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Design and Implementation of Household Equipment Museum in the Department of Family and Community Resource Management, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda

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ABSTRACT

The present study aimed to examine the role of Household Equipment Museums in enhancing vocational skills among students of Family and Community Resource Management. A descriptive research design was adopted to assess the existing museum space, identify gaps in functionality and aesthetics, and develop a structured design intervention. Data were collected through observation, checklist methods, and expert evaluation involving interior designers and architects. The findings revealed that the existing museum lacked proper spatial organization, display techniques, and interactive learning elements. Based on the findings, a functional and aesthetically improved museum design was proposed and implemented. The improved design facilitated experiential learning, enhanced student engagement, and promoted better understanding of traditional and modern household equipment. The study emphasizes the importance of integrating well-designed educational spaces to strengthen vocational skills and practical knowledge among students.

Keywords: Household Equipment Museum, Vocational Skills, Interior Design, Experiential Learning, Community Science

INTRODUCTION

The primary role of a museum is to serve as a source of education, whether through showcasing collections of cultural artifacts such as works of art or by narrating historical and cultural stories (Falk and Dierking, 2016; Hooper-Greenhill, 2007). Museums play a vital role in collecting and preserving objects and materials of religious, cultural, and historical significance, thereby contributing to the conservation of cultural heritage (Smith, 2006). They also function as important tourist attractions and sources of entertainment while acting as repositories of artifacts, sculptures, and historical knowledge. Furthermore, museums serve as valuable resources for research and learning, offering insights into past lifestyles and traditions (Falk and Dierking, 2016).

With increasing urbanization and industrialization, the availability of indigenous utensils and household equipment is declining rapidly. Traditionally, homemakers performed household tasks manually; however, the mechanization of domestic equipment has transformed everyday practices (Cowan, 1983). Changes in family structure, such as the shift toward nuclear families, time constraints, and evolving gender roles, have further contributed to the decline of traditional utensils and equipment (Shove, 2003). For instance, traditional tools like the mortar and pestle have been replaced by food processors, chulhas by modern hobs, and iron kadhais by nonstick cookware (Krasanov, 2024).

Modern household equipment has significantly reduced the physical effort required for domestic work. Appliances such as refrigerators, washing machines,

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televisions, irons, blenders, mixers, toasters, pressure cookers, and microwave ovens have become integral to urban Indian households, particularly among working homemakers (Cowan, 1983; Wilk, 2006). As a result, the increasing reliance on modern appliances has led to a decline in the use and purchase of traditional, non-mechanized household equipment. This transition highlights the urgent need to preserve such indigenous artifacts, which represent valuable cultural and technological heritage (Smith, 2006).

Objectives of the Study:

1. To assess the existing space assigned for Household Equipment Museum at Vocational Skill Development Centre of the Department of Family and Community Resource Management, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat.
2. To develop a detailed design, cost estimation and implement the design of the Household Equipment Museum.
3. To assess the opinion of interior designers and Architects regarding the appropriateness of selected aesthetic and functional attributes of Household Equipment Museum in the Department of Family and Community Resource Management.

Delimitations of the study:

1. The study was limited to the Architects and Interior Designers of Gujarat State.
2. The study was limited to the Architects and Interior Designers with an experience of 2 years.

Hypothesis of the Study:

1. There exists variation in the opinion of the respondents regarding designed Household Equipment Museum with their selected Personal Variables (Age, gender, occupation and educational qualification) and work variables (years of experience, number of projects undertaken by the professionals).

Review of Literature:

The review of literature revealed that studies on areas such as Household equipment its challenges (Lovinghood and Lytton, 1984); Development of the continuing education for museum staff in Scandinavia (Sonne *et al.,* 2023); Museum development in Bosnia and Herzegovina as an indicator of the positive socio-cultural impact of tourism (Zunic *et al.,* 2023); evolution and development of museum buildings (Kurbatova *et al.,* 2023); cultural heritage museums in community development (Abiodun, 2024); Development of Museums as Tourism Attraction based on Virtual Digital in Ubud Bali (Angana,2024); Museum based sleep education: development and evaluation of Popup exhibits for children and families (Le Blanc *et al.*, 2024); activities of modern school museums along the path of dep digitalization and methodical development of personalized educational environment, Prerequisites and Trends in the Development of Virtual Museums in the XXIST Century (Trofimova and Kazakova, 2024); The Role of Cultural Heritage Museums in Community Development (Abiodun, 2024). The review revealed that studies were done outside India. A dearth of research was found on the design and development of museum on Household Equipment; thus, the present study was formulated. The present study was aid in design and development of museum on Household Equipment for the Department of Family and Community Sciences, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda. The museum was an asset to the curation of various household equipment of numerous base materials like iron, brass, copper, alluminium, stainless steel and nonstick. The museum has also housed a variety of traditional and indigenous household equipment. The museum has act as a learning tool to the students by showcasing a varied variety of household equipment with their history, use, care and maintenance.

METHODOLOGY

The present study was an action research project to design and develop the provided area according to the needs and preferences of the authorities. The locale of the study was Household Equipment Museum at ''आत्माश्रित'' Vocational Skill Development Centre of the Department of Family and Community Resource Management, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat. The unit of inquiry were 120 Architects and Interior Designers of Gujarat State established in their respective fields with minimum 2 years of experience, In light of the objectives framed for the study, an observation

sheet and questionnaire was prepared to collect the needed information regarding the appropriateness of selected aesthetic and functional attributes of Household Equipment Museum in the Department of Family and Community Resource Management. The questionnaire was divided in two sections where section I consisted of Background information of the professionals. This section comprised of information regarding personal, and work variables of the respondents covering details of the Age (in years), gender, educational qualification, and work variables covering number years of experience, and number of projects finished. The section II contained information on Opinion of the Professionals regarding household equipment museum on various aspects namely design, aesthetics, functionality, space utilization, quality, durability, proportion, the convenience of use, and aesthetic value of the designed functional and aesthetical elements. The opinion of the respondents was recorded using a rating scale that includes the categories "Agree," "Undecided," and "Disagree," which was completed by the respondents themselves.

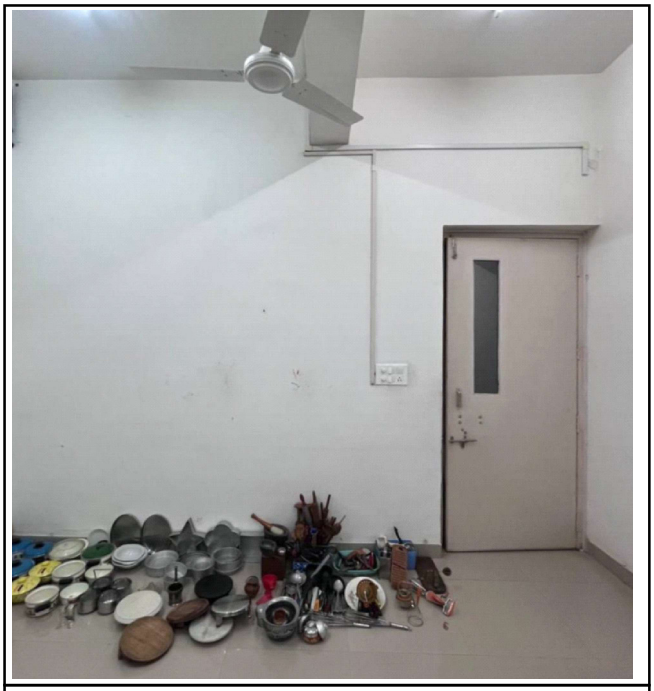

Plate 1 : Area before Development of Household Equipment Museum at Vocational Skill Development Centre

RESULTS AND DISCUSSION

The findings of the study were divided into two sections. The first section included the design and development of the household equipment museum and the second section covered the opinion of the interior designers and architects for the developed household equipment museum.

Section 1: Design and Development of Household Equipment Museum

Phase I: Assessment of Requirements

In the initial phase, the requirements for the Household Equipment Museum were assessed in the Department of Family and Community Resource Management. The researcher obtained the measurements of the area allocated for the museum at Vocational Skill Development Centre, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat.

It was observed that the allotted space was not fully developed and was underutilized. Therefore, the researcher proposed to utilize this space effectively by implementing the museum design concept. Necessary information regarding the space and its usage was collected from the In-charge Head of the Department.

Plate 2: Foyer area of before Development Household Equipment Museum at Vocational Skill Development Centre

Phase II: Identification of Clients' Needs and Preferences:

In this phase, the needs and preferences of the clients, *i.e.,* the departmental authorities, were identified. A researcher-developed observation sheet was used to assess various aspects required for the design of the museum.

This included evaluating spatial requirements, display needs, storage facilities, and functional aspects essential for developing an effective and user-friendly museum environment.

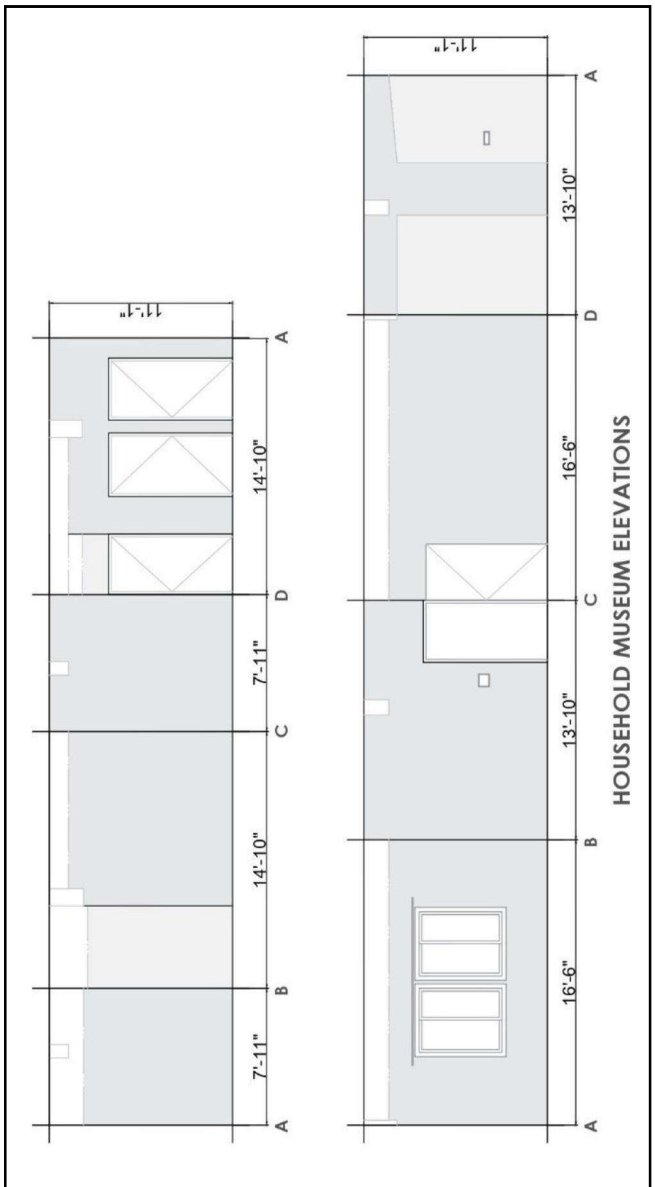

Plate 3 :Elevation of the space before Development of Household Equipment Museum Vocational Skill Development Centre

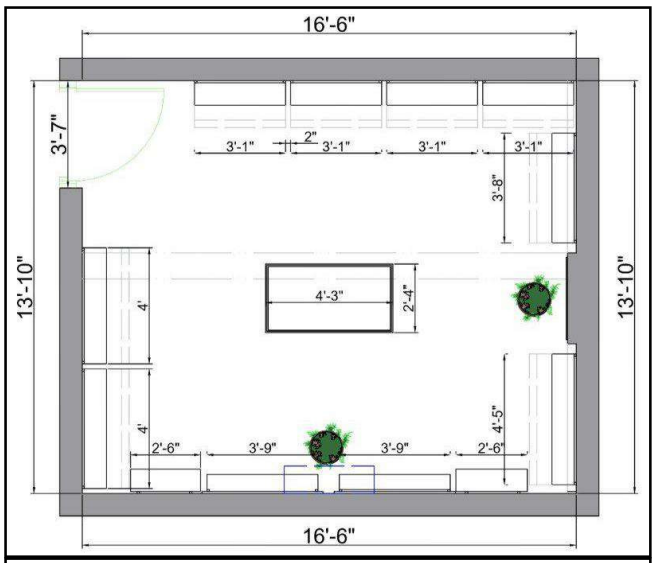

Plate 4 : Layout of Museum's Shelves at Vocational Skill Development Centre

Phase III: Development 3D walkthrough of designed Household Equipment Museum

The researcher developed a 3D walkthrough of the Household Equipment Museum using SketchUp and Enscape software, showcasing the complete design of the museum located within the Department of Family and Community Resource Management at the Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda. This interactive walkthrough enhances visitor engagement by enabling 24/7 access and global accessibility. It also offered detailed insights into the museum's exhibits and layout. Additionally, the walkthrough serves as a powerful tool for attracting visitors through virtual previews and helps preserve the museum's design digitally.

Phase IV: Cost estimation of the designed Household Equipment Museum

The fourth phase of the development of Household Equipment Museum was Cost estimation where the researcher went to the market and found out the cost of each material which he was going to use in developing Household Equipment Museum which included colour, electrical work, concealing the existing windows, installation of Air Conditioner, Focus Lighting, Wall panels, door repainting and door lock. The total cost of implementing the design was Rs. 1,75,888.

Phase V: Development of the designed Household

Equipment Museum

The fifth and last phase of designed Household Equipment Museum was implementation of the proposed design. Following approval, the researcher implemented the designs, beginning with repainting the room and foyer area. To enhance aesthetics, light fixtures, fans, and windows were concealed. It also involved electrical work, including the installation of focus lights and an AC plug. As part of the development of the Household Equipment Museum, the door was repainted, and the door lock was replaced to give ancient look. For display enhancements, wall brackets and aluminium channels were painted black and carefully installed in designated areas. The brackets were arranged in varying sizes to accommodate and showcase a diverse range of equipment. A marble slab was placed on a wooden table to further elevate the museum's visual appeal. After setting up the museum, the researcher curated the utensils and equipment, ensuring an organized display. Labels were created, with the guidance of the advisor, to facilitate visitor navigation.

Plate 5 : 3D drawing of designed Household Equipment Museum at Vocational Skill Development Centre

Phase VI: Display of the designed and developed Household Equipment Museum for public

The museum was officially inaugurated on January 30, 2025, at the "आत्माश्रित" Vocational Skill Development

Plate 6 : Development of Foyer Area in the Household Equipment Museum

Plate 7 : Placement of Utensils in the Household Equipment Museum

Centre, of the Department of Family and Community Resource Management, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat. The museum remained open for visitors for two days *i.e.* January 30th and 31st, 2025, attracting a diverse audience, including toddlers, elderly individuals, tourists, and distinguished personalities.

Section II- Opinion of the Interior Designers and Architects for the developed Household Equipment Museum of The Department of Family and Community Resource Management, The Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat

Background Information of Respondents:

The respondents were aged between 24–38 years, with the majority (49.17%) in the 24–28 age group, followed by 35.83% in the 29–33 age group (Mean = 31.03 years). Males constituted 58.33% of the sample, while females accounted for 41.67%.

In terms of educational qualification, 62.50% were graduates, 19.17% held diplomas, and 18.33% had postgraduate degrees. Regarding occupation, 75% were Interior Designers and 25% were Architects.

Work-related data indicated that 45.83% had 2–6 years of experience, 27.50% had 7–10 years, and 26.67% had 11–15 years of experience. A majority (66.67%) had completed 4–10 projects, followed by 19.17% who completed 11–18 projects.

Opinion the respondents on the developed Household Equipment Museum:

Interior Designers and Architects generally expressed positive opinions on the museum design. A majority agreed that wall-mounted displays (90%) enhance space utilization and that wall colors contribute to relaxation (83.33%) and spatial perception (76.67%). Regarding lighting, most respondents agreed it enhances spaciousness (93.33%), highlights exhibits (76.67%), improves visual clarity (75%), and creates a positive ambiance. For flooring, 78.33% found it easy to maintain, while 73.33% agreed it complements aesthetics and supports easy movement of equipment. Ceiling design was positively perceived, with 85% noting a sense of grandeur and 81.67% agreeing it complemented the overall aesthetics. Additionally, 70% felt it effectively concealed infrastructure, while around 68% appreciated its polished look and suitability for large exhibits. For storage shelves, 81.67% agreed they were spacious and visually appealing, while 73.33% found them durable and secure for exhibit protection. Regarding display, 81.67% of respondents found it cohesive, and 78.33% agreed that adequate clearance space was provided. In terms of space planning and layout, 81.67% agreed that space was efficiently utilized, and 78.33% appreciated the logical flow and ease of navigation. For signage and wayfinding, 83.33% found them clear and helpful, 73.33% found them informative, while around 68%–61.67% felt they enhanced aesthetics and visitor experience. Overall, 76.67% of respondents agreed that the museum design effectively communicated the cultural and historical significance of household equipment, while 73.33% appreciated the scope for physical interactivity, and 70% expressed satisfaction with the overall design.

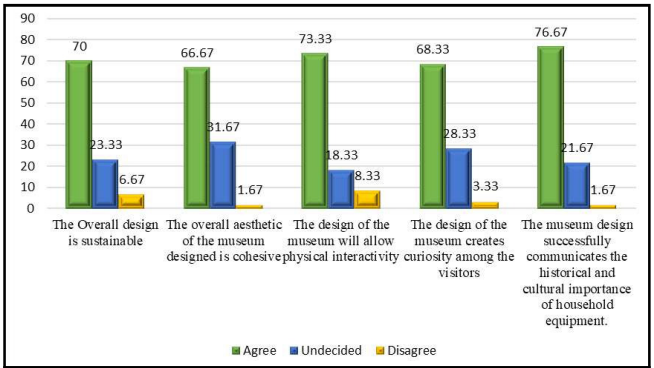

Fig. 1 : Percentage Distribution of respondents according to their opinion regarding Overall Design of the Museum aspect of designed Household Equipment Museum

Section III- Testing of Hypothesis

Analysis of Variance (ANOVA) was computed to test the variation of the opinion of the respondents regarding Household Equipment Museum with their age (in years), educational status, Number of projects undertaken and years of experience. The F value was not found significant in the opinion of the respondents regarding the designed design of household equipment museum. Thus, the null hypothesis was accepted. The computation of t-value exhibited a significant difference in the opinion of the respondents regarding designed Household Equipment Museum with their gender at 0.01 level of significance. The computation of t-value also exhibited a significant difference in the opinion of the respondents regarding designed Household Equipment Museum with their Occupation at 0.05 level of

significance. Thus, the null hypothesis was rejected.

Conclusion:

The present study highlights the significant role of Household Equipment Museums as effective educational tools for enhancing vocational skills among students of Family and Community Resource Management. The findings clearly indicate that the existing museum space was underutilized, lacked proper spatial organization, and did not adequately support interactive and experiential learning. Through a systematic design intervention, the study successfully identified functional and aesthetic gaps and proposed a well-structured, visually appealing, and user-friendly museum layout. The integration of improved display techniques, organized space planning, and interactive elements contributed to creating an engaging learning environment. The use of modern design tools such as AutoCAD, Sketch Up, and Escape further ensured precision and realistic visualization of the proposed design.

The expert evaluation by architects and interior designers validated the appropriateness, functionality, and aesthetic quality of the redesigned museum. Their feedback emphasized that a well-designed museum space can significantly enhance students' understanding of household equipment, promote hands-on learning, and strengthen practical competencies required for vocational education. Overall, the study concludes that thoughtfully designed Household Equipment Museums serve as powerful platforms for experiential learning, bridging the gap between theoretical knowledge and practical application. Such educational spaces not only improve student engagement but also contribute to skill development, employability, and preservation of traditional and modern household practices. The study further suggests that similar design interventions can be implemented in other educational institutions to strengthen vocational training and create more effective learning environments.

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