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Kampus Sultan Abdul Jalil Shah



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ADVANCING CREATIVE PEDAGOGIES THROUGH
THE INTEGRATION OF FUN LEARNING
IN ART EDUCATION
AT SHANDONG
MUSEUM



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LI YONGYAN

UNIVERSITI PENDIDIKAN SULTAN IDRIS

2025



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FOR A DOCTOR OF PHILOSOPHY

FACULTY OF ART, SUSTAINABILITY AND CREATIVE INDUSTRY
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MEMAJUKAN PEDAGOGI KREATIF MELALUI PENGINTEGRASIAN PEMBELAJARAN MENYERONOKKAN DALAM PENDIDIKAN SENI DI MUZIUM SHANDONG

ABSTRAK

Pendidikan seni di Muzium Shandong bergelut untuk mengekalkan penglibatan dalam kalangan murid sekolah rendah. Kajian ini mereka bentuk, melaksanakan dan mengesahkan Model Pembelajaran Menyeronokkan (FLM) bagi memajukan pedagogi kreatif dalam konteks muzium. Dengan menggunakan kajian kes tunggal kualitatif, penyelidikan ini menghimpunkan data melalui temu bual separa berstruktur dengan pendidik muzium dan guru seni sekolah rendah, kumpulan fokus murid, pemerhatian penyertaan terhadap sesi program, analisis dokumen, serta penilaian pakar. Data dikodkan dan dianalisis secara tematik menggunakan NVivo, dan ditriangulasikan merentas sumber untuk meningkatkan kebolehpercayaan. Dapatan menunjukkan bahawa lima unsur FLM iaitu Situasi, Penyertaan, Penerokaan, Interaksi dan Kerjasama, serta tiga strategi iaitu Gamifikasi, Interaksi Multimedia dan Pengalaman Amali (hands-on) menyokong tumpuan berterusan, penyertaan aktif dan ekspresi kreatif, sekali gus mengukuhkan hasil pembelajaran yang ditanggap. Tugasan bergamifikasi dan berasaskan pengalaman mendorong penglibatan yang lebih tinggi berbanding pemerhatian pasif. Penilai pakar menilai model ini sesuai untuk pembelajaran seni pada peringkat sekolah rendah dan menekankan fleksibilitinya dalam pelaksanaan yang peka konteks. Kajian ini menghasilkan satu kerangka praktikal yang menjambatani prinsip konstruktivis dengan amalan muzium, serta menawarkan panduan yang boleh dilaksanakan kepada Muzium Shandong dan institusi seumpamanya untuk mereka bentuk semula program yang menyeronokkan, berorientasikan penyertaan dan berpendidikan dalam persekitaran berkekangan sumber. Implikasi kajian termasuk keperluan penggarisan prosedur dan pelaporan yang lebih jelas berkaitan kaedah kualitatif dan kebolehpercayaan, serta saranan bagi penskalakan dan pengukuhan perkongsian sekolah-muzium.

ABSTRACT

Art education at Shandong Museum has struggled to sustain engagement among primary-level learners. This study designed, implemented, and validated a Fun Learning Model (FLM) to advance creative pedagogy in a museum context. By adopting a qualitative single-case study, the research drew on semi-structured interviews with museum educators and primary school art teachers, pupil focus groups, participant observations of programme sessions, document analysis, and expert assessments. Data were coded and thematically analysed in NVivo, with cross-source triangulation to enhance credibility. Findings indicate that the FLM's five elements: Situation, Participation, Exploration, Interaction, and Collaboration, and its three strategies: Gamification, Multimedia Interaction, and Hands-on Experience, supported sustained attention, active participation, and creative expression, thereby strengthening perceived learning outcomes. Gamified and experiential tasks elicited higher engagement than passive viewing. Expert reviewers judged the model suitable for primary-level art learning and emphasised its flexibility for context-sensitive implementation. The study culminates in a practical framework that bridges constructivist principles and museum practice, offering actionable guidance for Shandong Museum and similar institutions to redesign programmes that are enjoyable, participatory, and educational within resource-constrained settings. The implications include clearer proceduralisation and reporting of qualitative methods and trustworthiness, and recommendations for scaling and strengthening school-museum partnerships.



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LIST OF ABBREVIATIONS

AR	Augmented Reality
EAS	Engagement Assessment Scale
FLM	Fun Learning Model
IMEM	Integrated Museum Engagement Mode
ICOM	International Council of Museums
MOOC	Massive Open Online Courses
VR	Virtual Reality

ZPD Zone of Proximal Development

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter outlines the principal components of the research, including its background, problem statement, research questions, and objectives. It emphasises the significance of integrating creative pedagogies into art education and underscores the distinctive role of museums—particularly the Shandong Museum—in fostering engaging and meaningful learning experiences. The chapter further delineates the research scope and significance, emphasising its contributions to scholarly discourse and practical applications in museum-based art education. Operational definitions of key concepts—such as the Fun Learning Model (FLM),

creative pedagogy, and museum education—are also presented to ensure conceptual clarity and terminological consistency throughout the study.

1.2 Research background

This section presents a structured progression from global trends in creative pedagogy to theoretical foundations, followed by an examination of China's art education context, culminating in the case of the Shandong Museum and its existing limitations. Through this layered approach, the discussion highlights why a Fun Learning Model is necessary and how it fills the research gap.

1.2.1 Importance of Creative Pedagogies in art education

Creative pedagogies, which emphasise innovation, active participation, and cultivating students' creative potential, have emerged as transformative approaches in education, particularly within the domain of the arts. Rooted in Constructivist Learning Theory, creative pedagogies promote hands-on exploration, critical thinking, and problem-solving, enabling students to engage more profoundly with artistic processes and outcomes. These student-centred and adaptive approaches aim to foster individuality, imagination, and meaningful engagement with art (Yilmaz, 2021).

Historically, creative pedagogies were traced back to progressive education movements in the early 20th century, with key contributions from educational theorists such as John Dewey and Lev Vygotsky. Dewey's advocacy for experiential learning and Vygotsky's emphasis on social interaction and scaffolding laid the groundwork for educational creativity (Yefimenko et al., 2020). In art education, Elliot Eisner was often regarded as a pioneer, highlighting the role of arts in cognitive and emotional development and advocating for teaching methods that prioritize exploration and expression over technical replication (Hayes et al., 2021).

Creative pedagogies have been widely adopted and adapted in various educational contexts. For instance, in Western education systems, the Reggio Emilia approach integrates art as a core medium for self-expression and discovery, particularly in early childhood education. Similarly, the Teaching for Artistic Behaviour model in the United States empowers students to work as independent artists, choosing their mediums and projects while being guided by thematic prompts (Moula, 2021). These approaches underscore the universal relevance of creativity in fostering agency and engagement in art education.

In China, traditional art education still largely relies on rote memorisation, technical training, and the replication of established artistic styles. Students are often assessed based on their ability to reproduce traditional art forms rather than their potential for original expression.

While this approach has played a key role in preserving important cultural and artistic traditions, it has also limited, to some extent, students' opportunities for experimentation, innovation, and self-directed exploration. Moreover, the strong emphasis on standardised assessments and competitive entrance examinations has further reinforced this rigid teaching model, making it difficult for exploratory or process-based art learning to develop fully. Recent educational reforms, such as the introduction of the New Curriculum Standards for Fine Arts, have begun to advocate for more student-centred and exploratory learning experiences (Yu, 2024). Despite these efforts, the integration of creative pedagogies into mainstream art education in China remains limited, particularly in museum contexts, where traditional teacher-centred methods continue to dominate (S. Wu, 2023).

Incorporating fun learning principles into creative pedagogies offers a promising pathway to transform art education by making learning experiences more immersive, engaging, and emotionally resonant. Research suggests that when students find learning enjoyable, they are more likely to develop intrinsic motivation, which fosters deeper cognitive processing and sustained interest in artistic exploration. Fun learning, characterised by engagement, playfulness, and interactive exploration, complements creative pedagogies by promoting an environment where students are motivated to experiment and collaborate. For example, gamification strategies, multimedia tools, and hands-on workshops enhance student engagement and creativity in museum-based learning (Chisolm et al., 2020). These strategies are particularly relevant in museum settings, where

interactive and exploratory approaches can bring artworks and artefacts to life, making learning experiences more memorable and impactful (Kim et al., 2024).

By analysing international best practices and examining their applicability in the Chinese context, this research aims to identify creative pedagogical approaches that align with the specific needs of museum-based art education in China. This adaptation process considers cultural traditions, educational policies, and institutional constraints to ensure effective implementation. Integrating museum resources into art courses has demonstrated the potential to enhance students' creativity and appreciation for art, providing a practical model for educational innovation (Shushu, 2020). The study also aims to bridge the gap between theoretical models, such as the IMEM framework, and practical applications of creative and fun learning strategies in museum-based art education (J. Li, 2023).

1.2.2 Fun Learning in art education and museums

As an educational approach, fun learning emphasises the creation of enjoyable, engaging, and interactive learning environments to motivate learners and enhance their academic experiences. It aligns with constructivist principles, focusing on student-centred and exploratory learning activities that foster deeper engagement and better knowledge retention (Ms, 2020). This approach is particularly effective in art education, where creativity, exploration, and personal expression play central roles. Fun learning is a pedagogical method that embeds playfulness,

interactivity, and enjoyment into educational activities, fostering a positive emotional connections to learning and enhancing student engagement. This concept is supported by Fredrickson's (2019) broaden-and-build theory, which suggests that positive emotions expand learners' thinking and improve cognitive engagement (Stevanovic et al., 2023).

Incorporating fun learning into art education transforms traditional teaching methods into dynamic and interactive experiences. Rather than relying on passive knowledge transmission, fun learning encourages hands-on projects, collaborative exercises, and the integration of digital tools that inspire creativity. Gamification techniques, such as art challenges and creative competitions, have been shown to foster a sense of play while developing artistic skills (Stevanovic et al., 2023).

Additionally, digital platforms such as virtual art studios or augmented reality (AR) applications provide immersive environments where students can explore and create art in new and engaging ways (Kwon & Morrill, 2022). These strategies allow learners to participate actively in their educational journey, fostering artistic expression and conceptual understanding.

Museums worldwide increasingly integrate fun learning strategies into educational programmes to make exhibitions more interactive, engaging, and accessible to diverse audiences. Interactive exhibits, scavenger hunts, and storytelling activities allow visitors to connect with art and artefacts meaningfully. Sattar et al. (2022) emphasise the role of technology, such as AR and gamified apps, in enhancing museum experiences (Shi et al., 2024). Integrating culturally

relevant games and multimedia tools in Chinese museums has proven effective in bridging traditional and modern educational approaches (N. Xu et al., 2023).

Despite its potential, the implementation of fun learning in art education and museum settings faces multiple challenges. Resource constraints, particularly in museums with limited funding, hinder the integration of advanced digital tools and interactive exhibits. Additionally, disparities in digital literacy among educators and students may affect the effectiveness of technology-driven fun learning strategies. A further challenge lies in maintaining a balance between entertainment and educational depth. At the same time, interactive and gamified elements can enhance engagement. They must also align with pedagogical goals to ensure meaningful learning experiences. Future research and practice must focus on designing culturally sensitive and sustainable fun learning strategies that cater to diverse learners' needs while maintaining academic rigour.

1.2.3 Role of museums in supporting art education

Museums are crucial in supporting art education by leveraging their extensive collections, immersive environments, and interdisciplinary educational programmes to connect learners with cultural and historical contexts. However, traditional museum education often focuses on passive learning, where students merely observe and listen to lectures. Many museums are adopting more participatory teaching methods, such as interactive exhibits, guided storytelling, and collaborative workshops, to address this. These innovative approaches allow

students to actively engage with exhibits and create their interpretations, making the learning experience more personal and meaningful. For instance, museums like the Tate Modern in London and the Guggenheim in New York have introduced collaborative art-making spaces where visitors can create their works of art, directly engaging with the creative process. Such initiatives enhance students' artistic skills and foster a deeper appreciation of the cultural and historical significance of the art they encounter. Through carefully designed experiential learning opportunities, such as interactive exhibits, hands-on art workshops, and guided thematic explorations, museums offer students a direct and engaging way to interact with authentic artistic materials. These dynamic approaches foster curiosity, artistic appreciation, and deeper cognitive engagement, enriching students' understanding of art beyond traditional classroom instruction (Moorhouse, Dieck, et al., 2019).

Additionally, museums are powerful hubs for individual and collaborative learning, fostering creativity and active participation through various experiential approaches (Nash, 2019). Research has shown that museum-based art education enhances student engagement and creativity, particularly when interactive, gamified, and hands-on learning strategies are effectively implemented (Huaman et al., 2019). These methods encourage students to think critically, experiment with artistic techniques, and develop personal interpretations of art, fostering a more immersive and reflective learning experience.

For primary school students, museums are vibrant and interactive learning environments where theoretical art concepts are seamlessly integrated into hands-

on practice. Unlike traditional classrooms that rely heavily on textbooks and lectures, museums provide students with direct exposure to historical artefacts, contemporary artworks, and creative spaces (Quinn, 2020). Research has shown that when students engage in tactile experiences, such as clay modelling inspired by ancient sculptures or digital painting sessions based on famous artworks, their retention of artistic concepts significantly improves. Moreover, storytelling-driven exhibits allow young learners to relate art to cultural narratives, making artistic appreciation more meaningful and enjoyable. By engaging multiple senses—sight, touch, and even auditory elements—museum-based education fosters a richer, more immersive learning experience that nurtures students' creative thinking and self-expression.

1.2.4 Overview of Shandong Museum's resources and initiatives

The Shandong Museum, one of China's leading provincial museums, houses over 210,000 cultural artefacts spanning various artistic and historical domains. It actively engages in educational outreach through collaborations with schools, universities, and cultural institutions, offering programmes tailored to different age groups, from primary school students to university scholars. The museum organizes hands-on workshops where students can participate in calligraphy, painting, and traditional craft-making sessions. Additionally, its thematic exhibitions incorporate guided storytelling sessions, encouraging younger audiences to engage meaningfully with historical artefacts. Furthermore, digital

resources such as virtual tours and interactive online lessons have been introduced to expand accessibility beyond physical visits.

Despite these efforts, the museum's current educational practices remain largely traditional, relying heavily on lecture-based approaches where educators or guides deliver verbal descriptions of exhibitions. Many of its programmes are structured around passive learning, limiting opportunities for students to engage in exploratory or inquiry-based activities. Additionally, museum educators often lack formal training in interactive pedagogies, which restricts their ability to facilitate engaging learning experiences. The curriculum, while informative, tends to emphasise factual knowledge over experiential learning, which stifles students' creativity and personal engagement with the exhibits. Moreover, logistical constraints, such as large visitor groups and limited time allocations for guided tours, further limit the potential for personalized learning experiences.

This research identifies these limitations as a critical opportunity to introduce and validate the Fun Learning Model. The proposed model transforms the traditional teaching approach into a more dynamic, student-centred experience by incorporating interactive, participatory, and gamified strategies within the museum's educational framework. Through gamification elements such as interactive scavenger hunts and storytelling-based challenges, students can engage with exhibits more meaningfully. Additionally, digital enhancements, including augmented reality (AR) applications, will provide immersive experiences that encourage exploration beyond passive observation. Hands-on workshops will be redesigned to include problem-solving tasks, collaborative art-

making activities, and inquiry-based discussions, ensuring students actively participate in learning. These improvements will enhance student engagement and creativity and provide a scalable framework that can be adapted to other museum-based educational programmes.

1.3 Problem statement

Art education is critical in fostering creativity and engaging learners in meaningful ways. However, traditional teaching methods in art education face significant limitations, particularly in their ability to inspire student engagement and creativity. These methods often rely heavily on lecture-based, teacher-centred approaches prioritizing replication over exploration. As a result, students are frequently disengaged, and have limited opportunities to develop their creative potential (Huaman et al., 2019).

In museum-based art education, these challenges are often exacerbated by rigid programme structures and limited integration of participatory methods. Although museums are resource-rich, didactic delivery can dominate, and the potential of interactive (Earle, 2013) exploratory learning remained underutilized. Within the Shandong Museum context, programme documents, participation records, and stakeholder interviews point to a reliance on knowledge transmission, uneven pupil participation and limited hands-on or multimedia activities. These locally evidenced issues underscore the need for a context-adapted pedagogical

approach capable of enhancing engagement and supporting perceived learning outcomes.

Despite growing interest in creative pedagogies and fun learning, museum settings—especially Chinese provincial museums—remain under-examined relative to classroom-based studies. Existing models such as the Integrated Museum Engagement Model (IMEM) provide useful concepts, yet context-tailored frameworks for Chinese museums are scarce and difficult to adopt where teacher-centred practices persist and digital resources vary (du Plessis, 2016). The literature on fun learning in museums is often theoretical or pilot-scale and offers limited empirical guidance on how to integrate game elements, hands-on experiences and multimedia interaction in ways that are feasible within real operational constraints. Cohesive, scalable frameworks that systematically combine creative pedagogy and fun learning principles for museum-based art education have been limited, and evidence on longer-term educational impacts has been under-reported. Within Shandong Museum specifically, there is a gap in operational guidance linking local constraints (visitor flows, resource variability, staff capacity) with a practicable model for designing and facilitating participatory learning.

In response, this thesis develops and refines a Fun Learning Model tailored to the Shandong Museum's art-education programmes. Grounded in constructivist learning and informed by museum education scholarship, the study uses qualitative methods to examine current practices in teaching approaches, learner participation and perceived learning outcomes, to elicit educators' views

on feasible improvements, to conceptualise and contextualise creative pedagogy for the museum setting, and to consolidate the model for feasibility and operability in this context. By aligning a literature-informed framework with locally evidenced needs, the study offers actionable guidance for the Shandong Museum and a transferable reference for similar institutions.

1.4 Research questions

Grounded in local issues documented at Shandong Museum—including reliance on didactic delivery, uneven pupil participation, and limited hands-on activities evidenced in programme documents, participation records, field observations, and stakeholder interviews—this study addresses the following questions:

Question one: What are the current practices of art education at Shandong Museum in terms of teaching approaches, learner participation, and perceived learning outcomes for primary-level learners?

Question two: How do museum educators and primary school art teachers perceive and suggest feasible improvements and innovations for art education at Shandong Museum?

Question three: How can creative pedagogy be conceptualized and applied to art education at Shandong Museum?

Question four: What elements and strategies are required to develop a structured Fun Learning Model (FLM) tailored to the Shandong Museum context?

Answering these questions provides essential insights into the current educational practices at Shandong Museum and offer a foundation for developing an innovative pedagogical framework. The study aims to bridge the gap between traditional museum education and contemporary, student-centred learning methodologies by exploring how creative pedagogies can be effectively applied in this context.

1.5 Research objectives

This study aims to achieve the following objectives in response to the research questions outlined above:

Objective one: Examine the current practices of art education at Shandong Museum, focusing on teaching approaches, learner participation, and perceived learning outcomes among primary-level learners.

Objective two: Examine museum educators' and primary school art teachers' perspectives on feasible improvements and innovations for art education at Shandong Museum.

Objective three: Examine how creative pedagogy can be conceptualized and applied to advance art education at Shandong Museum.

Objective four: Develop a structured Fun Learning Model (FLM) that integrates interactive activities, games, and hands-on experiences to support learner engagement and creativity among primary-level learners at Shandong Museum.

These objectives provide a structured approach to examining current practices and identifying areas for improvement and innovative solutions that can be applied to museum-based learning. Furthermore, the development of the FLM aims to serve as a replicable framework that can be adopted by other cultural institutions, thereby expanding its relevance beyond the scope of this study.

1.6 Importance of research

This research is significant for its potential to address critical gaps in museum-based art education by introducing an innovative Fun Learning Model (FLM). It holds academic, practical, and cultural value by enhancing student engagement, enriching theoretical discourse, and providing actionable insights for educators. By integrating creative pedagogies, constructivist learning theories, and the Integrated Museum Engagement Model (IMEM), this study contributes to the

evolution of museum-based learning. It provides a replicable framework that aligns with contemporary educational reforms and cultural initiatives.

1.6.1 Advancing art education in museums

Traditional museum-based art education often emphasises passive knowledge transmission, where students primarily observe and listen rather than actively interact and engage. As a result, many museum learning experiences fail to stimulate student curiosity, creativity, and critical thinking.

This research proposes a shift toward interactive, student-centred learning, leveraging fun learning strategies such as gamification, digital engagement, and hands-on exploration. By integrating these elements, the Fun Learning Model (FLM) aims to transform museum-based art education into an immersive and engaging experience that fosters long-term student interest and deeper learning outcomes (Mystakidis et al., 2024).

1.6.2 Filling gaps in educational theory

Although constructivist learning theories have been widely applied in formal classroom settings, their systematic application in informal learning environments such as museums remains underexplored (Kempf et al., 2020). While many

museums offer interactive exhibits, few have implemented structured pedagogical models that guide student engagement in a meaningful, research-backed way.

This study contributes to theoretical discourse by bridging the formal and informal education gap. The proposed FLM framework integrates constructivist learning principles and the Integrated Museum Engagement Model (IMEM) to provide a structured, adaptable model for museum-based learning. This research enhances the academic understanding of how museum education can effectively promote deep learning and creative expression.

1.6.3 Promoting museums as lifelong learning spaces

Museums serve as lifelong learning environments, offering intergenerational educational opportunities beyond traditional classroom settings. However, existing research on museum education primarily focuses on short-term learning outcomes, with limited attention to how museums contribute to lifelong intellectual curiosity and personal development.

This study highlights the role of museums in fostering lifelong learning habits, encouraging students to see museums not just as one-time educational visits but as ongoing resources for intellectual growth, creativity, and cultural appreciation (Daugherty, 2021). This research aims to enhance the long-term

academic impact of museum-based learning experiences by developing a sustainable Fun Learning Model.

1.6.4 Providing practical guidance for educators

Despite the growing interest in creative pedagogies, many museum educators lack structured strategies for implementing interactive and student-centred learning experiences. Teachers and museum staff often struggle to balance educational objectives with engaging, hands-on learning methods, leading to a gap between pedagogical theory and practical implementation.

By designing and validating the Fun Learning Model, this study provides a structured framework that effectively enables educators to integrate interactive teaching strategies into museum programmes. Additionally, the research promotes collaboration between schools and museums, encouraging curricular integration of museum-based learning experiences (Bolshakova et al., 2020). Through this approach, the study ensures that museum education is not an isolated experience but a complementary component of broader educational practices.

1.6.5 Supporting cultural and educational policies

The findings of this study align with China's national educational reform priorities, which emphasise creativity, student engagement, and holistic development. China's Ministry of Education has actively promoted policies integrating interactive and experiential learning methodologies into formal and informal education settings in recent years. The 14th Five-Year Plan for Education Development highlights the importance of cultivating critical thinking skills, fostering interdisciplinary learning, and enhancing cultural literacy through museum-based programmes. These reforms recognise that traditional didactic teaching approaches are insufficient to meet the demands of modern education and emphasise the need for innovative pedagogical strategies that incorporate creativity and engagement.

Additionally, national curriculum reforms in China advocate for stronger collaboration between schools and cultural institutions, encouraging educational partnerships between museums and academic organisations. Museums are increasingly recognised as integral components of a broader learning ecosystem, offering students opportunities to engage in experiential, inquiry-based, and interdisciplinary learning beyond the traditional classroom setting. By supporting curriculum-linked educational initiatives, museums can proactively promote national cultural heritage while enhancing students' appreciation for history and the arts.

This research contributes to these national efforts by offering a structured, research-backed framework—the Fun Learning Model (FLM)—that aligns with government priorities for education modernization. The FLM model provides museum educators with a systematic approach to integrating interactive learning experiences, including gamification, hands-on projects, and digital engagement tools, into museum-based art education. By doing so, it supports China's broader vision of cultivating a generation of creative, adaptable, and culturally aware individuals who can thrive in an increasingly knowledge-driven society.

1.7 Theoretical framework

The Fun Learning Model (FLM) is built upon two key theoretical foundations: Constructivist Learning Theory and the Integrated Museum Engagement Model (IMEM). Constructivist Learning Theory provides the pedagogical basis for student-centred, exploratory learning, emphasising active engagement, knowledge construction, and social interaction. Meanwhile, the IMEM framework offers a structured model for integrating interactive and immersive experiences into museum-based education. Combining these perspectives, the Fun Learning Model fosters a participatory, engaging, and collaborative learning experience within the museum setting. The FLM incorporates five core elements—Situation, Participation, Exploration, Interaction, and Collaboration—which align with constructivist principles and employ three primary strategies—Gamification, Multimedia Interaction, and Hands-on Experience—which are informed by the

IMEM framework. This theoretical foundation ensures the FLM effectively enhances student engagement and creativity in museum-based art education.

1.7.1 Constructivist learning theory

Constructivist Learning Theory posits that learners actively construct knowledge through experiences, interactions, and reflections rather than passively receiving information. This theory emphasises that learning is most effective when it is active, contextualized, and socially constructed. In museum-based education, constructivism underscores the importance of situated learning, where knowledge acquisition occurs in authentic, immersive environments rather than in isolated, decontextualized settings. This learner-centred stance echoes Hein's constructivist account of museum learning: knowledge is actively built by visitors, and exhibition organisation should be driven by educational needs rather than a presumed intrinsic order of objects. This principle forms the theoretical foundation for the Fun Learning Model (FLM), ensuring that learning in museums is engaging, meaningful, and reflective of real-world artistic experiences.

The five core elements of the FLM—Situation, Participation, Exploration, Interaction, and Collaboration—are deeply aligned with constructivist principles:

Active Engagement: Constructivism emphasises that knowledge is constructed through exploration, experimentation, and inquiry-based learning. In

the FLM, this is reflected in the Exploration and Participation elements, which encourage students to interact dynamically with museum exhibits, artworks, and educational resources rather than passively absorbing information.

Contextualized Learning: Constructivist theory suggests that learning is most effective in authentic, real-world settings where learners can connect new information to prior knowledge. This principle aligns with the Situation element of the FLM, ensuring that museum-based activities capitalize on the cultural, historical, and artistic resources of the Shandong Museum to create an immersive learning experience.

Social Interaction and Collaboration: Vygotsky's (1978) theory highlights the role of social interaction, dialogue, and scaffolding in learning, asserting that knowledge is co-constructed through peer engagement and instructor guidance. The Interaction and Collaboration elements of the FLM mirror these principles by integrating group-based learning strategies, peer discussions, and guided museum experiences, fostering collective meaning-making and shared artistic exploration.

In museum-based art education, Constructivist Learning Theory provides a cognitive foundation that supports learner-centred, inquiry-driven, and interactive pedagogies. However, while constructivism offers a strong theoretical framework for understanding how learning occurs, it does not provide a structured methodology for implementing these principles within museum settings. This gap is addressed by the Integrated Museum Engagement Model (IMEM), which translates constructivist principles into a practical framework for designing

interactive, immersive, and participatory museum experiences. The next section explores how the IMEM framework complements Constructivist Learning Theory and further supports the Fun Learning Model in enhancing student engagement and creativity in art education.

1.7.2 IMEM framework: a supportive framework for museum-based art education

The Integrated Museum Engagement Model (IMEM) is a structured framework operationalizing constructivist learning principles in museum-based education. While Constructivist Learning Theory provides a theoretical basis for active, student-centred, and inquiry-driven learning, it does not offer a defined methodology for museum settings. The IMEM framework fills this gap by systematically structuring interactive, participatory, and immersive educational experiences within museums (V. Cesário & Campos, 2024). By doing so, it ensures that museum learning is not only theoretically sound but also practically adaptable to diverse museum environments.

A core principle of the IMEM framework is active participation, which emphasises that learners should not be passive recipients of information but actively engaged in constructing their understanding. This approach aligns with constructivist principles, particularly those emphasising learner agency and knowledge co-construction (Yoo, 2021). Within museums, participation is

fostered through hands-on activities, guided explorations, and interactive tasks that encourage students to take ownership of their learning experiences.

Another critical aspect of the IMEM framework is educational design, which ensures that museum learning experiences are structured and flexible (Butcher et al., 2021). Well-designed learning activities allow students to explore, critically engage, and reflect on artistic and historical content, deepening their connection to the material. This adaptability is essential in museum settings, where learners come from diverse backgrounds with varying prior knowledge and engagement levels.

The IMEM framework further incorporates immersive learning, which is essential for deepening emotional and intellectual engagement with museum content (Hutson & Olsen, 2022). Immersion can be facilitated through curated physical environments, interactive digital media, and technologies such as virtual reality (VR) and augmented reality (AR) (AlGerafi et al., 2023). These elements enhance engagement by allowing students to experience art and history in multisensory, participatory ways, making learning more dynamic and memorable.

A complementary feature of IMEM is the narrative-driven approach, which integrates storytelling as a pedagogical tool. Narratives provide contextual depth, allowing students to connect abstract artistic and historical concepts to personal and real-world experiences (L. K. Chen et al., n.d.). This approach aligns with constructivist theories of learning, which suggest that meaning-making is most effective when new knowledge is integrated into familiar cognitive frameworks.

Beyond its core learning components, the IMEM framework includes peripheral modules that enhance adaptability across diverse museum contexts. One such module is museum integration, which ensures educational initiatives align with institutional collections and exhibit themes, creating a seamless connection between learning objectives and museum resources. IMEM also recognises that audiences in museums vary widely, necessitating diverse participation models such as gamification-based tasks, collaborative learning, and inquiry-driven exploration (Firmansyah & Rosmansyah, 2024). IMEM also recognises that audiences in museums vary widely, necessitating diverse participation models such as gamification-based tasks, collaborative learning, and inquiry-driven exploration (Buono et al., 2023). These tools create multisensory learning experiences, catering to different learning styles and cognitive preferences.

Finally, the expression module within IMEM enables students to demonstrate and reflect on their learning through creative outputs, such as artistic interpretations, collaborative exhibitions, or multimedia presentations. This reflective component reinforces knowledge retention and aligns with constructivist learning principles, emphasising the importance of active knowledge application and self-expression.

1.7.3 Integration of theories into the Fun Learning Model

The Fun Learning Model (FLM) integrates the theoretical insights of Constructivist Learning Theory and the Integrated Museum Engagement Model (IMEM) to create a structured, interactive, and engaging approach to museum-based art education. While CLT provides a broad epistemological foundation emphasising learner-driven exploration, social interaction, and contextualized knowledge construction, it does not offer an explicit instructional model tailored to museum settings. This gap is addressed by IMEM, which translates constructivist principles into a structured framework for museum-based educational practices. The FLM synthesizes these two perspectives, creating a practical, scalable, and adaptable model that enhances student engagement, interactivity, and creativity in art education within museum contexts.

The development of this model involved a systematic process of aligning theoretical foundations with practical strategies. Constructivist Learning Theory informs the model's emphasis on student-driven exploration, social interaction, and contextualized learning. Specifically, the five core elements of the Fun Learning Model—Situation, Participation, Exploration, Interaction, and Collaboration—stem directly from constructivist principles, ensuring that learning is authentic, engaging, and socially meaningful. Meanwhile, IMEM provides a structural guide for implementing these theoretical principles in museums. The IMEM modules of participation, design, and immersive experience directly shape the Fun Learning Model's strategies of gamification, multimedia interaction, and hands-on experience. This integration is fundamental

to addressing the research objectives, which aim to enhance student engagement and creativity through fun and meaningful learning experiences. Combining these theoretical perspectives, the Fun Learning Model bridges conceptual understanding with practical application, ensuring a comprehensive framework for fostering educational innovation.

Constructivist learning theory emphasises the active role of learners in constructing their understanding through interaction with their environment. This theory underpins the Fun Learning Model's core elements: context, engagement, interaction, exploration, and collaboration. For instance, the emphasis on contextual learning aligns with the constructivist view that knowledge is shaped by the learner's experiences and surroundings (Zajda, 2021). Similarly, collaboration reflects the constructivist belief in the social nature of learning, where interaction with peers and facilitators enhances cognitive development (Saleem et al., 2021).

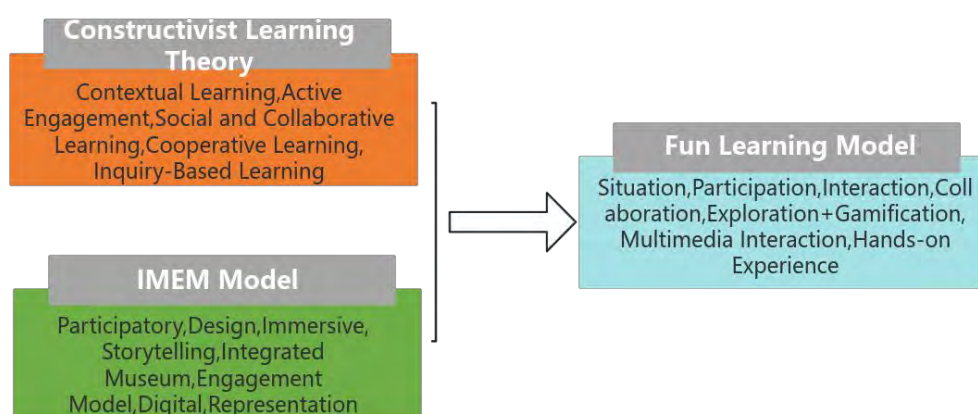
The IMEM framework complements this theoretical foundation by providing a structured approach to designing interactive and immersive learning experiences. Its core modules—participation, design, immersive experience, and narrative—directly support the elements of the Fun Learning Model. For example, the IMEM module of participation aligns with the engagement component of the Fun Learning Model by fostering active learner involvement (V. Cesário & Campos, 2024). Immersive experiences, another key module of IMEM, enhance the exploration and interaction elements of the Fun Learning Model by

integrating digital tools and storytelling techniques to create compelling educational activities.

The practical strategies embedded within the Fun Learning Model exemplify the integration of these theoretical perspectives. These include gamification, multimedia interaction, and experiential practice, corresponding to the constructivist emphasis on learner-centred environments and the IMEM framework's focus on innovative museum education practices. Gamification, for instance, engages learners through interactive tasks and aligns with IMEM's design module by incorporating elements of challenge. Similarly, multimedia interaction leverages IMEM's digitalization module to create multisensory experiences that improve learners' perceived learning outcomes.

05-4506832 pustaka.upsi.edu.my **Figure 1.1** Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Theoretical Framework



This integrated approach ensures that the Fun Learning Model is theoretically grounded and practically viable. By synthesizing constructivist principles with the structural insights of the IMEM framework, the model addresses key educational challenges in museum-based art education. It provides

a dynamic and flexible platform that can be adapted to diverse learning contexts, enabling educators to design enjoyable and impactful activities.

This integration is further elaborated upon in subsequent chapters through detailed discussions of the model's application in real-world educational settings. Chapter Two provides a comprehensive review of the theoretical underpinnings of constructivism and the IMEM framework. In contrast, Chapters Three and Four demonstrate the practical implementation and evaluation of the Fun Learning Model. This cohesive alignment of theory and practice underscores the model's contribution to advancing creative pedagogies in museum contexts.

1.8 Research scope and limitations

This study provides meaningful insights into how the Fun Learning Model can be applied in museum-based art education. However, like any research, it has its limitations. Recognising these constraints helps ensure a more balanced interpretation of the findings and highlights areas for future exploration.

1.8.1 Generalizability

The research was conducted at a single institution, the Shandong Museum, which may limit the generalizability of the findings to other museums or educational contexts. Cultural, organisational, and resource differences across institutions

could influence the applicability of the Fun Learning Model. Nonetheless, the adaptability of the theoretical framework suggests that, with appropriate contextual modifications, the Fun Learning Model could be effectively applied in other museums and educational settings. Future research could explore its implementation in institutions with different cultural backgrounds, technological resources, and pedagogical approaches to assess its scalability and feasibility.

1.8.2 Sample size and representation

The study involved a specific sample of museum educators, school teachers, and students. The relatively small sample size may restrict the diversity of perspectives captured, potentially impacting the breadth of the findings. The sample was limited to students, teachers, and museum staff actively involved in art education programmes at the Shandong Museum. Consequently, the findings may not fully reflect the views of other potential stakeholders, such as students from different grades, teachers with limited interaction with museum programmes, or broader museum audiences. The study concentrated on specific art education initiatives, so its conclusions might not be generalizable to all educational programmes within the museum or similar institutions elsewhere. Expanding the sample in future research could enhance the representativeness and validity of the results.

1.8.3 Focus on qualitative analysis

This study primarily utilised qualitative methods, including participatory observation, interviews, and thematic analysis, to gain in-depth insights into museum-based art education. While these approaches allow for a rich and detailed understanding of participant experiences, they do not provide the statistical generalizability associated with quantitative research. Qualitative analysis depends significantly on the subjective perspectives of respondents, making findings inherently shaped by personal experiences, emotions, and contextual factors (Bentalha & Alla, 2024). Although efforts were made to maintain researcher neutrality during data collection, the diversity of participants' backgrounds and viewpoints means that the study may not fully capture the entire spectrum of experiences in museum education.

Additionally, qualitative research is often interpretive, meaning that findings are influenced by the analytical lens applied. Expanding future research to include mixed-methods approaches could help validate the results by incorporating quantitative data, such as pre-and post-assessments of student engagement or creativity metrics. This combination would provide a more comprehensive understanding of the feasibility of the Fun Learning Model while addressing potential biases and enhancing the reliability of conclusions.

1.8.4 Time constraints

The implementation and evaluation of the Fun Learning Model were conducted within a limited timeframe, which presents certain constraints in assessing its full impact. While the study successfully captured immediate student engagement and responses, a longer observation period could provide deeper insights into how sustained exposure to the model influences learning retention, creative development, and continued interest in art education. Additionally, short-term studies may not fully capture how external factors—such as evolving museum programming, curriculum adjustments, or changing student demographics—affect the long-term feasibility of the model. Future research could adopt longitudinal approaches to examine whether the Fun Learning Model maintains its feasibility over time, how students' creative confidence develops through repeated museum-based learning experiences, and how museum educators refine and adapt the model based on ongoing feedback. Exploring these dimensions would contribute to a more comprehensive understanding of the model's sustainability, adaptability, and potential for integration into broader educational frameworks.

1.8.5 Technological dependence

The effectiveness of strategies such as multimedia interaction within the Fun Learning Model heavily relied on the availability of digital tools, technological

infrastructure, and institutional support. However, access to these resources can vary significantly across museums, particularly between well-funded institutions and those with limited budgets or outdated technology. Museums in smaller cities or rural areas may struggle to implement digital learning strategies due to inadequate funding, lack of staff training in technology integration, or infrastructural constraints such as limited internet access or outdated display systems. These disparities could affect the feasibility and scalability of the model, limiting its application in under-resourced settings.

Additionally, technological dependence raises concerns regarding sustainability and accessibility. Rapid advancements in digital technology may lead to obsolescence, requiring continuous investment in upgrades and staff training. Furthermore, while digital tools can enhance engagement, excessive reliance on them may inadvertently reduce hands-on, tactile experiences crucial for art education. Future studies could explore low-tech alternatives, such as interactive physical exhibits, tactile learning stations, or analog gamification techniques that maintain engagement without requiring extensive technological investments. Hybrid solutions that balance digital and traditional interactive strategies could also be investigated to ensure broader accessibility while preserving the immersive and participatory nature of museum-based learning.

1.9 Operational definitions

To maintain clarity and consistency in terminology throughout this study, we define core concepts according to the specific research context. By establishing clear operational definitions, we aimed to eliminate ambiguity and help readers accurately grasp the specific application of each term in this research. A more detailed theoretical discussion is presented in Chapter two.

1.9.1 Fun Learning Model

The Fun Learning Model (FLM) is a pedagogy-led framework that integrates five elements—situation, participation, interaction, exploration and collaboration—with three strategies—gamification, multimedia interaction and hands-on experience—to support engagement, creativity and perceived learning outcomes in museum-based art education.

1.9.2 Constructivist learning theory

Constructivism holds that learners build knowledge through experience, context and social interaction and provides the cognitive basis of the FLM; the Integrated Museum Engagement Model (IMEM) is used to operationalise these principles in the museum setting.

1.9.3 Strategies of the Fun Learning Model

Gamification uses goals, rules, challenges and feedback to focus effort and sustain engagement in learning tasks. Multimedia interaction employs appropriate digital and non-digital media to deepen conceptual understanding and interaction with exhibits. Hands-on experience involves structured making and manipulation of materials to foster exploration and meaning-making.

1.9.4 Core elements of the Fun Learning Model

Situation anchors learning in authentic, collection-based contexts. Participation positions learners as active contributors with agency in tasks and decisions. Interaction supports dialogue and social exchange among learners, educators and content. Exploration encourages inquiry, experimentation and question-asking with museum resources. Collaboration develops joint problem solving and shared outcomes in group activity.



1.9.5 Context-specific terms

Shandong Museum is the research site and provides the institutional and material context for this study. Student engagement denotes cognitive, emotional and behavioural involvement during learning activities. Creativity refers to novel and valuable ideas expressed through exploratory, interactive and problem-solving activity. Perceived learning outcomes are what learners judge they have learned, qualitatively inferred from interviews, focus groups, observations and documents.

1.9.6 Edutainment

Edutainment blends education and entertainment and is acknowledged as a neighbouring notion in the literature; in this thesis it is distinguished from the Fun Learning Model, which foregrounds pedagogy-led design and learning aims rather than entertainment-led activity.

