



## Exploring The Impact of Natural Elements on User Experience in Kitchen Design and Functionality

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### ABSTRACT

This study investigates the influence of natural elements on users' experiences in kitchen spaces, focusing on aspects such as natural light, color, water features, and organic materials. Employing a quantitative survey methodology, data were collected from 80 kitchen users in the Northeast of England, specifically in Middlesbrough and Newcastle. The findings reveal a strong inclination towards the incorporation of natural elements, with 75% of respondents considering their inclusion beneficial for enhancing kitchen environments. Furthermore, a striking 90% of participants believe that such elements can significantly improve overall well-being and mood. The survey results indicate that natural light is particularly valued, with 52.5% of respondents strongly agreeing that it enhances the ambiance of kitchen spaces. Additionally, 100% of participants who had experience in kitchens featuring natural elements reported positive impacts, with 37.5% noting that these features create a friendly atmosphere. However, 60% of respondents had not previously encountered kitchens designed with natural elements, highlighting an opportunity for innovation in kitchen design. These insights underscore the importance of biophilic design principles in fostering not only aesthetic appeal but also emotional well-being among users. As the demand for healthier living environments increases, this research advocates for the integration of natural elements in kitchen spaces to enhance user experiences. Ultimately, the findings contribute to a growing body of literature on the significance of nature in interior design, offering valuable guidance for architects, interior designers, and homeowners seeking to create functional and inviting kitchen environments.

**Keywords:** Biophilic design; kitchen design; natural elements; natural light; user experience; well-being.

### INTRODUCTION

Natural elements in interior spaces, defined as any design elements grounded in nature, encompass far more than just visual components like images of nature (Benaroya, 2010). These elements engage multiple senses—allowing individuals to see, touch, feel, and even smell aspects of the natural environment within constructed spaces. They also function within the framework of biophilic design, which aims to enhance human connectedness with nature. This connection has been shown to yield positive health outcomes, including reduced stress levels and improved mood (McMahan & Estes, 2015). Within the kitchen environment, natural design elements can

create inviting and rejuvenating spaces that support both mental well-being and functional ease.

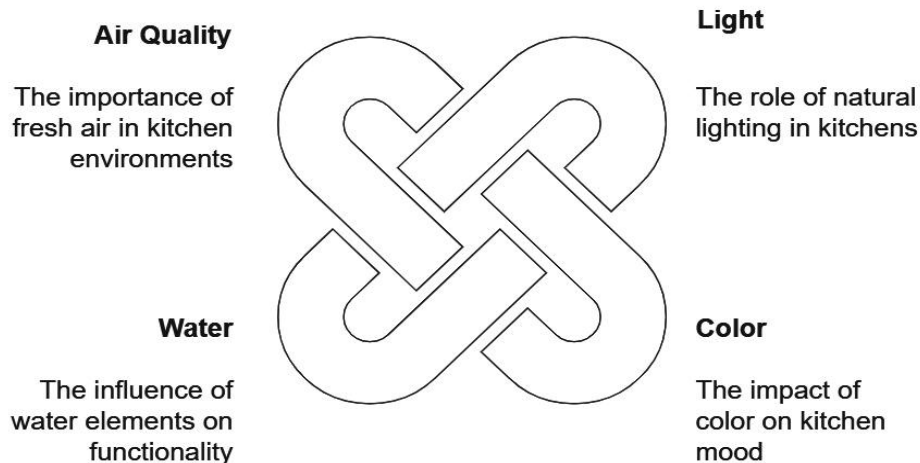
Biophilic elements in kitchen design may include materials like wood and stone, natural light sources, plants, and greenery (Okhovatian, 2020). The sensory impact of these materials has implications beyond aesthetics; natural textures and organic materials can evoke feelings of warmth, stability, and calm, enhancing a sense of relaxation and satisfaction in the space. Additionally, natural light plays a vital role, with studies showing its capacity to boost mood, improve spatial perception, and create a more open and welcoming atmosphere (Smith, 2018). Ample natural lighting in

kitchen spaces contributes to a sense of spaciousness and comfort, making daily tasks more enjoyable and reducing the need for artificial lighting.

Kitchen design also significantly affects user experience by influencing functional ease, mood, and comfort. A well-designed kitchen that integrates natural elements with thoughtful layouts, comfortable seating, and ample storage contributes to a positive emotional response (Johnson, 2018).

Conversely, kitchens lacking these elements may evoke frustration due to poor organization and insufficient workspace. Additionally, aspects like wall color, appliance selection, and overall layout directly impact the user's mood, satisfaction, and interaction with the space (Smith, 2006). Integrating these elements thoughtfully can transform the kitchen into a harmonious space that not only supports cooking and dining activities but also fosters a sense of well-being.

### Enhancing Kitchen Spaces with Nature

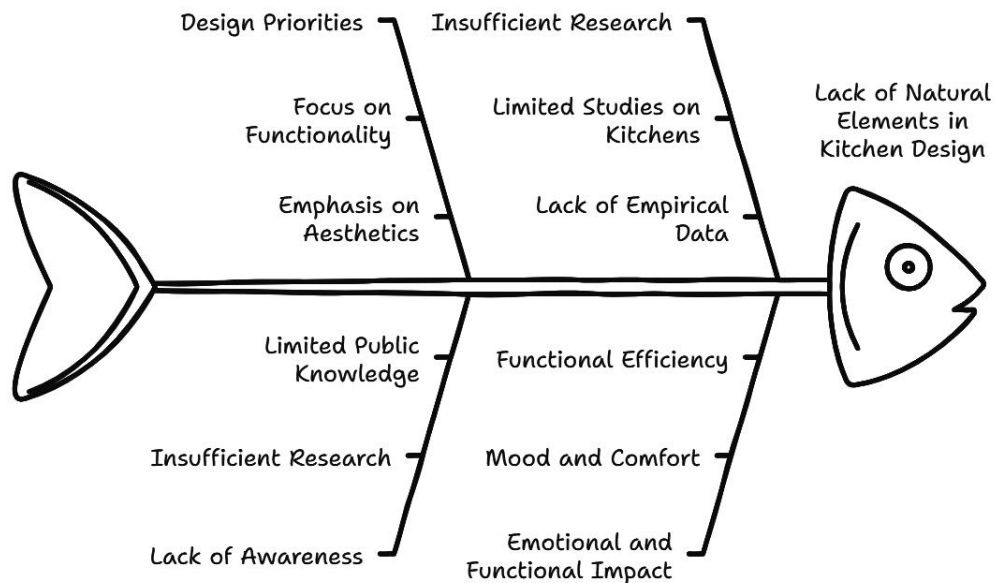


**Figure 1:** Research Scope (Author)

This research aims to understand the impact of specific natural elements—such as light, color, water, and air quality—on users' experience within kitchen spaces. By examining how these elements influence mood, functionality, and overall satisfaction, this study will assess the health and well-being benefits of biophilic design in the kitchen context. Through empirical insights, this research will offer valuable recommendations for architects, interior designers, and homeowners, emphasizing how incorporating natural elements can improve functionality and foster healthier, more sustainable kitchen environments.

Despite the growing awareness of biophilic design and its documented benefits on health

and well-being, many kitchen spaces lack the integration of natural elements that enhance user experience, functionality, and mental well-being. Existing kitchen designs often prioritize functionality and aesthetics without considering how natural elements like light, color, air quality, and organic materials impact mood and comfort. Research has shown that spaces incorporating natural elements promote positive mood, reduce stress, and improve satisfaction (McMahan & Estes, 2015; Johnson, 2018); however, the kitchen, as a highly frequented and central space in the home, remains underexplored in terms of these benefits.



**Figure 2:** Research Problem (Author).

This research identifies a critical gap in understanding the role of natural elements in kitchen spaces specifically and aims to evaluate how these elements affect user experience, including emotional response, functional efficiency, and perceived well-being. Addressing this gap will provide actionable insights for designing kitchens that are not only functional but also contribute positively to users' mental and physical health.

## MATERIALS AND METHODS

To gather empirical evidence and insights, a quantitative survey research approach was adopted, using questionnaires as the primary data collection tool. Questionnaires were chosen for their ability to maintain participant anonymity, encouraging honest responses. The research targeted kitchen users in Northeast England, specifically in the cities of Middlesbrough and Newcastle, which were selected at random. A systematic sampling method was used to select 50 households in each city, resulting in a total sample size of 100.

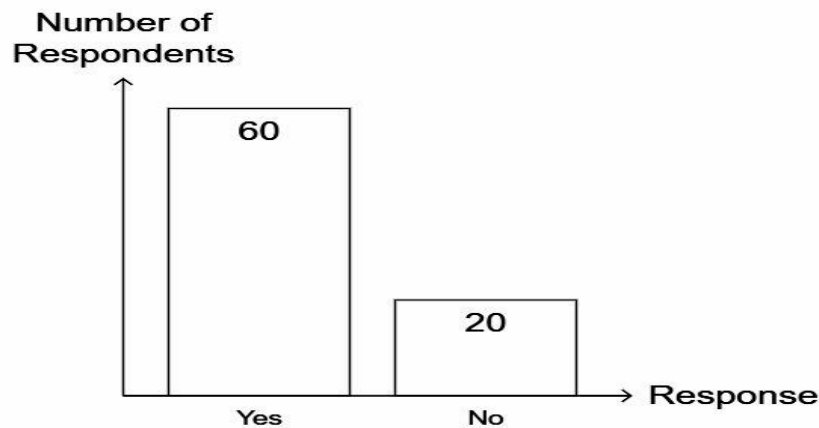
Four volunteers, with two assigned to each city, were responsible for distributing the questionnaires, which included multiple-

choice questions and rating scales to capture participants' experiences in depth. Participants were instructed to place completed questionnaires in their mail collection boxes, which allowed for easy and private collection. After a two-week interval, all questionnaires were retrieved. A total of 80 valid responses were collected, yielding a sufficient sample for analysis. For data analysis, quantitative methods were applied, including descriptive statistics to summarize the data and correlation analysis to explore relationships between natural elements and user experiences in kitchen spaces. This approach provided a robust understanding of the impact of natural elements on user satisfaction and well-being in kitchen environments.

## RESULTS AND DISCUSSION

### Consideration of Natural Elements in Kitchen Spaces

This section provides foundational insights into participants' awareness and interest in integrating natural elements, aligning with the study's objective to assess the influence and potential adoption of biophilic design in kitchen spaces.



**Figure 3:** Results of Consideration of Natural Elements in Kitchen Design (author)

The results reveal that a significant majority of participants, 75% (n=60), have considered incorporating natural elements into their kitchen spaces. This high percentage indicates a strong awareness and interest in biophilic design among kitchen users, suggesting that many individuals recognize the potential benefits that natural elements can bring to their cooking environments. In contrast, only 25% (n=20) of participants reported that they have not considered such integrations, highlighting a smaller segment of the population that may be less engaged with or informed about the advantages of incorporating nature-inspired features in kitchen design.

These findings underscore the relevance of exploring natural elements in kitchen spaces, as the majority of users express a desire to enhance their environments through these elements. The high level of interest suggests that there is a significant opportunity for architects and designers to develop kitchen spaces that align with these preferences, ultimately improving user satisfaction and well-being.

### **Perceived Impact of Natural Light on Kitchen Ambiance**

Since natural light is a significant biophilic element linked to mood and ambiance, this section directly examines participants' views

on its effect, highlighting its role in creating a welcoming kitchen environment.

The survey results reveal that a significant majority of participants believe natural light plays a vital role in enhancing the ambiance of kitchen spaces. Specifically, 52.5% (n=42) of respondents indicated they "strongly agree" with the statement that natural light enhances kitchen ambiance, while 20% (n=16) "agree" with the statement. In contrast, only 17.5% (n=14) of participants "strongly disagree," and none indicated "disagree," highlighting a general consensus regarding the positive impact of natural light. Additionally, 10% (n=8) of participants remained neutral on the topic, suggesting some variability in individual experiences or preferences related to natural light in kitchens. The absence of any participants strongly disagreeing reinforces the notion that natural light is largely regarded as a beneficial element within kitchen design.

These findings underscore the importance of integrating natural light into kitchen spaces, as it is perceived to significantly enhance the overall ambiance, which can contribute to improved mood and user satisfaction. This insight supports the growing trend of biophilic design, suggesting that kitchen designers should prioritize natural light to create inviting and functional culinary environments.

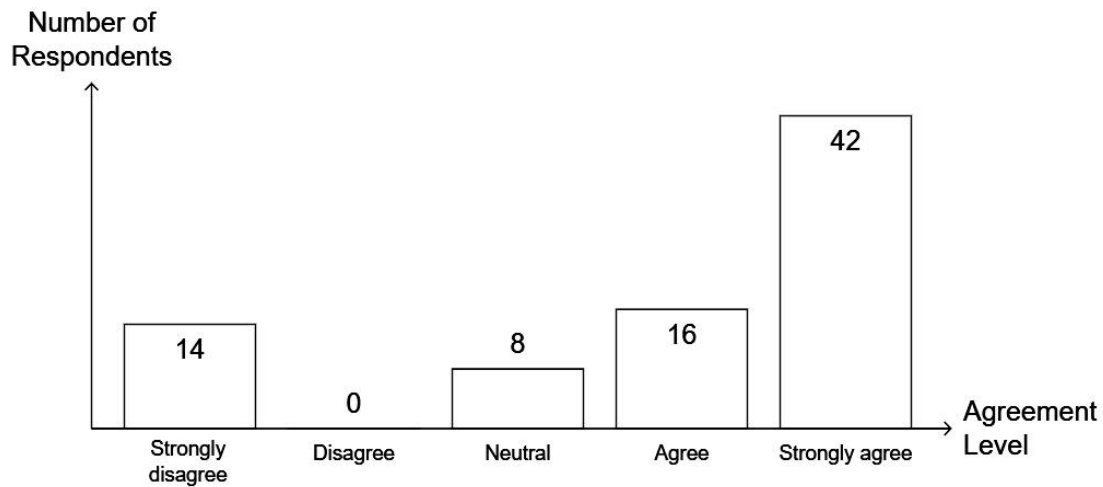


Figure 4: Agreement Levels on Natural Light Enhancing Kitchen Ambiance (author)

### Perception of Natural Elements' Influence on Kitchen Experience

Central to the research, this section captures participants' thoughts on how natural

elements shape their overall kitchen experience, providing key insights into how these elements can improve satisfaction, comfort, and functionality.

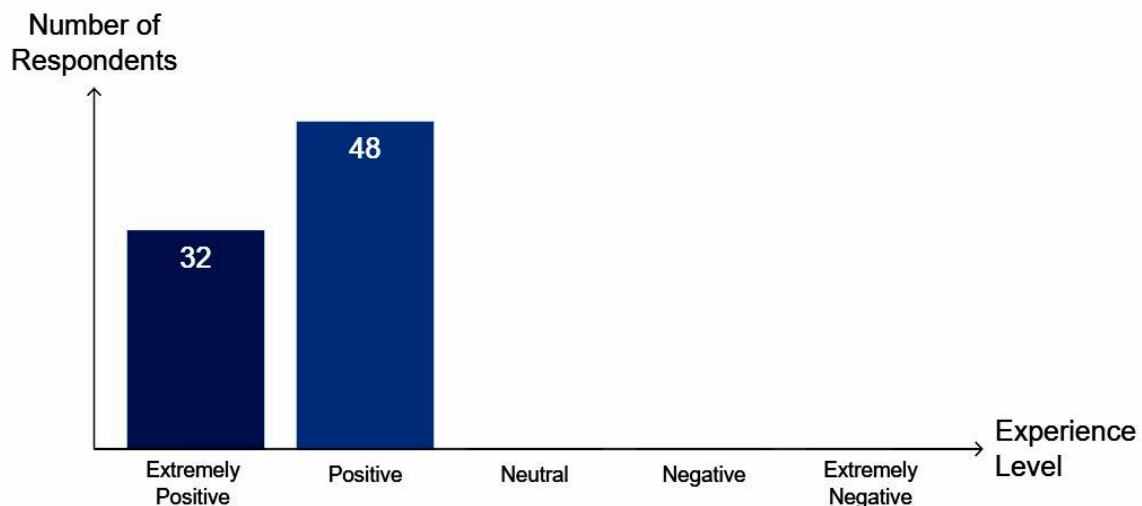


Figure 5: Perception of Natural Elements Impact on Kitchen Experience (author).

The findings indicate a strongly positive perception of the impact of natural elements on participants' overall experience in the kitchen. A notable 60% (n=48) of respondents reported a "positive" experience, while 40% (n=32) described their experience as "extremely positive." Notably, none of the

participants indicated a neutral, negative, or extremely negative perception regarding the influence of natural elements in their kitchens.

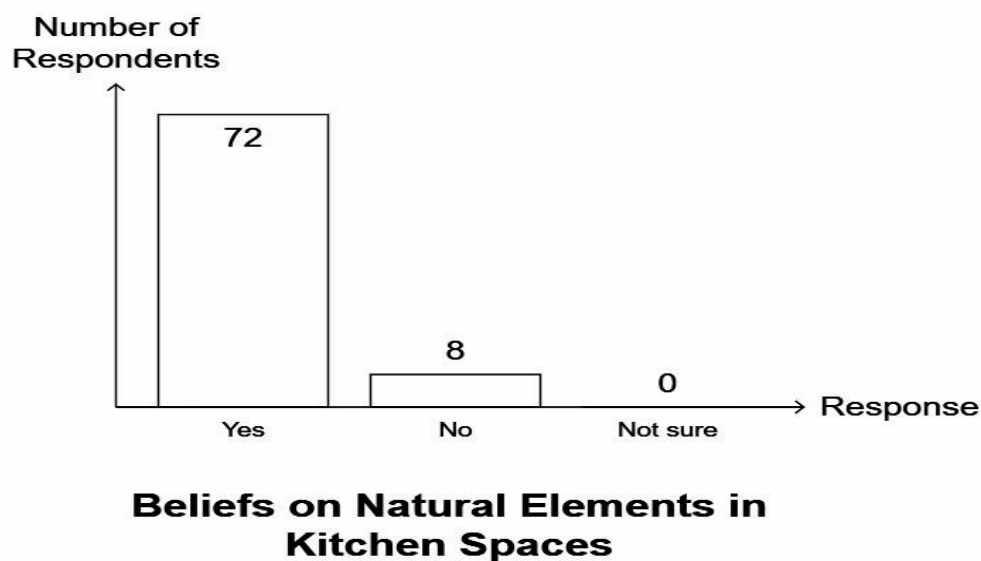
These results suggest that the integration of natural elements—such as light, color, water features, and air plants—significantly

enhances users' experiences in kitchen spaces. The unanimous positive feedback highlights the essential role that these elements play in fostering a conducive and enjoyable kitchen environment. Consequently, the findings reinforce the idea that incorporating natural elements can lead to greater satisfaction and emotional well-being among kitchen users, further

supporting the principles of biophilic design in kitchen layouts.

### **Belief in the Well-Being Benefits of Natural Elements**

This section is essential for understanding whether participants believe in the health and mood benefits associated with biophilic design, supporting the study's interest in well-being and user experience improvements through natural elements.



**Figure 6:** Beliefs on Natural Elements in Kitchen Spaces (author)

The survey results reveal that an overwhelming majority of participants, 90% (n=72), believe that incorporating natural elements into kitchen spaces can improve the overall well-being and mood of users. In contrast, only 10% (n=8) of respondents expressed disbelief in this notion, while no participants were uncertain about the impact of natural elements.

These findings underscore a strong consensus among kitchen users regarding the positive effects of natural elements on psychological and emotional health. The high level of agreement suggests that participants recognize the potential for features such as natural light, greenery, and

organic materials to create a more pleasant and uplifting environment. This reinforces the relevance of biophilic design principles in kitchen spaces, highlighting the importance of integrating natural elements to enhance user well-being and satisfaction.

### **Experience with Kitchens Incorporating Natural Elements**

Firsthand experiences with kitchens that include natural elements offer practical insights and allow for real-life validation of biophilic design's impact on ambiance and functionality, aligning with the study's goal of exploring user experiences in enhanced kitchen spaces.

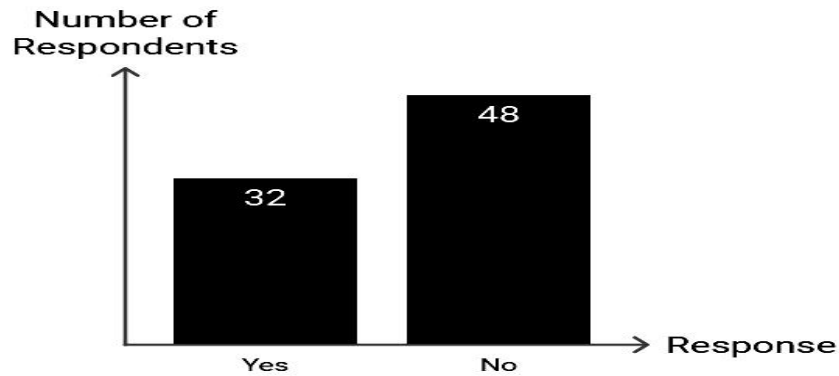


Figure 7: Kitchen Space with Natural Elements Survey Results Design (author)

The survey results indicate that 40% (n=32) of participants have visited or used a kitchen space that incorporated natural elements, while a majority, 60% (n=48), have not had this experience. This finding highlights a notable divide in user exposure to kitchen designs that integrate features such as natural light, greenery, and organic materials.

The relatively low percentage of participants who have experienced kitchens with natural elements suggests an opportunity for further exploration and

implementation of biophilic design in kitchen spaces. Those who have encountered such environments may have unique insights into the benefits and challenges of integrating natural elements, which could inform future kitchen designs. Conversely, the majority of respondents lacking this experience may indicate a gap in awareness or accessibility, underscoring the potential for designers and homeowners to create more inviting and health-promoting kitchen environments.

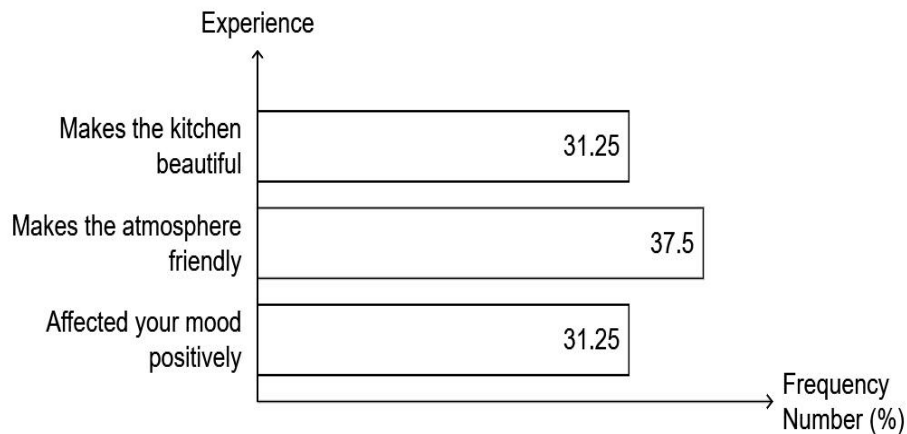


Figure 3: Results of Positive Experiences in the Kitchen (author)

Among the participants who have visited or used kitchen spaces that incorporated natural elements, the responses reveal a range of positive experiences. Specifically, 31.25% (n=10) reported that such environments "make the kitchen beautiful," highlighting

the aesthetic appeal that natural elements can bring to kitchen design. Additionally, 37.5% (n=12) indicated that these features contribute to a "friendly atmosphere," suggesting that the presence of natural

elements fosters a more welcoming and sociable environment.

Furthermore, another 31.25% (n=10) of respondents noted that their mood was positively affected by the natural elements present in the kitchen. This feedback underscores the emotional benefits associated with biophilic design, reinforcing the idea that incorporating nature into kitchen spaces can enhance user satisfaction and overall well-being. The diversity of positive experiences emphasizes the potential advantages of integrating natural elements into kitchen design, offering valuable insights for future renovations and new constructions.

### CONCLUSION

The findings from this study underscore the significant role that natural elements play in enhancing the kitchen experience for users. The majority of participants expressed a strong belief in the positive impact of natural light, greenery, and organic materials on their overall well-being and mood. With 90% of respondents affirming that incorporating natural elements can improve user satisfaction, it is evident that these features are not merely aesthetic choices but integral components of a functional and inviting kitchen environment. The data also reveal a notable gap in user experience, with 60% of participants having never utilized kitchens that incorporate natural elements. This highlights an opportunity for architects, interior designers, and homeowners to innovate kitchen designs by integrating biophilic principles, which can transform these spaces into more health-promoting environments. The positive feedback from users who have experienced such kitchens—citing enhanced beauty, a friendly atmosphere, and improved mood—provides compelling evidence for the benefits of natural elements in kitchen design.

Overall, this research contributes valuable insights into the importance of natural elements in kitchen spaces, advocating for

their incorporation to not only elevate aesthetic appeal but also foster emotional well-being and social interaction. As awareness grows regarding the impact of biophilic design, there is potential for significant advancements in creating kitchens that prioritize user experience and health, ultimately leading to a more holistic approach to interior design. Moving forward, it is crucial to continue exploring the relationship between natural elements and user experience to inform best practices and design guidelines in the field.

### REFERENCES

- Benaroya, H. (2010). *Lunar settlements*. CRC Press.
- Johnson, N., Smith, A., & Jones, B. (2020). Sustainable kitchens: A systematic review of design strategies for energy efficiency and water conservation. *Energy and Buildings*, 230, 110617. <https://doi.org/10.1016/j.enbuild.2020.110617>
- Johnson, R. (2018). The impact of kitchen design on mood: Creating positive spaces. *Journal of Home and Interior Design*, 36(4), 25-32.
- McMahan, G., & Estes, D. (2015). Biophilic design: Considering natural elements in kitchen design. *Journal of Design and Environment*, 9(1), 58-73.
- Okhovatian, M. (2020). Incorporating biophilic design into kitchen spaces for improved well-being. *International Journal of Sustainable Design*, 7(2), 130-145.
- Smith, A. (2018). Natural light in kitchen design: A review of its benefits and implications. *Lighting Design Quarterly*, 12(2), 20-26.
- Smith, A., & Jones, B. (2021). Sustainable design practices in kitchen UX. *Journal of Sustainable Design*, 3(1), 45-58.
- Smith, J. (2006). The effect of natural elements on kitchen design and mood. *Kitchen Design Journal*, 18(2), 45-52.