APPLYING DESIGN THINKING TO DEVELOP INTERACTIVE HOTEL AMENITIES: A CASE STUDY OF UNWIND

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Abstract

This study explores the application of Design Thinking in developing UNWIND, an interactive wall game designed to improve hotel amenities by combining art, play, and tourism. By employing the Design Thinking approaches that comprise the stages of "Empathize", "Define", "Ideate", "Prototype", and "Test", this study demonstrates how guest-centric innovation can redefine hospitality experiences. During the early process, the needs and preferences of hotel guests were identified through empathy-driven research, leading to the design concept of multifunctional products that serve as a decorative art piece and an engaging, interactive game that 3-4 people can play. The ideation and prototyping phases focused on function, user experiences and unique features, resulting in UNWIND being interactive, fulfilling user needs, and educating users about Malaysian tourism landmarks. The findings suggest that employing design thinking can drive innovation in the hospitality industry, offering prospects for premium tourist items that blend function and engagement. UNWIND sets a new benchmark for hotel wall decoration, providing an interactive and transformative user experience beyond traditional amenities and enhancing hotel and guests' value proposition.

Key words: design thinking, user centered design, interactive design, Hotel Amenities.

INTRODUCTION

The hospitality industry has undergone some significant

changes over the past couple of decades in response to the growing demand for enhanced guest experiences and a wider range of offerings in an increasingly highly competitive market. In the 1980s, the industry saw a rise in boutique lifestyle hotels, which led to changes in what the guests expected during their stay at the hotel. (Chen & Chen, 2022; Ju, 2019; Kim et al., 2017) Larger hotel chains have taken steps to provide guests with curated, memorable experiences to adapt to the guests' needs, wants and preferences. Because of these changes, many hotels feel the pressure with the need to offer more and more amenities for the sake of keeping their guests satisfied. According to Chen & Chen (2022) and Ju (2019) due to limited funds, most of the hotel management need to carefully consider and select their offering the guests wisely in order to make the most of their offer to provide a sufficient experience to the guests.

New trends and developments in this scenario constantly affect the global industry. Nowadays, the classic room facilities and amenities have become more modern, personalised, and guest-friendly, and they are located in a calm environment. This shift reflects the industry's recognition of the need to adapt to the changing consumer preferences and to focus on providing a unique, diverse range of services and amenities to cater for the broad spectrum of consumer needs. (Chen & Chen, 2022; Ju, 2019; Kim et al.,2017) Conventional and classic amenities, such as air conditioning, soundproofing, safety box, hair dryer, mini refrigerator, clean towels & linens, free self-care products, toiletries, slippers, ironing board, kettle, telephone and television, are no longer sufficient to capture the attention and satisfaction of today's travellers who seek personalised interactions during their stay at the premises.

In response, it can be seen that there is a growing trend towards interacting with multifunctional and interactive elements in hotel spaces that go beyond conventional, aiming to provide guests with unique and immersive experiences. With today's competitive hospitality industry, with the large number of new hotel brands that offer diverse offerings and the advancement of technology, it can be difficult for the hotel to

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stand out in the eyes of the hotel guests. Renovating the property to improve the facilities is too costly and time-consuming; the better alternative for the hotel to compete is to invest in hotel amenities, which offer a simple yet impactful way to stand out among other hotels in the market. (Kim et al.,2017; Pugachov, et al., 2022)

Hotel amenities play a crucial role in shaping the guests' experiences, as most guests crave something distinctive, unique, full of surprises and engaging during their stay. (Ju, 2019; Kim, 2017) These amenities range from personalised welcome gifts and locally sourced toiletries to unique experiences such as honeymoon or birthday celebrations, guided tours or cooking classes. Some hotel amenities are designed for the guests to take back as mementoes and souvenirs as evidence of their special moments during their stay. This concept of amenities will create meaningful experiences and encourage the guests to revisit or recommend the hotel to other people. (Chen & Chen, 2022; Kim, 2017)

To keep pace with these emerging trends, this study investigates the application of design thinking in developing hotel amenities products, highlighting how this user-centred approach can drive innovation in creating premium tourist items that can entertain, educate, and engage people. Design Thinking, emphasising empathy, creativity, and iterative testing, offers an approach to understanding people's needs, leading designers to create meaningful solutions. (Brown, 2008; Dell'Era, et al., 2020; Cross, 2023) According to Brown (2008) and Cross (2023), by implementing this methodology in the design process, final product outcomes will transform people's experiences that combine functionality, aesthetics, and also cultural significance.

Aims & Objectives

The primary aim of this study is to explore the application of Design Thinking in the product development of hotel amenities, specifically the case study of UNWIND, the interactive wall game that combines art and play. This study seeks to discover how design Thinking approaches can be utilised in

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design development to create user-centered products that will enhance user experiences through the stages of the Design Thinking process. (Brown, 2008; Dell'Era et al., 2020; Cross, 2023)

Through the stages of "Empathize", "Define", "Ideate", "Prototype", and "Test" this study will provide insights into the development of innovative hospitality product solutions that will cater for the evolving of modern travellers. The objectives of this study are: (i) To explore the potential of Design Thinking in driving future innovations in premium tourist items within the hospitality sector and (ii) To understand User needs and preferences regarding interactive and engaging in-room hotel amenities that contribute to guest satisfaction and enhance user experiences.

RESEARCH METHODS

This study employs a Design Thinking approach adapted from Brown, (2008), Dell'Era et al., (2020); Cross, (2023) and Robinson, (2023) to explore the development of UNWIND, an interactive wall game designed for hotel rooms. The research methodology follows the five stages of the Design thinking process, as shown in Figure 1. This iterative design thinking process was chosen to ensure the final product's outcome meets users' needs and expectations. The visual flow in Figure 1 represents the iterative and user-centred nature of the Design Thinking process embedded in the study.
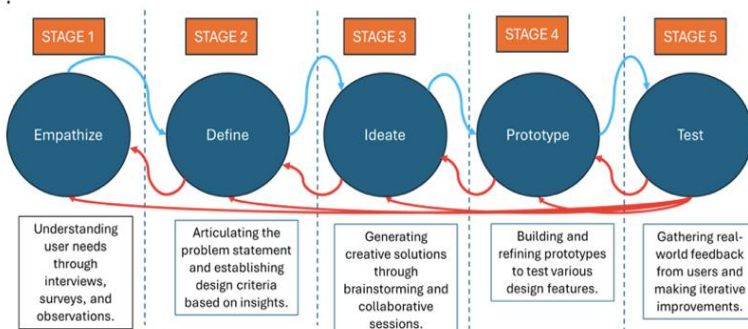

Figure 1. Overview of how the Design Thinking process used in this study.

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Stage 1 Emphasize: Understanding User Needs

This first stage involved six family guests of hotel customers at the Grand Ion Element, Genting Highland, Malaysia. The researcher used face-to-face, in-depth interviews, probing techniques and observational studies (Cerci, 2024; Henriksen, et al. 2017) to identify how the guests interact with existing room features and amenities. The interview script was developed to gain a deeper understanding of user needs, desires, challenges, and issues faced by hotel guests (see figure 2). The data collected for this phase will be the starting point for this study to identify the key pain points and opportunities to create an engaging and multifunctional product.
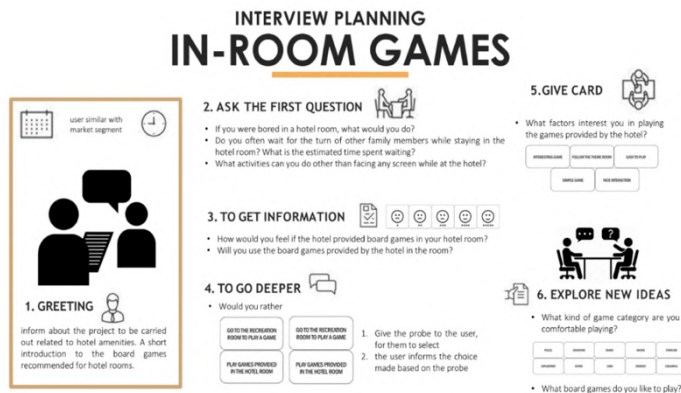

Figure 2. The interview planning with the hotel's guests.

Figure 3. The probing tools and questions with the hotel's guests.

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During the interview, the researcher also used probing tools (Robinson, 2023) in parallel with user observation to get a spontaneous response during the session. The probing tools involved "emotion card", "would you rather a card" , and "sorting card", as shown in Figure 3.

Stage 2 Define: Problem Statement & Establish Design Criteria

This stage focused on synthesising the insights gathered during the first stage of empathy with the user. The researchers gathered all the insights based on the key point of "What are the hotel amenities that enhance guest experiences ?" The researcher highlighted the key themes, and user needs to form the basic design criteria for the design proposal (see Figure 4).
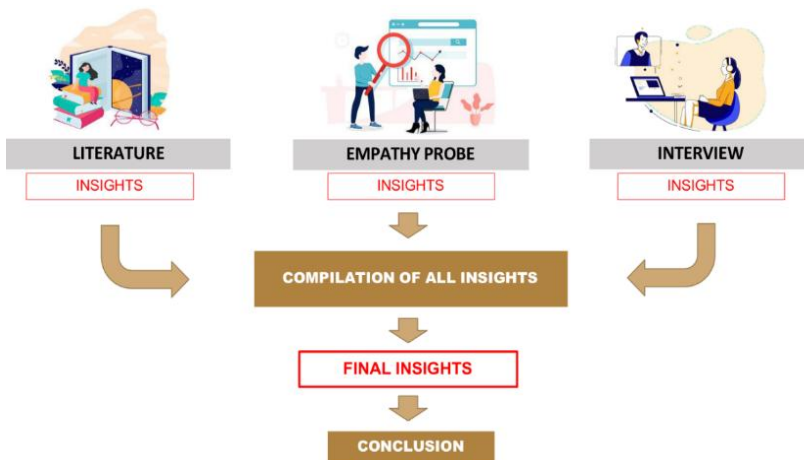

Figure 4. The process of define needs and problems.

Stage 3 Ideate: Generating Creative Solutions

In the ideation phase, multiple idea solutions and concepts were created and were brainstormed with diverse stakeholders to generate creative solutions. Multiple ideation techniques were used during this session, such as quick sketching, mind mapping and rapid prototyping, to explore various concepts that have interactive features that combine multifunctional tasks. (Isa, et al., 2022; Ali, et al., 2024; Yusof, et al. 2022)

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Stage 4 Prototype: Building and Refining

This prototyping stage involved the researcher developing multiple low-fidelity prototypes of products with the features from the final data. These prototypes were created using various materials to test the features, size, and functionality. These low-fidelity prototypes were iteratively refined based on feedback from potential users and experts to ensure that the final product met the defined criteria from the data. (Isa, & Liem, 2014; Ali, et al., 2023; Yusof, et al. 2022)

Stage 5 Test: Real-World Feedback & Iteration

This final stage involved usability testing of the final design in a selected hotel room to gather real-world feedback. User testing was conducted with the hotel guests to evaluate the product's usability, overall impact on the guests' experiences, and engagement level. Qualitative feedback was gathered through interviews and observation, and then the results were analysed to identify areas for improvement for the final design. (Ali, et al., 2023)

RESULT & FINDINGS

This section will discuss the results and findings from the application of Design Thinking in the development of the UNWIND product. The outcome generated several valuable insights that align with the objectives of creating an interactive and engaging multifunctional hotel amenity.

Empathise: Understanding User Needs

Figure 5. Demographic data of the six respondents.

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Through the interviews, observation, and probing discussions, several key insights were gathered on guest preferences for in-room amenities. The demographic data for each respondent is shown in Figure 5. The data includes age, gender, income level, and education, providing a comprehensive understanding of the guests' preferences in relation to these demographics. From the questions that related to their experiences in the hotel's room with the family, this study has finalised 6 final key insights which illustrated in Table 1. From the table, it can be concluded that most guests opted for an enjoyment option to enhance their interaction and relationships with their family, partner, or colleagues. Furthermore, most guests would prefer products that provide cultural or educational values.

Table 1. Final key insights for the hotel's experiences

Final Key Themes	Insights
Need for relaxation, entertainment and stress relief	• The need for something that can help them unwind after a day of travel • They would have something to enjoy without leaving the room • Need some activities that balance relaxation, interaction, and engagement.
Interest in culture and educational value	• A strong interest in local culture added to the educational learning experiences. • Preference of hotel amenities that allow them to learn something new, experiencing elements of local culture from the hotel room
Wants something unique and interactive	• Guests expressed strong interest in something that engages them intellectually and physically and that can be shared with others. • Demand for interactive amenities over traditional static amenities.
Preferred Social and Family Friendly Activities	• Most of the guests travelling with family or friends appreciate amenities that encourage social interaction. • Prefer activities that foster connection and enjoyment with family or friends.

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Considerations of Aesthetics appeal	• Guests valued the visual appeal of the product placed in the hotel's room • They prefer decoration items to serve as practical functions and also as a visual appeal for the hotel room
Inclusivity in Design	• Various ages gender and nationalities can use the product • Product that can be accessible and enjoyable for all types of demographics

Figure 6. shows the result of the probing question related to the game features, which reveals the guests' preference for the games they would like to have in the hotel room. The data indicates that the respondents prefer games that are easy to play and create activities that enhance their family bonding and could bridge the generational gaps.
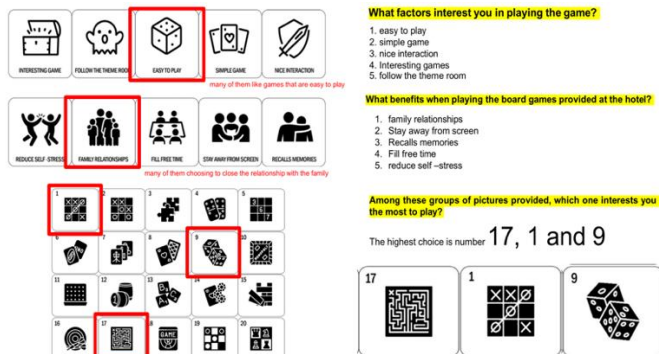
Figure 6. Games preferences based on the probing interviews.

Define: Problem Statement & Establish Design Criteria

During this phase, the researcher gathered all the user feedback into a clear problem statement (Figure 7) to identify the best in-room hotel amenities that are multifunctional and combine interactive play while enhancing guest experiences. At this stage, several key insights were developed under Point of View (POV) analysis and led to the establishment of design criteria focused on creating a product that is easy to use, educational learning, visually appealing and culturally enriching product.

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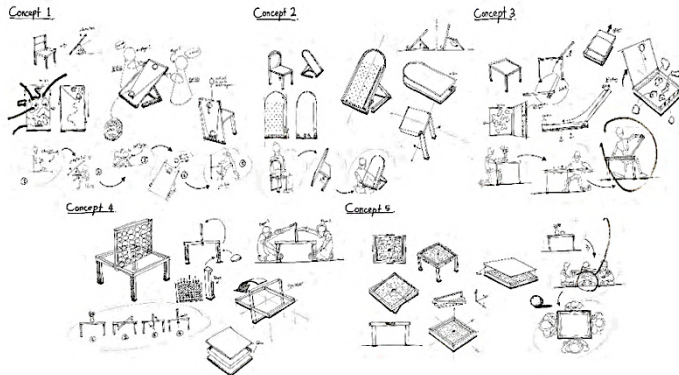

Figure 7. Summarize Point of View (POV) in linear unpacking.

POINT OF VIEW
Summarize of linear unpacking

We Met	We Noticed	We Are Amazed To Discover	It Would Be Game Changing
Persona 1 Persona 2	• users really like games and competitions • users do not mind playing any game, willing to accept the challenge • users like games that take a long time to complete	• users are very experienced in organizing games • users worry if the game is small, not suitable to be played by children • users are afraid of accidents as well as possible damage to the games played by their children.	• provided various types of games for guests to choose and try for themselves the types of games provided. • provides a game that can be played even alone • the game provided is quite rugged and can be played repeatedly without getting bored.
Persona 3 Persona 4	• users seem a little worried about the type of games available • users are interested in large -sized games, especially games that can be ridden by children	• the user tries to avoid games that emit loud noises rather than interfering with his or her mother's affairs • users want their child a challenging game because their child often plays outdoor games.	• if the toy is large size and easy to play with parental supervision in the room. • such games can increase the IQ of children, not just the pursuit of victory alone
Persona 5 Persona 6	• users rarely play games especially board games. • users love on games that don't make clutter and noise • users love to try and explore new things	• users love games that can be played in full body even in the room. • users really like games that are large and unique to play because users like to stand while playing games	• if the game is large and it is clear how to play. • included historical elements as well as battles, augmented with specific themes. • the resulting game does not release any side music
	• users seem to be afraid of the topic of the game. • users often bring games for their own children while traveling • the toys they bring are only for their child, not for themselves.	• users are afraid to give other toys to their children for fear that the preoccupation with the game will damage yours do not like to share games for their children to the public, because they are worried about infection	• if the game can be ensured safety in terms of manufacturing • the game is not split into small fragments, nor into individual separate parts • the toy is not easily dirty and has no dangerous parts.

Figure 8. Multiple early ideations for concept selection.

Ideate: Generating Creative Solutions

The ideation process produced several concept proposals (Figure 8) for the interactive wall game, including multiple game formats and interaction methods. Concepts were generated using manual and digital sketches, inspired by data from stage 2. Then, the researcher created a collaborative brainstorming with some stakeholders to make a decision on the criteria and features for this new hotel amenities. Several product names were also developed during this session, and the

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team decided to use UNWIND for the product, which represents *"…to relax and allow your mind to free…"*.

Prototype: Building and Refining

Multiple low-fidelity prototypes of UNWIND were made using various materials, such as paper, cardboard, foam and digital interfaces (see Figure 9). These prototypes were created to test the product's features and game elements. During the prototype testing, user feedback from the hotel guests and staff emphasised the importance of considering aesthetics and functionality. Most guests preferred a design that could integrate with the hotel room decoration while adding other purposes such as educational learning points, entertainment with fun and play elements, and the recommendation of something that can engage people inside room

Figure 9. Low-fidelity prototypes that are iteratively built and refine.

Figure 10 illustrates a sample of how the researcher documented the respondent's feedback on the movement of the Player's Token, enhancement of the spinner, and rotation of the spinning mechanism. The rotation and spinning mechanism used in the design proposal was designed to create excitement, and the movement of the player's token across the gameboard is central to gameplay. During the testing, the respondents highlighted several problems and issues, and the feedback was recorded; several amendments were made to the prototypes and iteratively tested until the system and mechanism got

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positive feedback from all the respondents. The iterative phases help the researcher to modify the design according to the recommendations given by the respondents and refine the major issues of the concept proposal. The iterative session involved in improving the mechanism and system of the game which the feedback from respondents were;

"…the players token are hard to move, it stuck on the track, maybe the track for token to move could be bigger and magnetic components at the token or attached a small hooks that allowing the token to move smoothly on the track across the gameboard…"

"…spinning wheel is better option compare to dice because dice can be lost somewhere in the room, while spinning wheel is attached at the game, we do not need something separate features from the game, people will lost it and the hotel need to find the replacement for the lost features.."

Figure 10. Sample of the evaluation results for the mechanism and system of UNWIND.

The researcher gathered all the positive and negative feedback and brainstormed the final solution for UNWIND as illustrated in Figure 11. This process contributes positively to improving the durability of the system and mechanism refining the gameplay experiences more unique and challenging to the user the UNWIND interactive and engaging nature, improving

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the durability of the system and mechanism, refining the gameplay experiences more unique and challenging to the user. UNWIND has been modified by the researchers modifying the layout of the games to ensure that all features of the board create a smooth movement within all players creating more ability to the players when it comes to their turn.
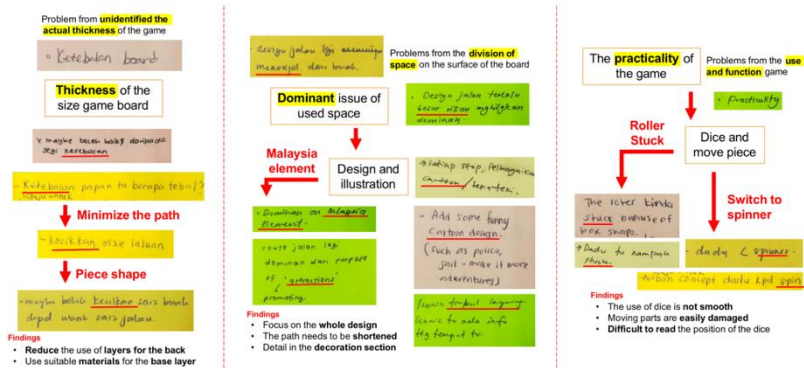

Figure 11. Feedback and refinement of UNWIND.

Stage 5 Test result: Real-World Feedback & Iteration

During this stage, the final product of UNWIND was tested in the mock setting of hotel room with previous hotel guests, which provided real-world feedback on the product's aesthetic value, engagement and usability (Figure 12). The data reveals that most the guests gave feedback that the game enhanced their overall experience. They mentioned that UNWIND was both entertaining and aesthetically pleasing and enhanced their knowledge of the iconic places in Malaysia. The majority of the guests argue that the game's multifunctionality is both a decorative art piece and also an interactive game for the people to engage. They mentioned,

"… this is a beautiful and unique piece of art that I will definitely buy and hang on my house wall to remember my memorable experiences in Malaysia. The iconic buildings and places on the board are nice, and we get to know the beautiful landmarks in Malaysia…"

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"...I've been to so many hotels, but there was only an artwork on the wall, and frankly, it is beautiful but static looks only, no interaction. This product will make us play and create excitement to complete the games with our team members..."

"... I will play this with my family, especially my kids. This wall-decorated game is nice and easy to play, and it is nice if we can have a smaller version of this product..."
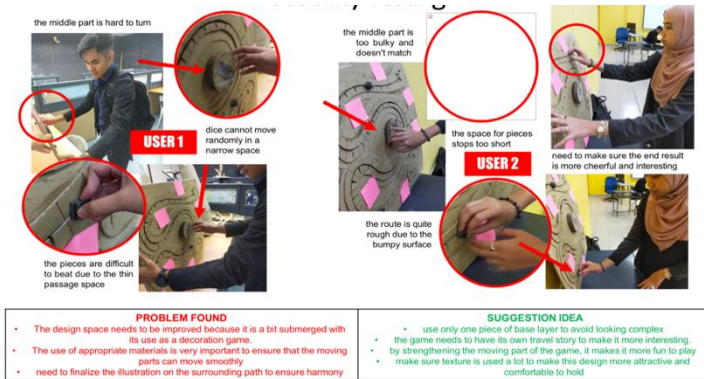

Figure 12. Usability testing on final concept of UNWIND.

The testing phase during this stage creates an opportunity for this study to gather real feedback from direct stakeholders to refine this product iteratively, enhance the tactile quality of the game features and simplify specific mechanisms and adjustable components to make this game accessible to a broader type of audience and market.

Figure 13. Final design of UNWIND product.

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Final product of UNWIND is demonstrated in Figure 13. This figure showcases the culmination of the UNWIND process, highlighting the end result of this project. The results demonstrated that Design Thinking is a practical approach to developing user-centred hotel amenities. The results recommended that multifunctional and interactive amenities like UNWIND can increase guest satisfaction and represent a novel approach to redefining hotel amenities. By employing this design thinking approach, UNWIND functions as an engaging game and serves as a contemporary art piece promoting Malaysian iconic landmarks.

DISCUSSION

The results and findings from this research show that Design Thinking significantly impacts the development of innovative and user-centred hotel amenities. This section will elaborate on the critical insights gained from each process stage and emphasise the broader implications for the hospitality industry. The application of the Design Thinking process in the development of UNWIND impacts the final product outcome of hotel amenities that enhance guests' experiences, which combine arts, education, play and aesthetic values. This product was successfully designed with the application of "Empathize", "Define", "Ideate", "Prototype", and "Test" in the process.

CONCLUSION

The product outcomes from this Design Thinking approach generate valuable insight into how hotels can innovate their offering to their guests. The approach makes UNWIND a culturally engaging product, balancing functionality and aesthetics that can also enhance the hotel guests' experiences. Using Design Thinking in the development process of UNWIND benefits designers, stakeholders and hotel management, enabling them to explore this method and implement it in other hotels' product development, project management, systems or services which focus on guests-centred solutions parallel with the claims that make by Auernhammer. (2021)

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The hotels can develop multiple types of hotel amenities that enhance their brand loyalty and create a competitive product by placing their guests in the middle of their design process. This methodology demonstrates its potential to drive future innovation in the hotels industry. The researcher or the designers that implement this approach in their design development need to carefully consider the tools used during the process in order to get an effective design solution.

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