IDENTIFYING PROBLEMS AND PUTTING SOLUTIONS INTO PRACTICE IN LANDSCAPE ARCHITECTURE CONSTRUCTION MANAGEMENT

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ABSTRACT

Landscape design emerges as the artful orchestration of outdoor spaces, harmonizing human aspirations with ecological reverence, poised at the confluence of creative expression, utilitarian efficacy and environmental stewardship. Yet, traversing from conception to realization entails a labyrinthine journey marked by multifaceted challenges. Hence, a strategic and agile construction management approach becomes imperative. This study delves into the intricacies of problem-solving in landscape architecture, dissecting site-specific variables, resource allocation, meteorological uncertainties and cross-disciplinary collaboration. The research underscores foresight, collaborative synergy and inventive ideation as quintessential tools for surmounting these hurdles, informed by empirical insights and industry benchmarks. The comprehensive inquiry corroborates that effective landscape architecture construction management harmonizes technical proficiency, adaptability and unwavering commitment to nurturing harmonious and sustainable outdoor environments.

Keywords: *Landscape Architecture, Construction Management, Quality Control, Cost Management*

INTRODUCTION

Landscape architecture stands at the crossroads of aesthetics, functionality, and environmental sustainability, shaping the outdoor spaces that enrich our lives. As the world's population continues to urbanize, the demand for well-designed and thoughtfully constructed landscapes has grown substantially. Construction management is considered a very important field in civil engineering (Alheeti & Aldaiyat, 2021) . There are many problems in the construction of landscape architecture projects, such as the destruction of soil components, the difficulty of construction, and the inadequate implementation of environmental protection (Wang, 2022) . However, the actualization of these intricate designs is beset by multifaceted challenges demanding an exhaustive grasp of construction management tenets. This scholarly journal article scrutinizes the evolving landscape of landscape architecture construction management, dissecting the intricacies of problem identification within the construction continuum, while expounding pragmatic methodologies to ensure the seamless translation of these ingenious designs into tangible fruition.

Landscape architecture projects require a careful balance between artistic vision and pragmatic implementation. While designers focus on bringing beauty and functionality to open spaces, construction managers are tasked with translating these artistic concepts into tangible realities. Often, this transition encounters hurdles that can range from logistical complexities to unexpected environmental constraints. Construction and management of such a huge landscape area requires extensive manpower and experienced staff to plant and maintain all plants within the landscape. Existing landscape engineers and management staff do not yet have profound knowledge and experience for adequate P&M during construction and maintenance stages of landscapes (Zhao et al., 2022) . Identifying these issues early in the construction process is crucial for maintaining project timelines, budgetary constraints, and the integrity of the design itself.

This article aspires to furnish practitioners within the domain with a robust toolkit essential for adeptly navigating the intricate terrain of landscape architecture construction management. This objective is attained through a meticulous dissection of industry exemplars, cutting-edge technological interventions, and collaborative paradigms. Practitioners, poised to orchestrate the metamorphosis of envisioned landscapes into harmonious, ecologically sustainable, and captivating outdoor realms, are poised to achieve this by astutely recognizing the idiosyncrasies underpinning project delivery, fostering an environment of cross-disciplinary synergy, and espousing a disposition of agile problem resolution.

LITERATURE REVIEW

In recent times, an escalating requirement has surfaced for meticulously crafted outdoor environments that seamlessly amalgamate community requisites with a symbiotic coexistence alongside the natural milieu. Consequently, the domain of landscape architecture construction management has undergone a pronounced evolution. Coinciding with this burgeoning demand, there has ensued a corresponding augmentation in the intricacies linked to the transmutation of intricate design conceptions into palpable terrestrial realms. In this scholarly literature review, a panoramic synthesis is proffered, encapsulating the cardinal motifs and consequential findings gleaned from contemporary research endeavors that expound upon the identification and mitigation of quandaries within the purview of landscape architecture construction management.

Landscape Architecture Construction Management

Landscape architecture has become an effective way to beautify the appearance of the city. Reasonable construction and management of landscape architecture can further build a diversified ecosystem (Yang D.s., 2018). The integration of Building Information Modeling (BIM) and artificial intelligence (AI) is redefining construction management. BIM serves as a digital backbone of the AEC industry (Pan & Zhang, 2023) , This integration enhances project coordination, clash detection, and resource optimization. The digitalization of construction data is transforming decision-making processes. BIM-based solutions facilitate predictive decision-making through data analysis and visualization (Parsamehr et al., 2023). The utilization of deep learning in visual data analytics (Pal &

Hsieh, 2021) and the adoption of digital twins (Salem & Dragomir, 2022) enable real-time insights for informed project management decisions. The application of AI and machine learning enables the development of predictive models for construction management.

These models assist in predicting project outcomes, resource allocation, and risk assessment (Parsamehr et al., 2023) . In order to better meet the needs of residents' lives, garden construction management can not only meet people's leisure and recreational life, but also provide useful fitness activities, which is an ideal place for urban people living in a fast pace and high pressure (LI Tingting, 2018). In conclusion, construction management has evolved into a multidisciplinary field driven by technological advancements and the pursuit of efficiency, sustainability, and smarter practices. The integration of BIM, AI, deep learning, and digital twins is reshaping construction management practices by enhancing decision-making, collaboration, and project insights. These trends signal a shift toward data-driven, efficient and technologically empowered construction management practices that align with the demands of modern projects.

Challenges in Landscape Architecture Construction Management

Existing landscape engineers and management staff do not yet have profound knowledge and experience for adequate P&M during construction and maintenance stages of landscapes. Human errors occur frequently and cause inappropriate P&M of plants (Xu, M., 2018). Moreover, timely capturing detailed spatiotemporal changes of various plants within the landscape is difficult and time-consuming due to the changing environment of the four seasons (Wang, S.&Li, W., 2019). The fatal injury rate for the construction industry is higher than the average for all other industries due to its labor intensive characteristics and poor safety management during production processes (Lu, Y.&Gong, P., 2021). Careless quality management will cause a hidden danger to the later operation of structures. Many construction projects worldwide were completed with significant time and cost overruns due to bad schedule management (Ameh, O.J.& Soyingbe, A.A., 2010). In addition, the industry has a bad reputation for information management, with many significant projects missing deadlines and exceeding budgets (Abdul-Rahman, H.&Wang, C., 2011). Variations in material pricing, labor and plant productivity, and information quality all have a significant impact on this. All too frequently, the risk associated with a poor information management system is either disregarded or dealt with in an arbitrary manner, resulting in an increase in contingency costs on a typical construction project’s estimated cost (Janssen, M.&Charalabidis, Y, 2012).

Identifying Problems Early in the Construction Process

Usually in the construction of landscape architecture, there are often problems in the process design, which will reduce the efficiency of the project and delay the construction (Luo An, 2015). Due to the lack of corresponding protection and supervision measures, the damage of landscaping projects is more serious, which will also have an adverse impact on the maintenance of landscape landscaping (Lan Y.Y., 2021). Based on the analysis of the construction of modern landscape engineering, it can be seen that because there are great differences in construction areas, the geological and topographic differences of construction sites are large, which increases the difficulty of construction (Wang, 2022). Intelligent construction and management processes are essential to ensure the efficiency of planting and maintenance of landscapes in large-scale projects. Unfortunately, various challenges still exist for achieving such a vision (Zhao et al., 2022). Within traditional design processes, decisions are often made based on individualistic values and late-stage assessments conducted on a predefined set of design alternatives potentially leading to suboptimal design decisions and conflicts. The issues are further amplified by the growing complexity of construction project management where an increasing number of stakeholders are involved (Zhilyaev et al., 2022). The current green building construction quality management method mainly continues the traditional quality supervision, inspection, sampling and so on. The construction quality management method is relatively backward, which not only wastes a lot of human and material resources, but also cannot eliminate the quality problems from the source (Kern, Eva, 2018).

Strategies for Implementing Solutions

The research found a high potential for applicability of integrated AR to BIM modelling to assist in operations inspection, building maintenance, infrastructure, and installation assemblies (Machado & Vilela, 2020) . Computer vision offers non-intrusive benefits over Internet of Things; being able to detect the health and safety hazards. Computer vision has proved to be beneficial for better accuracy prediction, real time data monitoring, and model development for onsite health and safety analytics on the construction site (Arshad et al., 2023).

The research contributes to the theories and practices of construction safety management by linking the deployment of safety leading indicators with organizational and strategic issues at firm and project levels and addressing the root causes of poor performance (Xu et al., 2023).

Combining AI with construction management to overcome some common obstacles that facing civil engineers during manage any project (Alheeti & Aldaiyat, 2021) . Some researcher present a pioneering multi-stakeholder design methodology combining preference function modeling theory and a priori optimization enabling stakeholders to find the group-optimal design fairly representing their preferences (Zhilyaev et al., 2022). The comprehensive development of intelligent construction requires intelligence in every segment, among which intelligent construction management (ICM) plays an essential and inevitable part; it is the foundation of Construction 4.0 and intelligent construction (Lin et al., 2022). XR has been extensively examined by various researchers worldwide and has been adopted in many practical scenarios. There are several review studies on the application of XR in the construction engineering and management domain (Zhao et al., 2023). When selecting the construction unit, we should take into account the qualification, strength and reputation, and arrange the personnel scientifically and reasonably according to the specific construction schedule (LI Tianpeng, 2021).

OBJECTIVES

1. Comprehensive Problem Profiling: The foundational aim encompasses the meticulous dissection and methodical categorization of a diverse spectrum of challenges that invariably manifest within the ambit of landscape architecture construction ventures. This multifaceted endeavor encompasses the intricate unraveling of logistical intricacies, ecological imperatives, and the seamless amalgamation of intricate design paradigms.
2. Proactive Anticipatory Identification: The ensuing goal entails an exhaustive exploration into an array of methodological approaches and strategic blueprints, orchestrated with precision to facilitate the preemptive identification of incipient predicaments. This quest places a premium on the indispensability of interdisciplinary congruence and the assimilation of integrated project delivery frameworks, culminating in the discernment of nascent challenges during the project's embryonic planning phase.
3. Pragmatic Navigator for Practitioners: By synthesizing the discernments gleaned from the meticulously conducted literature review alongside the sagacity distilled from contextualized case studies, this aspiration materializes in the crystallization of pragmatic frameworks and recommendations. These instruments, tailored with precision, serve as a compass empowering landscape architecture practitioners to adeptly traverse the intricate labyrinth of challenges, thereby enhancing their adeptness in negotiating complexities and effectuating efficacious solutions.
4. Catalyst for Advancement in Construction Management: The zenith objective resides in the catalytic amalgamation of visionary conceptualizations with their palpable instantiation on-site. This bridge, straddling the divide between aspirational blueprints and tangible outcomes, augments the field by kindling an environment fertile for innovation and ceaseless enhancement. Converging design ideation with practical realization propels the sphere of landscape architecture construction management toward an echelon of unparalleled excellence, perpetually nurturing a cycle of iterative advancement.

HYPOTHESIS

In the realm of landscape architecture construction management, a coherent proposition emerges, stipulating the imperative of a methodical paradigm encompassing both problem discernment and resolution. This framework is intricately woven with the threads of community engagement, nimble adaptive problem-solving methodologies, cross-disciplinary collaboration and the integration of cutting-edge technological tools. By converging these salient constituents, practitioners stand poised to not only elevate project outcomes but also streamline the intricate tapestry of construction processes. This orchestrated synthesis culminates in the creation of outdoor spaces that are not only artistically resonant but also ecologically sustainable, resonating harmoniously with the overarching design ethos and community requisites. Within the ambit of landscape architecture construction management, this hypothesis conjoins these pivotal elements into a cohesive tableau, forming the bedrock for an explorative voyage into the symbiotic interplay of problem delineation and the subsequent orchestration of effective solutions. The crux of this investigation resides in endowing professionals with discerning insights, capacitating them to adeptly navigate the multifaceted intricacies embedded within this ever-evolving terrain.

POPULATION

The research's intended recipients encompass project managers and consultants immersed in the execution of licensed or registered landscape architecture construction management endeavors within the intricate landscape of China. To procure a holistic dataset, the research adopts a dual-pronged data collection approach involving online surveys and face-to-face interviews, encompassing a voluntary participant pool. For lucidity, Figure 1 encapsulates a concise overview delineating the salient methodological trajectories embarked upon within this scholarly exploration.

METHODOLOGY

This study is poised to delve into the intricate realm of landscape architecture construction management by scrutinizing the intricacies inherent to problem identification and the subsequent implementation of viable solutions. Employing a comprehensive research paradigm, this study amalgamates case study analysis, literature evaluation and expert insights to engender a holistic comprehension of the intricate dynamics underpinning problem-solving within the landscape architecture domain.

1. Literature Review: The inception of this research commences with a meticulous literature scrutiny, serving as the foundational bedrock for the discernment of archetypal challenges emblematic of landscape architecture construction projects. A meticulous analysis of scholarly articles, research papers, case studies, and relevant reports within the sphere of landscape architecture and construction management ensues. This process engenders profound insights into the predicaments encountered by practitioners, the strategies deployed to surmount them, and the pivotal role that interdisciplinary cooperation, technology infusion, and sustainable methodologies play in the realm of problem resolution.
2. Case Study Analysis: A corpus of illustrative case studies is systematically dissected to glean invaluable insights into the intricacies that pervade the orchestration of landscape architecture creation management. This mosaic of case studies spans a gamut of project typologies, scales, and geographic configurations. The selection of these cases is driven by their alignment with the study's objectives and the availability of comprehensive project documentation. Through a meticulous examination of each case, the study identifies emergent challenges and appraises the strategies adroitly employed to navigate them. The synthesis of these case studies unveils patterns, trends, and exemplars of best practices that undergird the efficacious identification of quandaries and the ensuing application of solutions.
3. Expert Consultation: Augmenting the research's fabric, the insights of luminaries entrenched in the realms of landscape architecture, construction management, and cognate domains are harnessed. Practitioners endowed with an expansive reservoir of experience in steering landscape architecture

construction projects are subjected to structured interviews. These dialogues unearth profound insights into the intricacies encompassing problem delineation, the nuances of collaborative dynamics, and the practical instantiation of sustainable paradigms. This expert consultation magnifies the contextual authenticity of the study's findings, fortifying its integrity and real-world applicability.

4. Data Analysis: The trove of data culled from the literature review, case study analysis, and expert consultations is subjected to a comprehensive qualitative analysis. A thematic analysis approach is deftly employed, unearthing recurrent motifs, commonplace predicaments, efficacious solutions, and emergent trends that thread through the data fabric. This analytical method orchestrates the coherent structuring of data, endowing the study with profound insights capable of addressing its ambitiously stipulated objectives.

5. Conclusion and Implications: The tapestry woven through this research methodology serves to elucidate the nuances characterizing the process of problem identification and its subsequent resolution within landscape architecture construction management. The insights garnered through the fusion of literature, case studies, and expert perspectives offer a panoramic view of the challenges confronting practitioners and the instrumental strategies that have heralded success in mitigating these challenges. This amalgamation of insights holds potential to empower practitioners, project managers, and stakeholders in crafting outdoor spaces that marry design ingenuity with practical functionality, underpinned by informed decision-making.

In summation, this research methodology coalesces an intricate mosaic encompassing case study analysis, expert consultations, literature review, and qualitative data analysis to unearth the intricacies of problem-solving in the realm of landscape architecture construction management. This endeavor aspires to furnish a seminal contribution to the knowledge repository within this sphere, fusing theoretical underpinnings with pragmatic real-world insights, thereby catalyzing the efficacy and sustainability of construction management paradigms within the landscape architecture domain.

RESEARCH FRAMEWORK

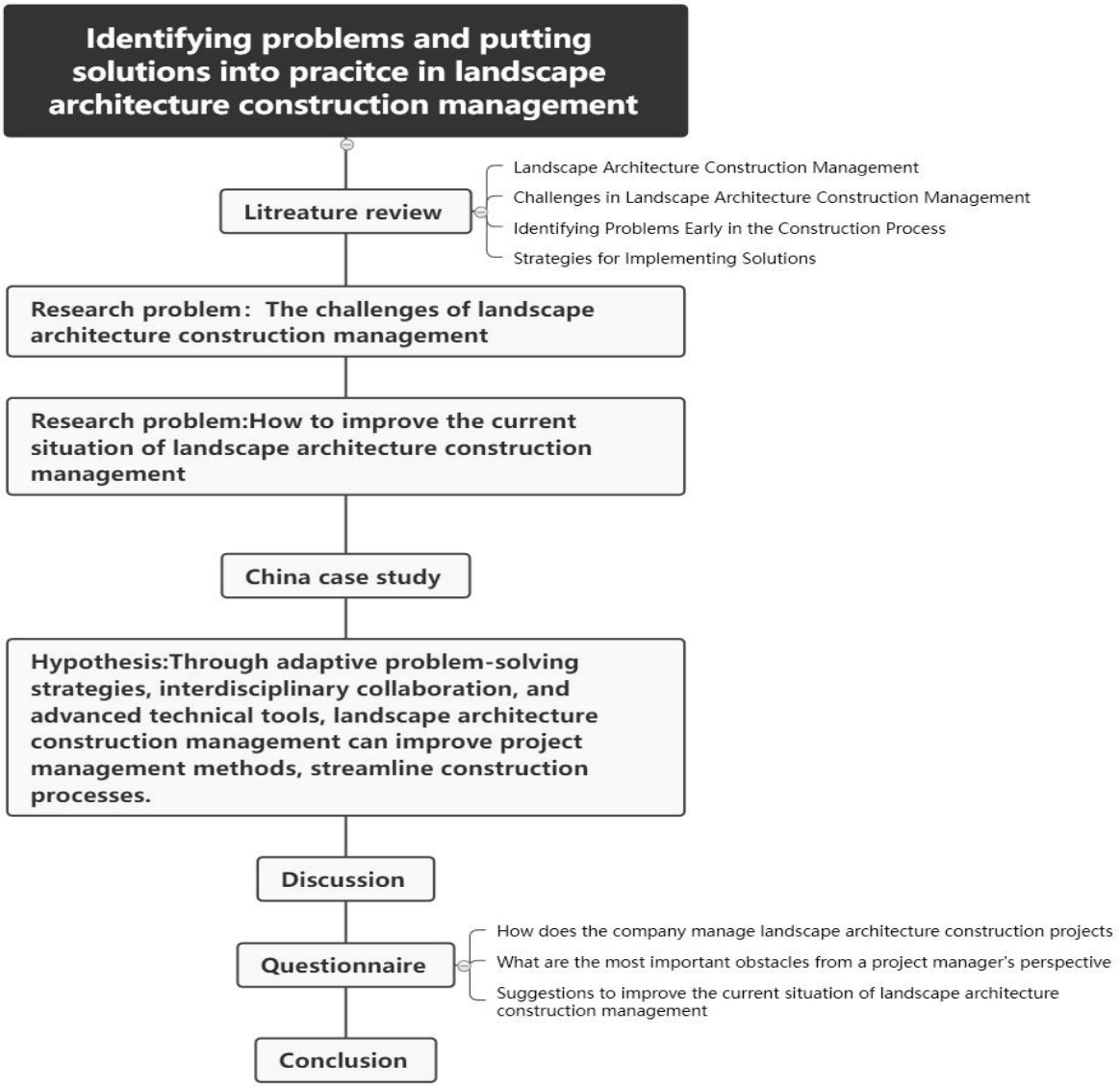

Figure 1: Research Framework

LIMITATION

The exploration of "Identifying Problems and Putting Solutions into Practice in Landscape Architecture Construction Management" is a significant endeavor within the realm of construction management. This research seeks to shed light on the intricate processes involved in addressing challenges and implementing solutions in the context of landscape architecture projects. While this study aims to contribute valuable insights, it is important to acknowledge and delineate certain limitations inherent to the research scope, methodology, and available resources.

1. Scope Limitations:

The scope of this research is focused on the specific domain of landscape architecture construction management, where projects are characterized by their aesthetic, functional, and ecological components. However, it is essential to recognize that landscape architecture projects vary widely in scale, complexity, and geographic context. Consequently, the findings and conclusions drawn from this study may not be universally applicable to all landscape architecture construction scenarios. The inherent diversity of landscape projects may limit the generalizability of the results beyond the specific context under investigation.

2. Data Availability and Selection Bias:
The analysis and synthesis of literature, case studies, and expert opinions form the foundation of this research. However, the availability and quality of these sources may introduce biases. The data selection process might inadvertently favor articles or case studies that are readily accessible or well-documented, potentially neglecting valuable insights from lesser-known projects or studies published in non-English languages. This selection bias could impact the comprehensiveness and representativeness of the research findings.
3. Contextual Specificity:
The landscape architecture construction management process is inherently context-dependent, influenced by factors such as local regulations, cultural considerations, and environmental conditions. While this research endeavors to provide general insights, the recommendations and solutions proposed may need to be adapted to fit the specific contextual nuances of different regions or project types. The limitations of context-specific findings should be recognized, and practitioners are encouraged to exercise discretion in applying the research outcomes to their own projects.
4. Dynamic Nature of Technology and Practices:
The integration of technology, particularly in areas such as BIM, AI, and digital twins, is rapidly evolving. While the research aims to capture the current state and trends, the dynamic nature of technology adoption and innovation means that the findings might become outdated relatively quickly. Additionally, the practical implementation of technology and practices may vary based on the resources and capabilities of individual firms or projects, introducing variability in the applicability of proposed solutions.
5. Case Study Representativeness:
The selected case studies play a crucial role in understanding real-world challenges and solutions in landscape architecture construction management. However, the number and diversity of case studies analyzed might be limited by time constraints and data availability. Therefore, the conclusions drawn from the case study analysis should be interpreted with caution, recognizing that a broader range of cases could yield different insights.
6. Expert Perspectives and Bias:
The insights derived from expert consultation provide valuable practical knowledge. However, the opinions and experiences of experts might be influenced by their professional backgrounds, affiliations, or personal biases. To mitigate potential bias, a diverse range of expert perspectives was sought; however, individual perspectives might still impact the validity of recommendations and conclusions.
In conclusion, this research on "Identifying Problems and Putting Solutions into Practice in Landscape Architecture Construction Management" aspires to contribute to the understanding and improvement of construction management practices in the landscape architecture domain. However, the limitations outlined above underscore the need for cautious interpretation of the research findings. While these limitations acknowledge the constraints of the study, they also pave the way for future research endeavors to build upon and address these constraints, enhancing the depth and applicability of knowledge in this critical area of construction management.

DISCUSSION

The realm of landscape architecture construction management is a dynamic and multifaceted domain that intersects creativity, environmental sustainability, and logistical precision. Within this intricate landscape, a multitude of challenges arise that demand rigorous analysis and strategic solutions. This discussion aims to explore these challenges with a scientific research attitude, shedding light on their intricacies and implications.
1. Integration of Artistic Vision and Technical Realities: The hallmark of landscape architecture lies in the harmonious fusion of artistic expression with pragmatic functionality. However, the translation of intricate design visions into practical construction often presents challenges. Balancing aesthetic aspirations with technical constraints such as site conditions, materials, and structural integrity requires a delicate equilibrium (Wang, 2022). The challenge here lies in effectively harmonizing the artistic vision with the real-world complexities of construction.

2. Resource Allocation and Sustainability: Landscape architecture emphasizes sustainable practices, necessitating prudent resource allocation. This introduces challenges in optimizing resource utilization while adhering to ecological imperatives. Cost-effective material selection, energy-efficient designs, and water management strategies are essential, demanding a comprehensive understanding of sustainability principles (Zhilyaev et al., 2022).
3. Interdisciplinary Collaboration: Effective landscape architecture construction management hinges on seamless collaboration among diverse disciplines, including architects, engineers, environmental scientists, and urban planners. The challenge here is to bridge the gap between specialized domains, fostering effective communication, shared understanding, and integrated problem-solving (Zhao et al., 2023). Harmonizing these perspectives while mitigating conflicts can be complex.
4. Budgetary Constraints and Cost Overruns: Financial constraints often exert pressure on landscape architecture projects, leading to potential cost overruns. Managing budgets, procurement, and financial projections demands meticulous planning and vigilant monitoring to ensure projects remain within allocated funds (Abdul-Rahman et al., 2011). The challenge lies in striking a balance between design aspirations and financial realities.
5. Technological Integration and Digital Transformation: The advent of technologies such as BIM, AI, and XR has opened new avenues for landscape architecture construction management. However, their integration poses challenges. Implementing BIM for design visualization and AI for predictive analysis requires a robust technological infrastructure and skilled personnel. Navigating the learning curve and optimizing these tools effectively are significant challenges (Pan & Zhang, 2023; Zhao et al., 2022).
6. Environmental Resilience and Climate Adaptation: Landscape architecture is inextricably linked to the environment, making it vulnerable to the impacts of climate change. Designing spaces that can withstand extreme weather events, changing precipitation patterns, and rising temperatures requires a forward-looking approach (Lu et al., 2021). The challenge lies in anticipating these changes and integrating adaptive design strategies.
7. Safety and Risk Management: Construction sites are inherently hazardous environments, necessitating meticulous safety measures. Ensuring the safety of workers and mitigating construction-related risks requires ongoing vigilance and the integration of advanced technologies, such as AI-driven safety monitoring and computer vision (Alheeti & Aldaiyat, 2021; Arshad et al., 2023). The challenge is to cultivate a culture of safety while harnessing cutting-edge tools to enhance risk mitigation.

In addressing these challenges, landscape architecture construction management necessitates a comprehensive and adaptive approach. Holistic problem-solving involves an intricate web of considerations, where ecological sensitivity, financial prudence, technological prowess, and interdisciplinary collaboration converge. Approaching these challenges with a scientific research attitude involves empirical analysis, data-driven decision-making, and a commitment to continuous improvement. Ultimately, the pursuit of innovative solutions to these challenges not only advances the field but also contributes to the creation of sustainable, aesthetically captivating outdoor spaces that serve both human needs and ecological equilibrium.

SOLUTIONS

The challenges encountered in landscape architecture construction management are indeed multifaceted, but they also provide opportunities for innovative solutions that can enhance project outcomes and the industry's overall sustainability. In response to these challenges, practitioners and researchers have been devising strategies and solutions that address the complexities of managing landscape architecture projects. Let us delve into some of these solutions in a rigorous and systematic manner:
1. Cutting-Edge Technology Integration: The strategic integration of Building Information Modeling (BIM) technology emerges as a transformative strategy to optimize the landscape architecture construction management process. BIM's pivotal role in fortifying communication, fostering collaboration, and enhancing visualization across project lifecycles is underscored. (Wang et

al., 2019; Zhao et al., 2022). BIM's infusion offers early detection capabilities for clashes, resource optimization avenues, and safeguards the integrity of design intent during the construction phase. The strategic harnessing of cutting-edge technologies such as artificial intelligence and data analytics emerges as a formidable arsenal to confront intricacy. Pan and Zhang (2023) emphasize the transformative potential of integrating AI into the realm of intelligent construction management, serving as a harbinger of predictive issue identification and efficient decision-making. The empirical analysis of historical and real-time data empowers these tools to distill intricate patterns, prognosticate potential hazards, and foster adaptable solutions.

2. Synergistic Collaboration for Excellence: The preeminence of interdisciplinary collaboration in tackling challenges is prominently evident. The works of Lu et al. (2021) and Abdul-Rahman et al. (2011) underscore the centrality of enlisting a diversified array of disciplines and stakeholders from project inception （Lu et al. ,2021; Abdul-Rahman et al., 2011). Collaborative endeavors not only cultivate collective prowess in problem-solving but also elevate risk assessment capacities, resulting in a more comprehensive project blueprint. Through the orchestration of multifaceted expertise, landscape architecture construction management effectively ferrets out and addresses challenges. The fervor for integrating digital twins into construction management, as proposed by Salem and Dragomir (2022), resonates strongly. These digital avatars introduce a real-time monitoring, simulation, and analysis dimension. Through augmented reality overlays, digital insights converge with the physical environment, bolstering design validation, construction visualization, and augmenting decision-making acumen (Salem & Dragomir, 2022).

3. Education: A Resilience Enhancer: The enrichment of the competencies of professionals in landscape architecture construction management is a cornerstone. Educational institutions and industry conduits play a pivotal role in imparting targeted education and training programs. These curricula encompass project management acumen, technology embracement, communication finesse, and adept collaboration techniques. They empower practitioners to adeptly navigate challenges through a calibrated skill set.

4. Holistic Sustainability at the Core: Infiltrating sustainable practices into the matrix of construction management transcends the confines of design phases. Kern et al. (2018) augur for resource and energy efficiency, resonating with the sustainable ethos (Kern et al. ,2018). Assimilating sustainable materials, innovative construction techniques, and efficacious waste management protocols collectively curtail environmental impact, fostering the enduring vitality of outdoor spaces.

In conclusion, the challenges faced by landscape architecture construction management are diverse and intricate. However, the industry has been proactive in devising solutions that leverage technology, collaboration, data-driven insights, and sustainable practices. By integrating these solutions, practitioners can enhance project delivery, mitigate risks, and ultimately contribute to the creation of harmonious and sustainable outdoor environments. Continuous research, innovation, and a proactive approach to problem-solving will be essential in advancing landscape architecture construction management practices and ensuring the realization of successful projects.

CONCLUSION

The research article titled "Identifying Problems and Putting Solutions into Practice in Landscape Architecture Construction Management" delves into the intricacies of landscape architecture construction management, with a primary focus on the intricate process of problem identification and subsequent solution implementation. Through a systematic exploration of the challenges endemic to this field, the study seeks to provide comprehensive insights that can inform strategic approaches to overcoming these challenges and achieving successful project outcomes. The research methodology adopted integrates case study analysis, extensive literature review, and expert consultation, offering a multifaceted understanding of the complex dynamics inherent in problem-solving within the landscape architecture construction management realm.

Central to this article is the imperative of aligning construction management practices with the unique demands of landscape architecture projects, which inherently entail a delicate equilibrium between aesthetic aspirations, functional requisites, and ecological stewardship. By unpacking the complexities surrounding the identification of challenges, the article aspires to guide professionals and

practitioners towards a proactive modus operandi, where obstacles are proactively discerned and remedial measures are deftly executed. This proactive stance is further fortified through the infusion of cutting-edge technologies and collaborative strategies, as discerned from salient industry paradigms.

The research engages in an exhaustive examination of a broad spectrum of challenges intrinsic to landscape architecture construction management. These challenges encompass multifarious domains, ranging from budgetary management, site-specific intricacies, stakeholder alignment, regulatory congruence, technological fusion, risk abatement, to the preservation of aesthetic essence. These challenges, often exacerbated by the intricate and dynamic nature of landscape projects, necessitate an organized framework for their identification and strategic redressal.

To encapsulate, the article substantiates the contention that efficacious landscape architecture construction management pivots upon the astute identification and resolution of the gamut of challenges that ensue during project execution. Through the assimilation of advanced technological tools, interdisciplinary synergies, data-driven analytical paradigms, proactive problem-solving orientations, and the lessons distilled from the realm of digital twins, the article propounds the bedrock for a comprehensive and resilient trajectory in navigating the intricacies of landscape architecture construction projects. The insights proffered in this article augment the advancement of the field by endowing practitioners with a nuanced comprehension of the problem-solving dynamics, thus emboldening them to stride forward with acumen in manifesting harmonious and sustainable outdoor spaces.

AUTHOR CONTRIBUTIONS

All authors played a role in conceptualizing the research and drafting the manuscript. In short, all team members provided support in various aspects of this paper.

CONFLICTS OF INTEREST

The manuscript has not been published elsewhere and is not under consideration by other journals. All authors have approved the review, agree with its submission and declare no conflict of interest on the manuscript. This paper published as part of 1st International Conference On Business & Management (1ST ICBM) 2023.

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