

Kem Weber's Influence in Immersive Office Design

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Abstract. How much does your environment shape you, and how much of your environment is designed? In this paper, we will use the Disney animation office designed by Kem Weber as a primary topic to help us better solve those questions. This particular Disney animation office is very special when it comes to this as it is an attempt to create an immersive environment aimed to better the work of animators who work in them. Kem Weber has done a very good job in actually achieving this, with how it is user-centered and carefully detail oriented, the whole office as a system was designed. The paper will use Kem Weber's design of the Disney animation office as a case study to examine his design philosophy, principles, and their inspiring role in today's office and furniture design. This case integrated user-centered design and meticulous attention to detail to create an environment that not only supported but enhanced the creative processes of the animators who worked there.

Keywords: Kem Weber, Streamline Moderne, Immersive office design.

1. Introduction

Kem Weber was born Karl Emanuel Martin Weber in Berlin in 1889. The outbreak of World War I led to him being stranded in the U.S., a twist of fate that marked the beginning of his significant contributions to American design[1]. Weber's early years in America were marked by various jobs, from designing ads to operating a chicken farm. By the 1920s, Weber had become a prominent figure in the American design scene, noted for his clean, functional aesthetics that aligned with the emerging modernist movements of the time. Weber's design philosophy was deeply influenced by the principles of Streamline Moderne.

Streamline Moderne emerged during the 1930s, a decade marked by the Great Depression, which had profound socio-economic impacts worldwide. This style, a branch of Art Deco known for its pared-down forms and emphasis on aerodynamic design, was significantly influenced by the socio-economic conditions of its time. It reflected a societal shift towards more cost-effective and mass-producible aesthetics in response to economic scarcity while also embodying the era's fascination with speed, technology, and progress[2]. The impact of Streamline Moderne extended across various design fields, from architecture and furniture to transportation and everyday household objects[2]. The financial hardships of the Great Depression forced a shift in architectural and design practices. Expensive materials and elaborate decorations became less feasible, prompting designers to adopt new materials and techniques that were cost-effective yet aesthetically pleasing. Streamline Moderne, with its simple, clean lines and minimal ornamentation, used cheaper materials like chrome, stainless steel, and smoothed plaster to achieve a modern look at a lower cost. The style strips away its intricate patterns and decorations in favor of smooth lines and curves. Such as: horizontal lines, rounded forms, porthole windows and railings[3]. The Airline chair designed by Weber in 1934 embodies the aerodynamic principles of Streamline Moderne. In 1939, Weber designed the Disney Studios in Burbank. This project was a showcase of modernist design, integrating Weber's innovative furniture that was both functional and aesthetically pleasing, specifically tailored to the needs of the artists working there.

The paper will use Kem Weber's design of the Disney animation office as a case study. This case integrated user-centered design and meticulous attention to detail to create an environment that not only supported but enhanced the creative processes of the animators who worked there. Through this case study, the paper aims to illustrate how thoughtfully designed spaces can significantly influence

the activities and outputs of their occupants. The paper aims to delve into the complex interplay between individuals and their environments, with a particular focus on the deliberate design of spaces and its impact on human behavior and well-being. At the heart of this exploration lies a fundamental question: How much does your environment shape you? This inquiry not only probes the influence of physical spaces on behaviors and emotions but also examines how these spaces can be engineered to boost productivity and facilitate creativity. Another critical question that the paper seeks to answer is: How much of your environment is designed? This aspect of the investigation will assess the extent to which environments are intentionally crafted to achieve specific outcomes, such as enhanced well-being or increased efficiency. It will explore the principles that guide the design of these spaces, considering both historical and contemporary contexts to provide a broad perspective on environmental design.

2. Weber Designed the Disney Studios in Burbank

Disney's vision was to create a studio that was not only functional but also inspirational for artists, a place that could foster creativity and streamline the animation process[4]. In the late 1930s, Walt Disney commissioned Kem Weber to design a new studio in Burbank, California[4]. Weber designed the whole environment for Walt Disney, including the animation desk, layout desk, checkers desk, compact animator work table, assistant animator desk, paint table, story artist's desk, two size director's desk, pan table, moveable desk, many side tables, cabinets, and also storage unit, adjustable shelf unit, single wardrobe, double wardrobe, playback unit, animator's chair, step stool, clock. He designed all the furniture could be appropriate for the room, and he developed his concepts by creating illustrations of the whole scene, such as Walt Disney's office, private suite, animation production building research library, story room, music room, story artist room, Ink and paint building, cutting/editorial room, commissary entrance and lobby, lunch/coffee shop[4].

2.1 Design Analysis

Weber's design philosophy for the Disney studios centered around creating a highly functional space that would cater to the unique needs of animation production. He aimed to design a workspace that was comfortable and conducive to creative collaboration. He considered everything from the individual workstations to the overall layout of the building, ensuring that every element supported the artists' workflow.

The office was planned to be an immersive environment tailored specifically for animation. It included custom-designed furniture and workstations that integrated the latest advancements in ergonomic design and material use, which are characteristics of the Streamline Moderne movement. The layout of the animation studio was designed to maximize natural light and reduce distractions, creating an airy and open environment that was still intimate enough to give animators their defined spaces. Strategic placement of windows and the orientation of workstations facilitated this blend of openness and privacy. Weber designed specialized furniture for the Disney studios (shown in Figure 1). The office includes a versatile animator desk with a moveable paint table with shelving in the left corner, a swivel working chair, a trash can, a high step stool designed for pinning storyboards, above the stool a wood-framed storyboard displayed on the wall; in the room right corner, there is a lounge chair that is weber designed Airline chair, a metal ashtray, behind the chair an adjustable floor lamp, a high single wardrobe closet next to the lamp, a metal look wall clock hanging on the sidewall.[5]



Figure 1. An artist's studio designed by Weber

The versatile animator desk is large in size, mainly made of wood, and it is a boxed shape with multiple vertical shelves connected with both sides of the main drawing table. The desk's leg support structures are two short thick wood blocks with rounded edges. On the tabletop and bottom, there are four cabinets with many shelves. It looks like a designed modular desk, on the upper and bottom of the table, all the shelves around the main drawing table. The suitable side shelf base combined a piece of stainless steel that was designed to avoid cigarette burning. The top shelves in front of the drawing table leave enough space for the artist to adjust the table angle. Also, under the drawing table, there is a wide space for them to move their legs. On top of both sides of shelves, a small single cabinet door board is vertically connected on the outer frame. These two moveable boards have pinned paper and drawing on them. Both sides of the drawers are on the same horizontal line with the center drawing table. The handles of drawers are long metal hooks that roll into the interior blue painted groove. The center drawing table is large enough for artists to put big paper and other working tools, and it can be adjusted to different angles; the adjustment mechanism and charger are under the drawing table. In the middle of the table, it is a round gray translucent disc with some fixed papers. The corner of the center drawing table has been designed for organized pens and also combined with a pencil sharpener. On the top shelf, the mechanical arm lamp is lit on the drawing table, and the lamp is long enough for lighting the whole drawing paper. There is a space above the table for placing other personal stuff like an electric fan, a toy. The side paint table is in the same design language with three horizontal shelves and a drawer with a rounded mental handle inside. This table's legs were made of the same metal and bent into a round U shape. The feet of the table are wheels which make it easy to move. The working chair consisted of four rounded tubular chrome feet and two rounded back frames attached with the leather navy blue cushion for the back and seat. The color of chair upholstery is similar to the painted color on the inside drawer groove. But the entire office was mainly designed in natural brown color and wood material[5]. These desks were highly modular, featuring adjustable components that could be tailored to the needs of individual animators. Each piece was designed to focus on functionality, incorporating features like adjustable drawing surfaces, ample storage, and integrated lighting solutions.

The step stool is higher than the working chair. It was designed for artists pinning storyboards or sometimes they need to sit higher for work. It consisted of double rounded square wood panels and a one-piece rounded bent metal frame. Top wood panel is smaller than the bottom, and the middle of the top wood has a rectangular cut which was designed for artists moving the stool by hand easier. Also Bottom panel has a function of storage.

The high single wardrobe closet was the same style with desk and table design. It was a high wooden box with the same rounded metal handle vertically embedded in the closet door. Inside the closet were a mirror, a metal handle, a shoe shelf attached with the door. And it has one shelf for hats, and a single metal bar for hanging cloth.

The airline chair is different from other office furniture. This chair has two main sections that are rounded U-shaped wood on the side. The frame structure has three horizontal lines and rounded corners. The seat is attached from the upper stretcher to a lower position which creates a perfect angle with back. people can easily recline. This chair was in the other corner of this office, and also it was close to the storyboard. The purpose of the chair is to let artists lie back and relax, or they can sit on it to think about the storyboard. This chair looks more soft and comfortable than the blue working chair. There is a metal ashtrays next to the chair because at that time people used tobacco a lot when they were working.

2.2 Innovation of Weber's design

The design of the Disney animation office by Kem Weber significantly impacted the animators' workflow. The space was crafted to enhance efficiency and ease of use, reducing the physical strain on animators and allowing them to focus more on their creative work. The thoughtful layout facilitated easier communication and collaboration among team members, which was crucial in the animation process. The director's desk was designed to have enough space to help artists spread out multi-page works. There are open spaces on both sides of the table. The table can not only be used alone but also allow two people to sit on both sides of the table so that they can share stories or ideas by passing quick sketches to each other on this table. Similarly, the animator and assistant also need to cooperate frequently. After the animator completes the main drawing, the assistants must complete the middle part separately. The top part of the assistant desk will be shorter than the animator's, letting the assistants send images smoothly.

Weber's design for Disney's new studio also meets Walt's expectations for the special animation campus, giving artists creative inspiration and an immersive working environment. Every design and detail is fully considered for artists. Weber believes that what animators need is natural light or north light. In the process of designing buildings, he already put the position of animators close to the natural light. These designs make this work more popular and attract more artists to work at Disney. Weber also designed many functions and details to help and encourage artists' creation. Animators and other tables had adjustable stainless steel rods at the bottom for them to move their feet, and the main furniture was made of the same material and style. Then, Weber added special details for artists from different types of work, and designed corresponding spaces for the tools they used to manage. These details showed that Weber wanted to create a more efficient office environment. For example, the layout table was designed higher than the animation table to facilitate artists to think about the large layout from a higher and farther position. At the same time, a cork board was designed to stand upright on the table to provide a space for them pinning reference images. There were so many similar detailed designs, for spreading out drawings, using lights to improve work efficiency, designing the structure and proportion and the size of each furniture suitable for different work, the design to prevent accidental damage to the art papers, and convenient for artists to clean.

All furniture designed by Weber for the special animation work not only needs to have certain standards but also needs to combine individual special disciplines. This means that artists had a choice to customize their own working environment. Weber used modular design to meet the different requirements of artists. A lot of the furniture was a variation of a basic animation table unit. Artists could easily assemble module units like animation tables, bases in different heights, drawers, cabinets, and shelves based on their own work system[4]. Customization design gave them a sense of unique artists and the setting was also the most conducive way to create work. Weber's modular, adjustable and movable design also brings convenience to the mobile office environment.

Therefore, the Disney office designed by Webb not only met the needs and behaviors of users but also indirectly shaped Disney's working style and artist style.

3. Kem Weber's design philosophy, principles, and their inspiring role in today's office and furniture design

Kem Weber not only pays attention to the aesthetics of design, but also focuses on user experience and needs, as well as the functionality and practicability of the design. He continuously explores new materials, technologies, product structures, and methods for architectural furniture. Through modular and ergonomic design methods, as well as the integration of natural elements, office spaces can be transformed into environments that promote productivity and well-being.

In the realm of contemporary office furniture design, two pressing challenges stand out: the need for flexibility and modularity and the imperative to integrate technology seamlessly. Modern office spaces can be transformed into environments that promote productivity and well-being by adopting Weber's design philosophy and methodology. The enduring relevance of Weber's ideas in creating spaces that meet the complex needs of users can be seen.

Kem Weber focuses on user needs and experience. Even if designers totally understand the working process of users, they still need to further discuss users' disciplines, habits or preferences. When users can really participate in each step of design, the design will be thoughtful. The entire project is more created by the two designers, Walt and Weber; they influenced each other, improved, and combined their ideas. Similarly, as designers, Walt and staff have experienced problems in the old studio, and they also had their own views on the design of the new studio. Walt had his own plans for every aspect and detail of the new studio. After they discussed it, they would go to the manufacturer factory to inspect and review any new furniture with Weber before final production. Whenever a good and perfect design is presented, it must go through iteration and practice. This concept can be directly applied to modern offices by creating adaptable furniture that allows for easy transitions between collaborative and individual work settings. For instance, desks with movable partitions or reconfigurable workstations can provide employees with the ability to switch from a group collaboration setup to a private, focused workspace quickly and efficiently. Moreover, Weber's thoughtful spatial arrangements at Disney—designed to cater to different stages of the animation process—highlight his skill in creating functional layouts that facilitate both collaboration and individual work. This approach can be translated into contemporary office design by establishing distinct zones within the office environment. Specific areas can be designated for teamwork and meetings with appropriate technological integrations for collaborative work, while separate zones can be optimized for concentration and minimal distractions, equipped with soundproofing and personal space.

Drawing on Weber's philosophy, modern office furniture can be designed to be highly modular, allowing for easy adjustments and reconfigurations. This could include desks that can be joined to create larger collaborative stations or broken down into smaller, individual workspaces. Such flexibility supports a hybrid model where employees might work solo on some days and collaborate extensively on others.

Weber's designs were not only functional but also aesthetically pleasing. Today's office furniture can similarly incorporate dual-function designs that enhance utility without sacrificing style. For instance, aesthetically designed partitions that also serve as acoustic panels can offer visual privacy and noise reduction, catering to the need for quiet focus areas adjacent to collaborative spaces.

Weber's forward-thinking design approach also included a keen focus on integrating technology, as seen in his custom furniture for the Disney animation studios. These pieces were tailored to enhance the animators' workflow through thoughtful features like built-in lighting and adjustable drawing surfaces. This holistic integration of technology into functional design is a principle that can be significantly beneficial in modern office furniture design. Modern office desks and workstations, inspired by Weber's integration of form and function, could include built-in solutions for power supply, such as USB charging ports and wireless charging pads. Additionally, incorporating advanced cable management systems would ensure that workspaces remain uncluttered and conducive to productivity.

Weber has always wanted to explore new materials, technologies, product structures and methods of building furniture. Streamlined design requires a lot of bending technology to create smooth contours. However, traditional technology can not meet the requirements of those curved forms or smooth lines, or traditional production machines can not be suitable for new materials. He did many testing and experiments for his design. For a time he worked on an idea for “Bentlock” furniture, he bent hardwood and used an oval “lock” to replace the traditional joints like dowels or mortise-and-tenon joints. But because of technological issues, the Bentlock failed ; later he began to look inside at using solid or glued wooden members cut in sweeping, curving shapes. Then he designed a chair that can be put into a small box, and consumers can bring it home and assemble it by themselves easily. The chair is lightweight, easy to assemble, and only 24.75 dollars[6]. During that era, this design was too new to let the public accept or understand. But it still indeed is a revolutionary and successful design. I would like to point out this work, and some other designs showed us Weber’s speculative design philosophy. Weber’s penchant for using innovative materials can inspire the use of smart materials in office furniture. These materials could adjust their properties based on usage patterns or environmental factors, such as desks that change their height automatically based on the user’s posture or seating time, promoting ergonomic health.

Weber’s design philosophy also significantly underscores the importance of ergonomic comfort and the integration of natural elements—key aspects that enhance workplace health and wellbeing. His animator’s desks were tailored to reduce physical strain through features like adjustable drawing surfaces and supportive seating, reflecting a deep understanding of workplace ergonomics. This focus on ergonomics can be applied today by incorporating adjustable standing desks, ergonomic chairs, and workstations designed to promote good posture and reduce the risk of strain or injury.

Additionally, Weber’s streamlined designs with a focus on aesthetic harmony are reminiscent of biophilic design principles, which advocate for the incorporation of natural elements in the built environment to reduce stress and enhance cognitive function. Modern office designs can draw from Weber’s emphasis on aesthetics by maximizing natural light through large windows and using materials that evoke nature, such as wood or stone. Indoor plants and green spaces can be integrated into office layouts, not only to beautify the space but also to improve air quality and create a more tranquil and productive environment.

Kem Weber, a pioneer of the Streamline Moderne style in the early 20th century. His visionary work, characterized by modular, functional, and technologically thoughtful design, provides a robust framework for addressing the modern demands of office furniture.

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