide?
- Can the museums foster meaningful community engagement and participation, going beyond mere consultation, to empower local communities as active contributors in shaping the narratives and content of museum exhibits?
- How can multidisciplinary museums in Jijel, Algeria, navigate the tensions between displaying the local heritage and attracting international tourists, striking a balance between global appeals and preserving the unique cultural identity of the region?
- How can museums effectively collaborate with schools, educational institutions, and youth organizations to develop educational programs that align with curriculum objectives and foster a lifelong passion for learning and cultural exploration?

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APPENDICES

APPENDIX I: SURVEY FOR THE PUBLIC

Title: Survey for Integrating Multidisciplinary National Museums of Nature, Culture, and History in the Region of Jijel.

INTRODUCTION

This survey is necessary to conduct my **Master’s degree in Architecture** that I am currently pursuing at the **University Mohamed Seddik BENYAHYA - Jijel**, and as part of my thesis preparation, I am conducting this **survey of museums that it is directed for the public on the integration of multidisciplinary National museums in Jijel**. The purpose of this inventory is to gather insights from individuals with diverse backgrounds and experiences to gain a better understanding of the strategies, challenges, and opportunities for developing museums that integrate nature, culture, and history.

I would greatly appreciate your participation in this survey by answering all the questions to the best of your ability. It should take approximately [less than 10 minutes] to complete and your responses will be anonymous, and the data collected will be used solely for academic purposes.

Thank you in advance for your time and valuable input.

QUESTIONS

Please indicate your response by checking the appropriate box and filling in any necessary details in the space provided.

1. Personal Questions

a. Age

- Younger than 20
- From 20 to 30
- From 30 to 40
- From 40 to 50
- Older than 50

b. Gender

- Male Female

c. Occupation _____

d. Educational background _____

e. Nationality Residence Local Tourist

2. How familiar are you with the history, culture, and natural environment of Algeria?

- Not familiar Somewhat familiar Familiar Very familiar

3. Have you visited any museums in Algeria before? Yes No

a. If yes, which museums have you visited? (List the names of the museums)

b. If yes, please rate your overall experience at the museums you visited in Algeria on a scale of 1-5 (1 being poor, 5 being excellent). Poor excellent

4. How often do you visit museums in Algeria?

- Never Rarely (once a year or less)
 Occasionally (2-4 times a year) Frequently (5 or more times a year)

5. Please rate the importance of each aspect on a scale of 1-5 (1 being not important, 5 being very important).

Nature exhibits Poor excellent

Cultural exhibits

Historical exhibits

Interactive exhibits

Educational programs

Special events

Other (please specify) _____

6. What types of multidisciplinary exhibits or programs would you be most interested in seeing at museums in Algeria? Please provide specific examples and explain why.

7. In your opinion, how well do the current museums in Algeria represent Algerian history, culture, and nature? Please provide specific examples.

8. What challenges do you think museums in Algeria face in integrating multidisciplinary exhibits (nature, culture, and history)? (Select all that apply)

- Limited financial resources for developing and maintaining exhibits.
 Lack of expertise and qualified staff to curate multidisciplinary exhibits.
 Difficulty in obtaining necessary permits and approvals for exhibiting sensitive cultural or natural heritage materials.
 Limited public awareness and interest in multidisciplinary exhibits.

- Difficulty in securing partnerships and collaborations with other institutions or organizations.
- Limited access to modern technology and equipment for creating interactive exhibits.
- Difficulty in ensuring accurate representation and inclusion of regional perspectives in exhibits.
- Limited support from local authorities and government agencies.
- Language barriers for visitors who do not speak the local language.
- Difficulty in preserving fragile or perishable materials in multidisciplinary exhibits.

9. What improvements or additions would you like to see in the museums of Algeria to better represent Algerian history, culture, and nature?

10. How important is it for museums in Algeria to integrate multidisciplinary exhibits (nature, culture, and history)?

- Not important Somewhat important Important Very important

11. Would you be more likely to visit a museum in Algeria if it featured multidisciplinary exhibits?

- Yes No Unsure

12. Do you have any other suggestions or comments regarding the integration of multidisciplinary national museums in Algeria?

Thank you for taking the time to participate in our survey. Your input and feedback are highly appreciated as we strive to improve the museum experience and promote cultural heritage and conservation efforts in Algeria. Your responses will be carefully analysed to help us identify areas for improvement and develop strategies for enhancing the multidisciplinary nature of museums in Algeria. Thank you once again for your valuable input.

**APPENDIX II: SURVEY FOR PROFESSIONALS IN THE FIELD OF
ARCHITECTURE**

Title: Survey for Integrating Multidisciplinary National Museums of Nature, Culture, and History in the Region of Jijel.

INTRODUCTION

This survey is necessary to conduct my **Master's degree in Architecture** that I am currently pursuing at the **University Mohamed Seddik BENYAHYA - Jijel**, and as part of my thesis preparation, I am conducting this **survey of museums that it is directed for professionals in the field of Architecture, on the integration of Multidisciplinary National Museums in Jijel**. The purpose of this inventory is to gather insights from individuals with diverse backgrounds and experiences to gain a better understanding of the strategies, challenges, and opportunities for developing museums that integrate nature, culture, and history.

I would greatly appreciate your participation in this survey by answering all the questions to the best of your ability. It should take approximately [10 minutes] to complete and your responses will be anonymous, and the data collected will be used solely for academic purposes.

Thank you in advance for your time and valuable input.

QUESTIONS

Please indicate your response by checking the appropriate box and filling in any necessary details in the space provided.

Section 1: Personal Information

1. Occupation: _____

2. Organization/Institution: _____

3. Years of experience in your field: _____

Section 2: Museum Experience

5. How often do you visit museums?

Weekly Monthly Quarterly Annually Rarely

6. Which types of museums do you visit most frequently? (Select all that apply)

Nature

Culture

- History
- Art
- Science
- Other (please specify) _____

7. What strategies can museums in Algeria implement to attract more visitors and increase public awareness of their multidisciplinary exhibits and programs?

Section 3: Technology and Smart Museums

8. How important do you think technology is in enhancing the museum experience?

- Not important Somewhat important Important Very important

9. Are you familiar with the concept of smart museums? Yes No

10. If yes, what features do you think are essential for a smart museum? (Select all that apply)

- Interactive displays
- Virtual reality experiences
- Mobile applications for navigation and information
- Online ticketing and reservations
- Personalized content and recommendations
- Other (please specify) _____

11. How can museums in Algeria use technology and digital media to enhance visitor experiences and promote Algerian history, culture, and nature?

12. Are you aware of any museums in your region that have integrated innovative technology to enhance visitor experience and promote conservation efforts? Yes No

13. If yes, which museums and what technological innovations have they integrated?

14. Do you have any other suggestions or comments on how museums can integrate innovative technology to enhance visitor experience and promote conservation efforts?

Section 4: Collaboration with Local Communities and Experts

15. How important do you think it is for museums to collaborate with local communities and experts to accurately represent regional perspectives in exhibits and programs?

- Not important Somewhat important Important Very important

16. Have you seen museums collaborate with local communities and experts in your region?

- Yes No

17. If yes, what were some effective strategies used by museums to collaborate with local communities and experts?

18. If no, what do you think are the main barriers preventing museums from collaborating with local communities and experts in your region?

19. What benefits do you think museums can gain from collaborating with local communities and experts in developing exhibits and programs?

20. How can museums ensure the accurate representation and inclusion of regional perspectives in exhibits and programs when collaborating with local communities and experts?

21. How can museums effectively communicate and promote the contributions of local communities and experts to visitors?

22. Do you have any other suggestions or comments on how museums can collaborate with local communities and experts to enhance the representation of regional perspectives in exhibits and programs?

Section 5: Diversity of Factors: Integrating Nature, Culture, and History

23. Please rate the importance of each aspect on a scale of 1-5 (1 being not important, 5 being very important).

- | | | | | | | | |
|----------------------|------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------|
| Nature exhibits | Poor | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | excellent |
| Cultural exhibits | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Historical exhibits | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Interactive exhibits | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Educational programs | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

Special events

Other (please specify) _____

24. How important is it for museums in Algeria to integrate multidisciplinary exhibits (nature, culture, and history)?

Not important Somewhat important Important Very important

25. How can museums in Algeria better engage with the local community and tourists to promote Algerian history, culture, and nature?

26. How can museums in Algeria collaborate with local organizations, educational institutions, and government agencies to create multidisciplinary exhibits and programs?

Section 6: Additional Comments

27. Please provide any additional comments or suggestions regarding the integration of multidisciplinary national museums in Algeria.

28. Do you have any other feedback or suggestions that you would like to share about the museum experience in Algeria?

Thank you for taking the time to participate in our survey. Your input and feedback are highly appreciated as we strive to improve the museum experience and promote cultural heritage and conservation efforts in Algeria. Your responses will be carefully analysed to help us identify areas for improvement and develop strategies for enhancing the multidisciplinary nature of museums in Algeria. Thank you once again for your valuable input.

APPENDIX II: INVENTORY OF MUSEUMS AND QUESTIONS FOR ITS STAFF

Title: Inventory for Integrating Multidisciplinary National Museums of Nature, Culture, and History in the Region of Jijel.

INTRODUCTION

This inventory is necessary to conduct my **Master’s degree in Architecture** that I am currently pursuing at the **University Mohamed Seddik BENYAHYA- Jijel**, and as part of my thesis preparation, I am conducting this **inventory of museums that it is directed for its staff on the integration of Multidisciplinary National Museums in Jijel**. The purpose of this inventory is to gather insights from staff to gain a better understanding of the current situation of museums in Algeria.

I would greatly appreciate your participation in this survey by answering all the questions to the best of your ability. It should take approximately [10 minutes] to complete and your responses will be anonymous, and the data collected will be used solely for academic purposes.

Thank you in advance for your time and valuable input.

QUESTIONS

Please indicate your response by checking the appropriate box and filling in any necessary details in the space provided.

Museum Information

1. Name of the museum: _____

2. Location: _____

3. Year of establishment: _____

4. Type of museum (Select all the apply in case it is multidisciplinary):

- Natural history museum
- History museum
- Anthropology and Ethnography Museum
- Archaeological Museum
- Living Collections Museum
- Art museum
- Science museum
- Technology museum

- Children's museum
- Military museum
- Maritime museum
- Virtual museum

Technology

5. Does the museum use digital technology in its exhibits? Yes No

a. If yes, please list the types of technology used (Select all that apply):

- Interactive touchscreens
- Audio-visual displays
- Virtual reality (VR)
- Augmented reality (AR)
- Internet of Things (IoT) sensors and data analytics
- Artificial intelligence (AI) and machine learning algorithms
- Smart lighting, climate control, and energy management systems

6. How does the museum utilize technology to enhance visitor engagement and learning experiences?

7. Does the museum offer online resources or virtual tours? Yes No

a. If yes, please describe the online resources or virtual tours available.

8. How does the museum stay up-to-date with technological advancements and incorporate them into its exhibits and programming?

Collaboration with Local Communities and Experts

9. Does the museum collaborate with local communities, organizations, or educational institutions? Yes No

a. If yes, please describe the nature of these collaborations:

10. How does the museum involve local experts and community members in the development and curation of its exhibits and programming? (Select all that apply)

- Community consultation sessions and focus groups

- Collaborative partnerships with local organizations and educational institutions
- Involvement of local experts as guest speakers or contributors
- Other (please specify): _____

11. In what ways does the museum prioritize the representation and inclusion of regional perspectives in its exhibits and programming? (Select all that apply)

- Conducting research on the history and culture of the local community
- Consulting with local experts and community members
- Incorporating local artefacts, stories, and traditions into exhibits
- Other (please specify): _____

12. How does the museum engage with and support local businesses, artisans, and entrepreneurs in its exhibits and programming? (Select all that apply)

- Promoting local products and services in museum shops and cafes
- Providing opportunities for local artisans to showcase their work in exhibits
- Collaborating with local businesses and entrepreneurs for events and programming
- Other (please specify): _____

Diversity of Factors

13. Does the museum promote inclusivity and diversity in its exhibits and programming?

- Yes
- No

a. If yes, please provide examples of how the museum promotes inclusivity and diversity:

Additional Information

While additional information is not required, we would greatly appreciate it if you could provide answers to any additional questions to the best of your ability.

14. What challenges has the museum faced in integrating technology, smart museum concepts, and diversity of factors, and how have these challenges been addressed?

15. Please provide any additional information or comments about the museum that you believe is relevant to the research on integrating multidisciplinary national museums in the region of Jijel:

Thank you for participating in this in-depth survey. Your input is invaluable in helping us understand the current state of museums in Algeria and identifying new ways to integrate multidisciplinary museums of nature, culture, and history.

Abstract

This research study focuses on the inadequacy of the current museum setup in Algeria, which fails to effectively highlight the country's rich heritage. It aims to improve the museum's ability to communicate its significance and provide visitors with a dynamic and enlightening experience. The region of Jijel has been chosen as a spatial support for this study. The study uses a mixed-methods approach, combining surveys, analysis of museum reports, and examination of inspirational examples from other countries. The findings validate hypotheses related to technology integration, collaboration with local communities, and the promotion of multidisciplinary exhibits. The research provides valuable insights and recommendations for creating transformative and inclusive museum experiences. It offers an opportunity to display the richness and diversity of history, culture, and natural wonders in one accessible and immersive setting, saving visitors the time and effort of traveling to different sites or regions.

Keywords: Museums, multidisciplinary, nature, culture, history, technology, collaboration, Jijel, Algeria.

ملخص

تركز هذه الدراسة البحثية على النقائص في الإعداد الحالي للمتاحف في الجزائر، والذي فشل في إظهار القيمة التراثية الغنية للبلد بشكل فعال. تهدف الدراسة إلى تحسين قدرة المتحف على إيصال أهميته وتزويد الزائرين بتجربة ديناميكية ومفيدة. تم اختيار منطقة جيجل كدعم مكاني لهذه الدراسة. تستخدم الدراسة نهجًا متعدد الأساليب، يجمع بين الدراسات الاستقصائية، وتحليل تقارير المتاحف، وفحص الأمثلة الملهمة من البلدان الأخرى. تؤكد النتائج صحة الفرضيات المتعلقة بالتكامل التكنولوجي، والتعاون مع المجتمعات المحلية، والترويج للمعارض متعددة التخصصات. يوفر البحث رؤى وتوصيات قيمة لإنشاء تجارب متحف تحويلية وشاملة. إنه يوفر فرصة لعرض ثراء وتنوع التاريخ والثقافة والمظاهر الطبيعية في مكان واحد يسهل الوصول إليه وغامر، مما يوفر للزوار الوقت والجهد للسفر إلى مناطق أو مواقع مختلفة.

الكلمات المفتاحية: المتاحف، متعدد التخصصات، الطبيعة، الثقافة، التاريخ، التكنولوجيا، التعاون، جيجل، الجزائر.

Résumé

Cette étude de recherche porte sur l'insuffisance de l'organisation muséale actuelle en Algérie, qui ne parvient pas à mettre efficacement en valeur la richesse patrimoniale du pays. Il vise à améliorer la capacité du musée à communiquer son importance et à offrir aux visiteurs une expérience dynamique et instructive. La région de Jijel a été choisie comme support spatial pour cette étude. L'étude utilise une approche à méthodes mixtes, combinant des enquêtes, l'analyse de rapports de musées et l'examen d'exemples inspirants d'autres pays. Les résultats valident les hypothèses liées à l'intégration des technologies, à la collaboration avec les communautés locales et à la promotion d'expositions multidisciplinaires. La recherche fournit des informations et des recommandations pour créer des expériences muséales transformatrices et inclusives. C offre la possibilité de montrer la richesse et la diversité de l'histoire, de la culture et des merveilles naturelles dans un cadre accessible et immersif, ce qui permet aux visiteurs d'économiser du temps et des efforts pour se rendre dans différentes sites ou régions.

Mots clés: Musées, pluridisciplinaire, nature, culture, histoire, technologie, collaboration, Jijel, Algérie.