

EXPLORING THE INTEGRATION OF ADAPTIVE REUSE IN INTERIOR DESIGN: A CASE STUDY OF CALEB UNIVERSITY ADMINISTRATIVE BUILDING

Daramola O. F.

Department of Architecture, Caleb University, Imota, Lagos state, Nigeria

Babamboni A. S.

Department of Architecture, Caleb University, Imota, Lagos state, Nigeria

Owolabi T. O. S.

Department of Architecture, Caleb University, Imota, Lagos state, Nigeria

Ajayi O. O (PhD)

Department of Architecture, Caleb University, Imota, Lagos state, Nigeria

Corresponding author's email: toyin.ajayi@calebuniversity.edu.ng

Abstract

Adaptive reuse in interior design entails repurposing existing structures or spaces to serve new functions while preserving their architectural, cultural, and historical significance. The research explores the integration of adaptive reuse principles in interior design at Caleb University to address the recognized need for comprehensive understanding and guidance in effectively implementing adaptive reuse within educational institutions. The qualitative study employed interviews and on-site observations to explore adaptive reuse in interior design within Caleb University's administrative building, aiming to gain insights from stakeholders and document physical spaces, behaviours, and interactions, analyzed through thematic analysis. The findings of the qualitative study on adaptive reuse in Caleb University's administrative building reveal strategies focused on preserving historical context, integrating modern functionality, optimizing space utilization, enhancing user experience, and prioritizing cost-effectiveness within interior design, showcasing a comprehensive approach to sustainable adaptation and transformation. In conclusion, Caleb University's adaptive reuse integration in its administrative building exemplifies a holistic sustainability approach, balancing heritage preservation with modern functionality and financial prudence, offering a model for resilient built environments in educational settings and beyond.

Keywords: Adaptive Reuse, Caleb University, Interior Design, Interior Space, Repurpose

1.0 Introduction

Adaptive reuse in interior design involves the strategic repurposing and transformation of existing structures or spaces to accommodate new functions, while also preserving their architectural integrity, cultural significance, and historical value (Takva et al.,

2023). This approach emphasizes the creative adaptation of buildings or spaces to meet contemporary needs, rather than demolition and new construction. Adaptive reuse holds significant importance for sustainability across multiple dimensions (Della Spina, 2020)). Primarily, it champions environmental sustainability by conserving resources, minimizing waste, and curbing the carbon footprint associated with new construction (Abdullah & Lim, 2023). Through repurposing existing structures, adaptive reuse mitigates the environmental impact of raw material extraction, manufacturing, and transportation (Chan, Bachmann & Haas, 2020). Furthermore, it fosters social sustainability by preserving cultural heritage, cultivating a sense of place, and strengthening community identity.

Adaptive reuse projects honors architectural craftsmanship and contribute to the cultural vibrancy of communities by repurposing buildings (Roy, 2023). Moreover, adaptive reuse promotes economic sustainability by maximizing the use of existing assets, reducing construction costs, and revitalizing underutilized areas (Kittisorayut, 2024). This process breathes new life into old spaces, fostering economic activity, attracting investment, and creating opportunities for local businesses and entrepreneurs (Della Spina, 2020)). Overall, adaptive reuse stands as a holistic approach to sustainability, aligning environmental, social, and economic objectives to create resilient and vibrant built environments (Gauger, 2020). Caleb University, located in Imota, Lagos State, Nigeria, stands as a prominent institution of higher learning renowned for its commitment to academic excellence, character development, and community engagement. Established in 2008 by Dr Oladega Adebogun, Caleb University, Imota, Lagos offers a diverse range of undergraduate and postgraduate programs across various disciplines, including Arts, Sciences, Social Sciences, Management Sciences, and Environmental Sciences. The rationale for choosing Caleb University as a case study lies in its unique position as a dynamic educational institution situated within a rapidly evolving urban landscape. Caleb University Imota, Lagos has undergone significant growth and development in recent years, expanding its campus infrastructure to accommodate the needs of its growing student population.

Furthermore, Caleb University Imota, Lagos presents an opportune case study for exploring the integration of adaptive reuse principles in interior design due to its diverse array of existing buildings and spaces. From academic facilities to residential halls, administrative buildings, and recreational areas, Caleb University's campus offers a rich tapestry of architectural assets ripe for adaptive reuse interventions. By selecting Caleb University as a case study, this research aims to provide valuable insights into the practical application of adaptive reuse principles within the context of a higher education institution. Through a detailed examination of specific interior design projects and interventions, the research seeks to identify opportunities, challenges, and best practices for integrating adaptive reuse in the university's-built environment. Ultimately, the findings from this case study can inform future decision-making processes and inspire innovative approaches to sustainable design and development within educational settings and beyond (Kohl et al., 2022).

Despite the growing recognition of the importance of adaptive reuse in various interior spaces within the Caleb Administrative building, there remains a lack of comprehensive understanding and guidance on how adaptive reuse principles can be effectively integrated into interior design practices within educational institutions like Caleb University.

The research aims to explore the integration of adaptive reuse in various interior spaces within the Caleb Administrative building. By assessing five themes such as Historical Context and Architectural Heritage, Design Strategies and Approaches, Functional Adaptations and Space Utilization, User Experience and Engagement and the last being, Financial Considerations and Cost Effectiveness, the study assess various phases to adaptive reuse in interior design

2.0 Literature Review

Adaptive reuse is a fundamental strategy in sustainable design and preservation, offering numerous benefits across environmental, cultural, and economic dimensions (Arfa et al., 2022). By repurposing existing buildings or spaces for new functions while retaining their architectural, historical, or cultural significance, adaptive reuse contributes to the conservation of resources and reduction of environmental impact associated with new construction. This reduction in the need for new materials and energy-intensive processes helps conserve resources, minimize waste generation, and lower carbon emissions, making adaptive reuse an environmentally responsible practice (Umoh et al., 2024). Adaptive reuse plays a vital role in preserving cultural heritage by maintaining connections to the past and celebrating architectural craftsmanship (Xie et al., 2024). By repurposing historic buildings or spaces, adaptive reuse projects honor the legacy and cultural significance of these structures, enriching the fabric of communities and fostering a sense of place and continuity. Through adaptive reuse, communities can retain their unique architectural character and identity, preserving the stories and traditions embedded within these historic spaces (Gravagnuolo et al., 2021). Economically, adaptive reuse offers numerous advantages by optimizing the utilization of existing assets, reducing costs, and revitalizing underutilized areas. By breathing new life into old buildings or spaces, adaptive reuse projects stimulate economic activity, attract investment, and create opportunities for local businesses and entrepreneurs (Vardopoulos et al., 2023). Additionally, adaptive reuse helps prevent the deterioration and blight of vacant or abandoned properties, contributing to the revitalization of neighborhoods and the enhancement of property values (Bell, 2023).

Overall, adaptive reuse serves as an integral component of sustainable design and preservation, aligning environmental, cultural, and economic goals to create resilient and vibrant built environments (Foster, 2020). By embracing the principles of adaptive reuse, communities can effectively balance the need for development with the imperative to conserve resources, celebrate heritage, and promote economic vitality, thereby fostering a more sustainable and harmonious relationship between built environments and the natural world (Hegazi et al., 2021)

2.1 Benefits, Challenges, and Best Practices Associated with Adaptive Reuse.

Adaptive reuse offers multifaceted benefits, including environmental sustainability through resource conservation and waste reduction, preservation of cultural heritage by maintaining architectural character, economic viability through cost reduction and urban revitalization, and community revitalization by attracting investment and fostering local business opportunities (Foster, 2020). These aspects collectively emphasize the importance of adaptive reuse in creating sustainable and vibrant built environments.

Adaptive reuse projects encounter several challenges that necessitate careful consideration and planning. Structural limitations in existing buildings can pose significant hurdles to adaptation for new uses, while navigating regulatory requirements, such as zoning and building codes, presents additional complexities (Muldoon-Smith & Moreton, 2022). Moreover, the financial constraints associated with retrofitting existing structures and securing funding for adaptive reuse projects can be formidable (Vardopoulos et al., 2023). Additionally, community resistance to changes in historic buildings or spaces may lead to opposition and controversy, highlighting the importance of engaging stakeholders and addressing concerns throughout the project lifecycle (Liu et al., 2022). Overall, these challenges underscore the need for comprehensive planning, innovative solutions, and collaborative engagement to successfully execute adaptive reuse projects. Successful implementation of adaptive reuse projects relies on a strategic approach encompassing comprehensive planning, creative design solutions, collaborative engagement, sustainable practices, and adaptive management (Li et al., 2021). Thorough feasibility studies and site assessments are essential to grasp the potential of existing structures for adaptive reuse, while innovative design approaches help overcome structural limitations and optimize space functionality. Engaging stakeholders, including community members and preservation organizations, fosters consensus-building and addresses concerns throughout the planning and design phases. Integrating sustainable design principles, such as energy efficiency and renewable materials, enhances environmental performance, while embracing flexibility in project management allows for agile responses to evolving needs and opportunities. Together, these strategies ensure the effective execution of adaptive reuse projects, contributing to sustainable development and revitalization of built environments.

By considering these benefits, challenges, and best practices, designers, developers, and policymakers can navigate the complexities of adaptive reuse projects and maximize their potential for creating sustainable, vibrant, and resilient built environments.

3.0 Methodology

This study adopts the qualitative research approach. This approach allows for in-depth analysis of various perspectives related to adaptive reuse in interior design. The adaptation of case study design into this study is because case studies offer rich insight into adaptive reuse within a real life context. The administrative building of Caleb University located in Lagos State, Nigeria was selected because of the opportunity available to investigate certain instances of adaptive reuse within its interior design projects.



Figure 1.0: Caleb University Administrative Building
Source: www.calebuniversity.edu.ng (Retrieved May 2024)

The administrative building is divided into two main blocks. The first block from the front of the building houses the office of the Vice Chancellor (VC), Office of the Deputy Vice Chancellors (DVC's), Office of the Registrar, the E-Library, Bursary and Office of the Bursar. It also holds spaces for the University Bookshop, Chief Security Officers (CSO) Office, ICT Center, Academic Affairs office, SIWES Office, Student Affairs Office, Chaplaincy Office, Eco Bank, mini-mart, Counselling Unit Office, Establishment Office, amongst other administrative offices and spaces.

The block at the rear, divided into two major wings, is home to offices, laboratories, lecture theatres and auditorium for all the Departments in the College of Pure and Applied science (COPAS) and some departments of the College of Arts, Social and Management Sciences (CASMAS)

The data for the study were collected using interviews and on-site observations. The perspectives of stakeholders (students and staff) who possess relevant information on the employment of the adaptive reuse processes done on the administrative building was gathered via the interview. On-site observations assisted in documenting the physical spaces being adapted and reused, as well as the interactions and behaviors of users within these spaces. The data gotten was identified, analyzed and interpreted using thematic analysis.

4.0 Result and Discussion of Findings

The findings from the interview sessions and on-site observation are hereby analyzed based on five (5) themes as expressed onwards.

4.1 Historical Context and Architectural Heritage

Caleb University stands as a testament to the rich historical context and architectural heritage of its surroundings. Established in 2007, the university's campus architecture

reflects a blend of traditional and modern elements, embodying the evolution of design principles over time.

The architectural heritage of the university's administrative building tells a story of adaptation and transformation. From the original structure built when the main campus started, to the resulting structure after subsequent renovations and adaptive reuse activities, each space in the building carries its own historical narrative. By preserving elements of the past while integrating contemporary design concepts, Caleb University honors its architectural heritage while meeting the evolving needs of its academic community.

4.2 Design Strategies and Approaches

In the setting of Caleb University's administrative building, the integration of adaptive reuse into interior design necessitates a thoughtful approach that balances preservation of historical elements with the creation of contemporary, functional spaces. Interviews and observation revealed the design strategies and approaches of adaptive reuse employed in the university's administrative building.

The design strategy of the building emphasizes the preservation of the architectural heritage embedded within the structure. This approach involved careful documentation and assessment of facades, structural elements, and interior details, to ensure their retention and incorporation into new design interventions so as to accommodate modern needs and maintain a sense of continuity with its past. While preserving historical elements is paramount, the design strategy also employs the seamless integration of modern amenities into the existing framework. Harmonizing old and new elements helps to achieve a balance that enhances functionality without compromising the integrity of the original architecture within the interior space.

Recognizing the evolving nature of educational spaces design strategies that prioritize flexibility and adaptability are often employed in various adaptive reuse in interior spaces. The majority interior layouts are designed and repurposed to accommodate a variety of functions and activities, allowing spaces to be easily reconfigured to meet changing needs over time.

4.3 Functional Adaptations and Space Utilization

Findings prove that the University's administrative building exemplifies the successful integration of adaptive reuse principles into interior design through its innovative approach to functional adaptations and space utilization. Specific strategies and solutions were adapted within the building to optimize the functionality of existing spaces.

One of the key strategies, as observed, employed at Caleb University is the repurposing of existing spaces to meet new functional requirements. Periodic assessment of the needs of the academic community is carried out and underutilized areas within the building are identified and transformed to serve alternative purposes. This typically involves converting traditional classrooms into collaborative learning spaces, repurposing former administrative offices into student support offices, or adapting storage areas into flexible multipurpose rooms. All of these while minimizing the need for new construction.

Furthermore, flexibility in design solutions was integrated to accommodate a variety of activities and events within its spaces. Versatile furnishings, modular partitions, and

movable fixtures is employed to facilitate quick and easy reconfiguration of rooms according to changing needs. This adaptability allowed spaces to seamlessly transition between different functions, ensuring optimal utilization throughout the academic year. Whether hosting lectures, seminars, workshops, or social gatherings, the interior design of the spaces within the administrative building remains adaptable to the dynamic requirements of its users

4.4 User Experience and Engagement

The integration of adaptive reuse principles into interior design in Caleb University's administrative building, places a strong emphasis on enhancing user experience and engagement. The decision-making stakeholders recognizes the diverse needs and preferences of the user community, ranging from students and faculty to administrative staff and visitors. As such, the interior design approach emphasizes the development of tailored solutions that cater to the specific requirements of different user groups.

A key aspect of user experience in the university's administrative building is the creation of inviting and comfortable spaces that encourage interaction and engagement. From welcoming entryways and communal gathering areas, the interior design prioritizes creating environments that are conducive to socialization, collaboration, and relaxation. Thoughtful selection of furniture, finishes, lighting, and color palettes contributes to the overall ambiance of each space, inviting users to linger and connect with their surroundings.

4.5 Financial Considerations and Cost Effectiveness

Caleb University's approach to integrating adaptive reuse principles into interior design in a way that is economically prudent, emphasizing financial considerations and cost-effectiveness in its decision-making processes. A central tenet of Caleb University's approach to adaptive reuse is the optimization of resources to achieve maximum value within budgetary constraints. Repurposing existing infrastructure and materials helps the university minimize the need for costly new construction while still meeting the evolving needs of its academic community.

5.0 Conclusion

In conclusion, the integration of adaptive reuse principles into the interior design of Caleb University's administrative building exemplifies a holistic approach to sustainability, addressing environmental, cultural, social, and economic objectives. Through the strategic repurposing and transformation of existing spaces, the university has successfully preserved its architectural heritage while meeting the evolving needs of its academic community.

Caleb University has effectively preserved its architectural heritage while adapting to modern requirements, thereby honoring its historical narrative. The university employs a thoughtful approach to design that balances the preservation of historical elements with the integration of modern amenities, fostering functionality without compromising architectural integrity. Through innovative strategies, Caleb University optimizes space functionality by repurposing existing areas and employing flexible design solutions,

ensuring efficient utilization of resources. The university prioritizes user experience by creating inviting and comfortable spaces conducive to interaction and collaboration, enhancing the overall ambiance for students, faculty, and staff. Caleb University emphasizes financial prudence by optimizing resources and minimizing the need for costly new construction, demonstrating a commitment to sustainability within budgetary constraints.

Overall, the case study of Caleb University's administrative building provides valuable insights into the practical application of adaptive reuse principles within educational institutions. By leveraging existing assets and embracing sustainable design practices, Caleb University sets an example for creating resilient and vibrant built environments that promote academic excellence, community engagement, and long-term sustainability. The findings from this study can inform future decision-making processes and inspire innovative approaches to sustainable design and development within educational settings and beyond.

5.1 Recommendations

Based on the findings of this study, it is recommended that educational institutions consider adopting a comprehensive adaptive reuse strategy that incorporates extensive stakeholder engagement and interdisciplinary collaboration. Institutions should conduct regular assessments of their existing buildings to identify underutilized spaces and potential areas for repurposing. Establishing clear guidelines and frameworks for adaptive reuse projects can ensure that historical and architectural heritage is preserved while integrating modern functionalities. Additionally, institutions should explore innovative financing models and partnerships to mitigate financial constraints and support sustainable practices. Leveraging funding opportunities from government grants, private investors, and community partnerships can help offset the costs associated with adaptive reuse projects. Furthermore, institutions should invest in flexible and adaptable interior design solutions that enhance user experience and meet the evolving needs of the academic community. This includes using versatile furnishings, modular partitions, and advanced technologies that allow spaces to be easily reconfigured for various purposes. Emphasizing sustainability in materials and construction methods, alongside creating inviting and comfortable environments, can promote social interaction and collaboration, thereby fostering a more sustainable and resilient campus environment. By implementing these recommendations, educational institutions can not only preserve their architectural heritage but also create dynamic, functional spaces that support academic excellence and community engagement.

References

Abdullah, N., & Lim, A. (2023). The Incorporating Sustainable and Green IT Practices In Modern IT Service Operations for an Environmentally Conscious Future. *Journal of Sustainable Technologies and Infrastructure Planning*, 7(3), 17-47.

- Arfa, F. H., Lubelli, B., Zijlstra, H., & Quist, W. (2022). Criteria of “effectiveness” and related aspects in adaptive reuse projects of heritage buildings. *Sustainability*, 14(3), 1251.
- Bell, R. (2023). *Adaptive Reuse and Its Impact on Workforce Revitalization*. Drexel University.
- Chan, J., Bachmann, C., & Haas, C. (2020). Potential economic and energy impacts of substituting adaptive reuse for new building construction: A case study of Ontario. *Journal of cleaner production*, 259, 120939.
- Della Spina, L. (2020). Adaptive sustainable reuse for cultural heritage: A multiple criteria decision aiding approach supporting urban development processes. *Sustainability*, 12(4), 1363.
- Foster, G. (2020). Circular economy strategies for adaptive reuse of cultural heritage buildings to reduce environmental impacts. *Resources, Conservation and Recycling*, 152, 104507.
- Foster, G. (2020). Circular economy strategies for adaptive reuse of cultural heritage buildings to reduce environmental impacts. *Resources, Conservation and Recycling*, 152, 104507.
- Gauger, I. (2020). *Adaptive reuse as a means for socially sustainable (Re) development: how reuse of existing buildings can help to establish community identity and foster local pride*. Rochester Institute of Technology.
- Gravagnuolo, A., Micheletti, S., & Bosone, M. (2021). A participatory approach for “circular” adaptive reuse of cultural heritage. Building a heritage community in Salerno, Italy. *Sustainability*, 13(9), 4812.
- Hegazi, Y. S., Shalaby, H. A., & Mohamed, M. A. (2021). Adaptive reuse decisions for historic buildings in relation to energy efficiency and thermal comfort—Cairo citadel, a case study from Egypt. *Sustainability*, 13(19), 10531.
- Kittisorayut, K. E. (2024). *Real Estate Redevelopment Framework: Quantitative Analysis of Adaptive Reuse Strategies* (Doctoral dissertation, Massachusetts Institute of Technology).
- Kohl, K., Hopkins, C., Barth, M., Michelsen, G., Dlouhá, J., Razak, D. A., & Toman, I. (2022). A whole-institution approach towards sustainability: a crucial aspect of higher education’s individual and collective engagement with the SDGs and beyond. *International Journal of Sustainability in Higher Education*, 23(2), 218-236.
- Li, Y., Zhao, L., Huang, J., & Law, A. (2021). Research frameworks, methodologies, and assessment methods concerning the adaptive reuse of architectural heritage: A review. *Built Heritage*, 5, 1-19.
- Liu, Y., Jin, X., & Dupre, K. (2022). Engaging stakeholders in contested urban heritage planning and management. *Cities*, 122, 103521.
- Muldoon-Smith, K., & Moreton, L. (2022). Planning adaptation: Accommodating complexity in the built environment. *Urban Planning*, 7(1), 44-55.
- Roy, N. L. (2023). Utilizing adaptive reuse to balance community desires and economic needs" a case study of Old Taylor High, Taylor, Texas (Doctoral dissertation).

- Takva, Y., Takva, Ç., & İlerisoy, Z. (2023). Sustainable Adaptive Reuse Strategy Evaluation for Cultural Heritage Buildings. *International Journal of Built Environment and Sustainability*, 10(2), 25-37.
- Umoh, A. A., Adefemi, A., Ibewe, K. I., Etukudoh, E. A., Ilojiana, V. I., & Nwokediegwu, Z. Q. S. (2024). Green architecture and energy efficiency: a review of innovative design and construction techniques. *Engineering Science & Technology Journal*, 5(1), 185-200.
- Vardopoulos, I., Giannopoulos, K., Papaefthymiou, E., Temponera, E., Chatzithanasis, G., Goussia-Rizou, M., & Sdrali, D. (2023). Urban buildings sustainable adaptive reuse into tourism accommodation establishments: a SOAR analysis. *Discover Sustainability*, 4(1), 50.
- Xie, K., Zhang, Y., & Han, W. (2024). Architectural Heritage Preservation for Rural Revitalization: Typical Case of Traditional Village Retrofitting in China. *Sustainability*, 16(2), 681.