



Heriot-Watt University
Research Gateway

Architectural examination on Feng Shui Bedroom

Citation for published version:

Wang, C, Hong, WT & Abdul-Rahman, H 2018, 'Architectural examination on Feng Shui Bedroom', *Open House International*, vol. 43, no. 2, pp. 40-48.

Link:

[Link to publication record in Heriot-Watt Research Portal](#)

Document Version:

Publisher's PDF, also known as Version of record

Published In:

Open House International

General rights

Copyright for the publications made accessible via Heriot-Watt Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

Heriot-Watt University has made every reasonable effort to ensure that the content in Heriot-Watt Research Portal complies with UK legislation. If you believe that the public display of this file breaches copyright please contact open.access@hw.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.



ARCHITECTURAL EXAMINATION ON FENG SHUI BEDROOM.

Chen Wang, Wan Thing Hong, Hamzah Abdul-Rahman

Abstract

Bedroom Feng Shui practices have been criticized as myth over the years but in fact having its scientific origin that is not purely superstitious. This paper aims to examine whether the architects' design practice for bedroom interior arrangement is concurring with the recommended bedroom Feng Shui practices. The study has successfully interviewed 16 architects from diverse backgrounds to avoid bias, seeking their design perspectives in bedroom interior configuration. Subsequently, the interviewees submitted sketches of ideal bedroom layout based on their expertise, with pre-set requirements. Data from semi-structured interviews were analyzed using mixed method approach. In agreement with our expectations, majority of the interviewees have matching thoughts that "bed arrangement" is the primary consideration in bedroom interior configuration. Most of the design outputs were highly attached to favorable Feng Shui conditions. The overall findings implied that bedroom Feng Shui is not merely superstitious but most components are practical design references for architects from diverse backgrounds.

Keywords: Architects' perception, Bed Arrangement, Design Practice, Feng Shui, Interior Configuration, Sleep Environment.

1.0 Introduction

According to Merrell et al. (2011), interior arrangement should be supportive to comfortable conversation and visually balanced composition. As the urge of human spends almost one third of their lives in the sleep environment, a common regulation for its interior arrangement is essential for human comfort, health and well-being (Francis et al., 2017; Antunes et al., 2017). Building design is intricate in both interior and exterior context. It has no specific rule of thumb and architects usually make his decision based on intuition and past design experiences (Hong et al., 2016). The nature of design involves creativity, sensibility and logical system for the importance of human comfort and well-being. It is a multidiscipline process that bridging art, science and humanity to reflect social, functional and aesthetic considerations, which is similar to the application of Feng Shui. Chinese Feng Shui possesses supportive values for physical and mental well-being in a practical way rather than strictly superstition. It is probable a design instrument that is more integrated than those currently employed by the design professions (Lynch, 2003). Based on the study of Leyten (2008), architects are getting more interests on the application of Feng Shui concepts into building design, especially in the last century, largely in interior design. Ow et al. (2006) emphasized the significance to incorporate Feng Shui knowledge into interior design system for both customised interior design and

furniture placement functions. Besides, there were many design ideas from books or websites adopted Chinese Feng Shui rules in bedroom design but do not quote them as the basis of their thoughts. McMillan's (2011) book publishes for sleep environment improvement but not based on Feng Shui perspectives.

The job of bed placement is challenging because it requires optimisation of both functional and visual criteria (Lan et al., 2017; Ohayon et al., 2017; Fawale et al., 2017). We discovered that Chinese Feng Shui conception in bedroom is likely an important design orientation for an ideal bedroom interior arrangement, which corresponds to the contemporary architects' design perception. This study intends to investigate the perspectives of multicultural-background architects on the procedures of bedroom interior arrangement. The study subsequently examines on the design characteristics of the architect's design submission for an ideal bedroom layout. The corresponding relationship between the ancient bedroom Feng Shui rules and the more scientific piece of design work is constructively criticised.

2.0 Feng-Shui and Sleep Environment

2.1 Feng Shui and superstition

Feng Shui knowledge is treated as misconception even until today; perhaps this ancient knowledge is lack of systematic certification in the past. In addition, the Feng Shui masters' insights are rather subjective, and the exaggerated effects of not complying the Feng



Figure 1. The harmony between yin and yang.

Shui rules are somehow unreasonable. Most of the Chinese do not admit that they practise Feng Shui based on superstition but in fact humankind just needs a way to sustain healthily. According to Xu (1998), treating anything that is partly understood as superstition is not a scientific manner of finding truth. Feng Shui may have supportive values for physical and mental well-being in a practical way rather than strictly superstition. Teather & Chow (2000) highlighted that Feng Shui is connected to human well-being by its visual-psychological implications. It induces environmental planning in accordance with human subjective feelings about, especially essential in a sleep environment.

2.2 Yin and Yang energies

Yin and Yang refers to two contrary energies in the world (Mak & So, 2011). Generally, Yin represents the dead, the dark, and the still; Yang represents the light, the living, and the moving as shown in Figure 1. According to ancient Feng Shui texts, mountains are Yin, while water is Yang; the solid is Yin and the void is Yang. The balance of Yin and Yang was thought to bring harmonization and prosperity to the inhabitants (Xu, 1998). Figure 1 shows the qualities of Yin & Yang. Feng Shui rules in bed arrangement undoubtedly originated from the theory of Yin & Yang. A sleep environment shall attach to more constant or Yin energy (Ng, 2011; Yap, 2006). As described in Hong et al. (2016) study, Qi is similar to different frequencies of electromagnetic vibration that is equivalent to sound, heat, light, colour etc. As the frequencies become stronger, the Qi turns Yang; more active and forceful; hence incompatible with the sleep environment. The bedroom Feng Shui theories are discussed in the next sections via the theory of Yin & Yang, and its analogies with human psychological perception.

2.3 Feng Shui rules in bed arrangement

Feng Shui rules in bed arrangement have been discussed among the practitioners and academicians of different origins for many centuries. The common rules such as “the bed shall be supported by solid wall” and “the bed shall not be in line with the door” are the most emphasized subject for discussion, as shown in Table 1

An ideal Feng Shui bed location shall normally avoid Yang energy disruptions to ensure the bed-users fall asleep quicker and assist patient towards speedy recovery. The detailed discussion of these Feng Shui rules and its analogies with human psychological perception is presented in the following sub-sections. Figure 2 demonstrates a bedroom in an unfavorable Feng Shui condition with its potential psychological impacts to the bed-users. From the Feng Shui perspectives, Qi flow is too rush at this bed position as both the door and window are in line with the bed and the room bumping corner is pointing to the bed. Good Qi may be diminished by strong airflow at this bed position. It is strongly believed that the architects has petite chance to locate the bed in such a manner as it will largely affect human comfort and emotion at bedtime.

The study of Chou et al. (2007) validated that the Qi flow pattern is similar to air flow pattern via CFD simulation method. Their research findings showed that the bed located in unfavourable Feng Shui conditions were generally showing poor indoor airflow patterns while the favourable one were much better. The airflow patterns were evidently worse especially in the door-open scenarios. Hence, Qi flow in Feng Shui is somehow well explained in scientific manner and corresponding to the conception as delivered in Figure 2. Bedroom thermal comfort and other visu-

Feng Shui Bed Arrangement	1	2	3	4	5	6	7	8	9	10	11	12
*The most emphasized at the top												
Favourable Practices												
Bed supported by solid wall	√		√	√	√	√	√	√	√	√	√	√
Visible to door/ door far from the bed	√			√		√	√	√	√	√	√	√
Window at the side/ front	√											√
Unfavourable Practices												
Bed directly facing/ in line with door	√	√	√	√	√	√	√	√	√	√	√	√
Window against the bed head	√	√	√	√	√	√	√	√	√	√	√	√
Bed pointed by sharp angle			√	√	√	√				√	√	√
Mirror facing to bed			√	√	√	√				√	√	√
Legend:	√	emphasized										

Table 1. The most emphasized Feng Shui rules in bed arrangement.

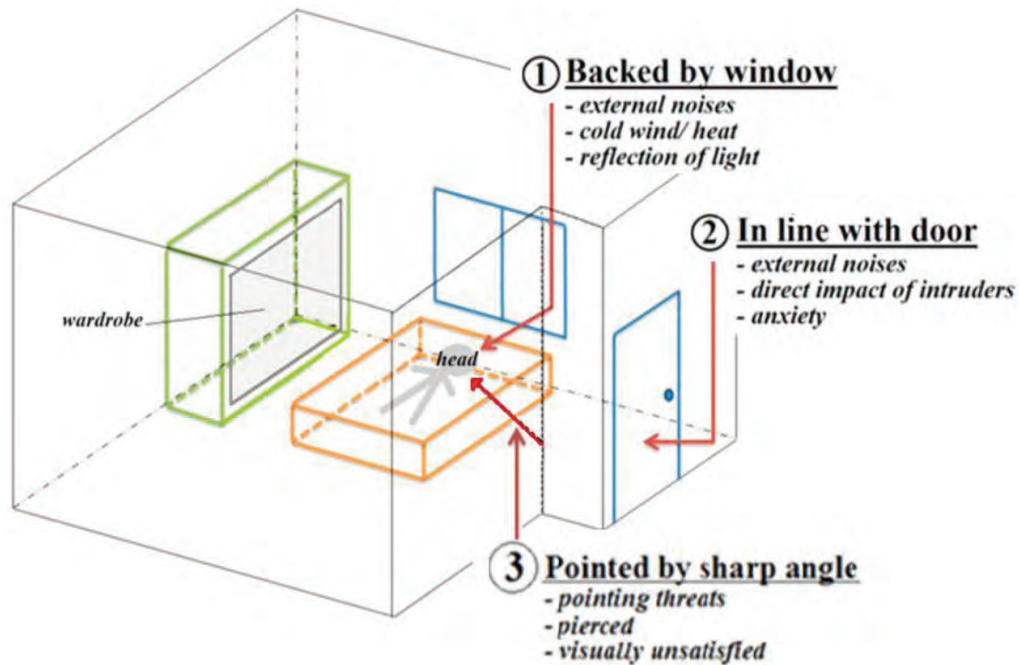


Figure 2. Bedroom in unfavourable Feng Shui condition, with potential psychological impacts to users.

al-psychological implications are something that the architect needs to consider when he plans for its interior arrangement (Ohayon et al., 2017; Fawale et al., 2017). The above study of airflow pattern serves a good basis for bed arrangement idea to the architects.

2.4 The wall supports

Wall is a main component in the formation of space in ancient Chinese perception (Hu, 2008). It is a Yin element, and its constant energy is always compatible with sleep activity. The most significant bedroom Feng Shui rule is to keep the bed supported by a solid wall (Shi, 2010; Yap, 2006). This back support is refers to the black tortoise mountain support that is significant in the Form School Feng Shui theory. The study of Spörrle

Stich's (2010) in evolutionary psychology shows supportive results to this Feng Shui recommendation, where the respondents were generally preferred to sleep with bed head that is supported by a solid wall rather than a window. From the psychological viewpoints, sleeping in this position offers positive intuition of being supported and secured from aggressors. The bed-users may also experience better acoustic quality and better visual command of the space.

2.5 The door direction

Doors and windows are the mouth of Qi energy. They may potentially direct unfavourable Qi or Yang energy generated outside the bedroom. A bed should not be in line with the door, especially in a relatively short distance (Shi, 2010; Ong, 2007). Such placement is referred as the "dead coffin" position in Feng Shui

(Too, 2010). Although this exaggerated saying is not a concern but the direct Qi flow that enters to the bed location is possibly too rush and strong. In this case, the benevolent Qi is almost vanished and at this time the 'Sha Qi' exists. The bed (Yin) and the door (Yang) are totally two incompatible energies, the overall situation is not harmonized. Yap (2006) stated that an ideal bed location is a position that allows one to see the door diagonally farther from the bed. The study of Spörrle & Stich's (2010) shows supportive results to this Feng Shui recommendation. This study proven that human have corresponding preferences on the selection of sleeping site that is secured from aggressors as majority of the respondents preferred the door to be in farther position from the bed. Other than having better readiness against potential intruders, a bed-user at this position is expected to experience better acoustic quality and better visual command to the entire space. Conversely, a bed located in line with door in a relative short distance may generate potential psychological distress and direct impact of intruders, especially when the door is not tightly closed.

2.6 The window direction

In Feng Shui, it is preferable to locate the bed to be backed by a solid wall rather than a void (window). Window behind the bed signals upcoming health problems (Ho, 2012; Too, 2010). Windows are made of glass, fragile and transparent, hence a Yang element that doesn't compatible to the bed (Yin). However, a closed window covered with thick blinds during bed time is likely to solve the problem (Yap, 2006). Psychologically, sleeping backed by the win-

dow may cause insecure feelings as a result of potential threats from latent traffic noises and vibrations, wind hit and reflection of light from the external. These uncertainties may generate negative psychological impacts to the bed-users although it may not cause serious mental illness. It is considered ideal when the bed-user is able to see the window from the bed position, provided that it is not behind the bed head (Ng, 2011).

2.7 The sharp angles

A bed pointed by sharp angles or room corner (also known as poison arrow) is considered as unfavourable in Feng Shui (Yap, 2006; Too, 2010). In Feng Shui, Qi flow is perceived as balance in square room but not in an uneven shaped or L-shaped room due to the in-built 'Sha Qi' (harmful energy). 'Sha' literary means killing in Chinese but in Feng Shui it refers to unfavourable energy in *Feng Shui*. According to Yap (2006), 'Sha' is not shooting Qi that kills but at the sharp angle pointing direction, the bed location cannot collect Qi because Qi has been scattered by wind at the bumping corners. Nevertheless, this viewpoint needs to be further investigated by scientific approach. Psychologically, bed-users at this position may have adverse psychological impact such as feeling of pierced and unpleasant visual experience especially when the bed is located closer to the sharp angle. However, the chance of getting misfortunes in this situation is never definite as such claim is just a folk belief.

2.8 The mirror threats

Mirror and bed shall not facing to each other as this is a major threat in Feng Shui (Shi, 2010; Too, 2010). The ancient Chinese believed that our spirit leaves our body when we are asleep. Mirror faces the bed will either cause the spirit not finding its ways back or may invite third party in a relationship. Such consequences of not complying the rule are illogical and over exaggerated. Psychologically, when the bed is facing to mirror, the terrifying part shall be the reflection of own image in the mirror in the dark. According to Yap (2006), mirror will catch and reflect light and hence it generates 'Yang' energy that is contradicted to the stability sense in a sleep environment. The light reflection will somehow affect our emotion before we get into sleep. However, it does not cause any spirit leaving problem or third party attraction into a relationship.

3.0 Methods and Procedures

Semi-structured interview was used in this study, as it is optimal for collecting data on individuals' perspective and experience in bedroom interior arrangement. Architects from different cultural background were selected for interview. Other collected data on the day

of interview included the ideal bedroom layout drawing appeared from the architects' viewpoint. Their design experiences and perceptions relating to interior arrangement in a sleep environment were explored interactively and the values of their design outputs were assessed by particular bedroom *Feng Shui* rules. Invitations to participate in the interviews were sent to 493 architects. In order to pledge the survey is conducted in an unbiased manner, *Feng Shui* terminologies or jargon were not referred in the invitation letter and even throughout the interviews. After 3 months of efforts, the study has successfully approached and interviewed 16 architects of different basis via snowball approach.

3.1 Procedures

Each interview was anonymized, tape-recorded and lasted for 45 to 60 minutes. All interviewees had freedom to develop the conversation within the research topic. Most of the interviews were conducted at the participants' working place with consent except five architects who preferred phone interview due to their busy schedule. Firstly, the interview commenced with questions on demographic data which including race; religion; gender; years of working experience and nature of profession. The participants' personal background were recorded and studied for their professional reliability. Subsequently, the conversation opened with the main question; seeking the respondents' experience in design procedure for a bedroom interior. The purpose of this question intended to provide a concept on how the sleep environment is organized based on their expertise in the present and past construction projects. The additional enquiries including how room size, shape and form, and the direction of door and window affect the decision in bed placement. This interview approach allowed arguments and data that were not directly hunted to enter the conversation, so that the extra information that they considered was important and relevant would enhance the study.

Finally, based on their design proficiency, the participating architects were requested to produce a bedroom layout drawing of a sleep environment with an ideal furniture arrangement that could ensure the greatest comfort and functionality for sleep activity. This drawing can be either a free-hand sketch or AutoCAD drawing. The participants were required to include the basic components of a sleep environment in their master piece which including bed; door, window; wardrobe and vanity. Participants had no restriction on the design of form and dimension of the room but were obliged to connect the bedroom with a bathroom. They also had freedom in deciding the size, quantity and direction of openings and the entrance direction of the bathroom. There was no limit on any additional piece of furniture. Participants were allowed

to submit more than one layout provided that they think the additional drawings were important for this study. There were a few follow-up interviews by phone call for minor clarifications. For a completed interview, participant was rewarded with a token of appreciation. The interviews spent almost five months to be completed. A total of 30 drawings were collected from the 16 participating architects.

3.2 Analysis Methods

All data collected from semi-structured interviews and drawing submissions were reviewed and analyzed to support the empirical basis of bedroom Feng Shui theories. The interviewed materials were transcribed verbatim and analyzed using qualitative methods. The phenomenological data from the architect perceptions about bedroom interior design process was extracted for its significant meaning and concepts. The bedroom layout submitted by the architects was analysed quantitatively based on a scoring system, which was established based on the five most common Feng Shui criteria in bed placement. Each submitted bedroom layout will be assessed based on the scoring system as shown in Table 2. For the fulfilment of each Feng Shui criteria the layout will score "1" or otherwise score "0". A full score of "5" implied that the architect's design is perfectly matching to the bedroom Feng Shui conception. For verification on the perceptual difference between the participants of multi-background, Fisher's Exact test was used for the nominal data. All statistical analyses were performed using the statistical program package IBM SPSS.

4.0 Results and Discussion

The survey has successfully interviewed a total of 16 architects. Majority of the survey participants have an average of 12 years working experience, where the greatest experience is up to 33 years and the minimum is only 2 years. There were seven Chinese architects who are probably sensitive with bedroom Feng Shui, and the remainders were other races who have not been taught with Chinese Feng Shui. Among the Chinese participants, three were Christian while four were Buddhist. There were eight Muslims and one Hindu. Male architects (56.3%) were slightly more than female (43.7%).

4.1 Design procedures in bedroom interior arrangement

A total of 16 interviews were carried out to discuss how a sleep environment is designed for its interior arrangement in order to get a restful retreat that everyone desire. It was pleased that the overall design procedures reported by the 16 interviewees were somehow corresponding to each other. There were only some exceptional considerations for bed arrangement. According to the responded architects, there are

no fixed rules for bedroom furniture arrangement. The decision of arrangement is based on common sense and their past design experiences. To initiate an arrangement of space, it is strictly dependent on the building structural design. The room size and form, door and window facing direction, furniture measurement and the bathroom location are always predetermined before an interior design. Thus, these factors are no longer the sturdy restrictions for the architects but as the main challenge to an interior arrangement exertion. The architects emphasised that the bed is the key element which naturally becomes the focal point in bedroom. A bed location required the sense of stability, comfort, and peace of mind. Thus, bed placement is ahead of other furniture arrangement because the main purpose of a bedroom is for sleeping whereas the secondary is for dressing and storage. The overall design procedures reported by the architects are divided into two stages i.e. consideration and implementation (see Figure 3). They are discussed in the following sub-sections.

4.2 Considerations

Most of the architects claimed that bedrooms in square or rectangular form are the most simple for interior arrangement. They have no aversion to L-shaped or T-shaped room but these forms involve corners of room which will be the challenge for them to do interior arrangement. They usually split the room into two zones of function when there is a long and narrow section in these irregular shapes. Majority of the architects have matching thoughts that an ideal bedroom doesn't have to be huge, but it does need to offer the requisite amenities. Other than the bedroom dimension, the furniture measurement is another concern in interior arrangement. According to the architects, the basic furniture that must be involved in a sleep environment consists of bed, wardrobe and vanity. They advised a bedroom shall not be overcrowded with furniture. Six of the architects reported the basics furniture inside a bedroom are simply a bed and a closet. The selection of the number of furnishing items and its measurement are strongly dependent on the dimension of bedroom.

4.3 Implementation

All architects have common perception to place the largest piece of furniture at first and subsequently the smaller one. Typically, the bed occupies the largest area on plan and consequently become the primary item to be placed in bedroom. Most commonly the bed and other furniture items shall be aligned with walls, either parallel or at its right angles. All architects reported they usually place the bed along the longest piece of wall. 62.5% of them proposed to place the bed along the central area of longest wall for better sense of balance and harmony. They claimed that

visual balance is more important than the room dimensions. Three-quarters of the architects usually place the bed aligned to the wall and at the same time allows bed-user to see the door. 81% of the architects dislike placing the bed head under a window as it may create uncomfortable draughts. Two architects described an exceptional condition to ignore this rule, if the window is seldom opened. An architect claimed that if a large window faces east the bed shall not be located opposite to the window due to the direct sunlight will disturb human sleep in the morning. Furthermore, the distance between the window and the bed shall be ideal for access. Most of the architects usually placed the wardrobe after the bed. It shall be along the wall area which can fit its size, after the bed placement. The vanity is placed along the remainder wall area after the wardrobe. They didn't mention about the size and direction of wardrobe and vanity from the bed. The architects then determine the placement of secondary furniture if extra space is available.

According to the architects, electrical planning is not the concern in bed arrangement. Generally, bed placement is not to suit electrical layout in the architects practice but the other way round. When there is requirement to relocate the bedroom furniture in the architect's design stage the electrical points will be altered accordingly in Mechanical & Electrical design phase. There were only 31% of the architects highlighted that we shall keep the bed away from bathroom pipeline and exterior taps location. The same group of architects also draw an attention to future maintenance issues for the location that require special maintenance. Any non-mobile furniture is not advised to be placed at these locations based on their design experience. Other than the aforesaid considerations for bed arrangement, the architects usually seek for second opinion and references to ensure the arrangement is practical with more sense of comfort before the interior design drawing is confirmed.

4.4 The architects' submission – an exploration of design criteria

The study accumulated 30 bedroom layouts upon the completion of 16 interviews. The submissions were in a blend of master bedroom; middle and single room. All submissions were entirely different in terms of its size and form; door and window facing direction; as well as bathroom location. The bedroom floor plans were not indicated with its door facing direction. Thus we assumed that this criterion were not significant in bedroom interior arrangement.

The proposed bedroom floor plans (excluding bathroom) were predominantly in L-shaped and rectangular form. Most of the L-shaped room have been detached into two or more quadrilateral spaces for different functional speciality. These room cut-offs

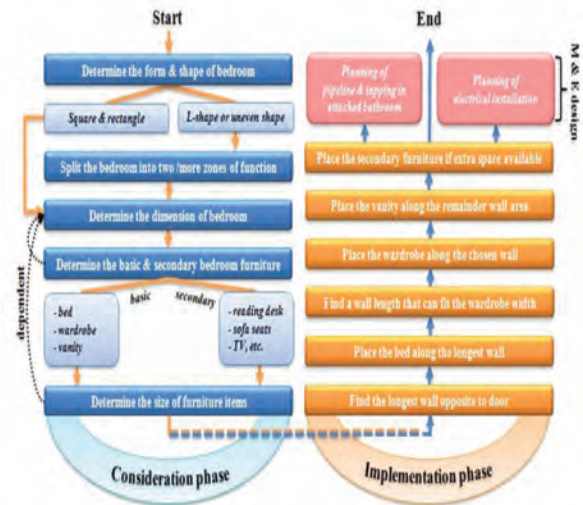


Figure 3. The mutual perspectives of architects in the procedures of bedroom interior arrangement.

FISHER'S EXACT TEST		Feng Shui Design Criteria for Bed Arrangement				
(Sig. ≥ 0.05 – No Inference)		Bed head supports	Window direction	Door direction	Sharp angle threats	Mirror threats
RACE	Exact Sig. (2-sided)	0.179	0.433	0.179	0.443	0.138
RELIGION	Exact Sig. (2-sided)	1.000	1.000	0.409	0.495	0.130
GENDER	Exact Sig. (2-sided)	0.103	0.333	0.540	1.000	1.000

Table 2. Analysis of architects' design outputs based on the five main Feng Shui criteria.

allowed the bed to be located in the bigger quadrangle while the smaller one intended for dressing area. The trend connotes that interior arrangement is probably a simpler job if a quadrilateral form of space is given. This design concept is also concurrent with the Feng Shui thoughts where a square or rectangular space is expected to afford more constant Qi flow for an ideal Feng Shui place. Table 2 demonstrates the analysis of the 30 bedroom layouts based on the five main Feng Shui design criteria. There were 11 layouts (37%) achieved the maximum score at 5.0, where the bed arrangement ideas of the participated architects' have fully compliance with the five significant Feng Shui criteria. 13 of the 30 layouts achieved high score at 4.0, while another 5 layouts compatible with three of the Feng Shui design criteria. There was only one layout getting the lowest score at 2.0. The total mean score for all bedroom layouts were moderately high (mean: 4.13). From the review of total score based on Feng Shui design criteria, the criteria for 'bed head supports', 'door direction' and 'window direction' were very close to the maximum score.

4.4.1 Bed head supports

Among the 30 layouts, 96.7% of the bed heads were supported by solid wall; as only one of them was supported by a window (void). The results implied that the

architects were trying to keep the bed away from the window with potential Yang disruptions (noise, lighting, wind, etc.).

4.4.2 The window direction

The results indicated 96.7% of the architects' preferred to place the bed in a way that allowed one to see the window, either in front of the bed or by the side(s). The results implied that the architects were keen to offer the user with distant view to window and probably keep the bed away from potential Yang disruptions such as wind hit, light reflection and traffic noise that may affect the users' emotion.

4.4.3 The door direction

93.3% of the bedroom layouts were having its door diagonally far from the bed. None of the bed was placed in line with door. The architects preferred such arrangement as it probably allows bed-users to have better visual command of the space and better readiness against potential aggressors.

4.4.4 The nearby sharp corner

The results show 70% of the beds were not threatened by room corner or furniture sharp angles. The results revealed most of the architects attempted to keep the bed away from sharp angles threats but in some cases the threats are unavoidable. It is apparent that bedroom corners and furniture angles often found inside a bedroom, generating unpleasant visual implications and affecting circulation.

4.5.5 The mirror position

56.7% of the proposed layouts do not arrange the bed and the mirror facing to each other. The results showed part of the architects attempted to keep the bed away from the mirror reflection which may possibly disturb human sleep quality. However, mirror facing to bed is unavoidable in some conditions. This arrangement is not always giving destructive impacts as it is strictly dependent on the distance between the bed and the mirror.

4.5 Relationship between human preferences and demographic characteristics

BEDROOM LAYOUT	Bed head supports	Window direction from the bed	Door direction from the bed	Sharp angle pointing to the bed	Mirror in line with bed	Total Scores
SCORING SYSTEM (Maximum score / layout = 5.0)						
Score: 1	Solid wall	Sides/ front	Diagonal	No	No	
Score: 0	Window	Back	In line with bed	Yes	Yes	
L1	solid wall	right	diagonal	table	nil	4.0
L2	solid wall	left	diagonal	nil	nil	5.0
L3	solid wall	left	diagonal	nil	nil	5.0
L4	window	back	diagonal	nil	nil	3.0
L5	solid wall	right	diagonal	table	nil	4.0
L6	solid wall	left, right	diagonal	nil	vanity area	4.0
L7	solid wall	left	diagonal	nil	nil	5.0
L8	solid wall	left	diagonal	nil	nil	5.0
L9	solid wall	left, right	diagonal	nil	nil	5.0
L10	solid wall	front	back, not seen	room corner	closet area	2.0
L11	solid wall	left, right	diagonal	nil	nil	5.0
L12	solid wall	left, right	diagonal	nil	vanity area	4.0
L13	solid wall	diagonal, left	diagonal	nil	nil	5.0
L14	solid wall	left	diagonal	nil	vanity area	4.0
L15	solid wall	left	diagonal	wardrobe	nil	4.0
L16	solid wall	left, front	diagonal	wardrobe	nil	4.0
L17	solid wall	right	diagonal	nil	nil	5.0
L18	solid wall	left	diagonal	nil	vanity area	4.0
L19	solid wall	right	diagonal	nil	vanity area	4.0
L20	solid wall	front	diagonal	table	nil	4.0
L21	solid wall	left, right, front	diagonal	nil	nil	5.0
L22	solid wall	right	diagonal	nil	nil	5.0
L23	solid wall	right	diagonal	nil	vanity area	4.0
L24	solid wall	left	diagonal	table	vanity area	3.0
L25	solid wall	left, right	diagonal	table	vanity area	3.0
L26	solid wall	left, right	diagonal	nil	vanity area	4.0
L27	solid wall	right, front	back, not seen	nil	vanity area	3.0
L28	solid wall	left	diagonal	table	vanity area	3.0
L29	solid wall	right	diagonal	nil	nil	5.0
L30	solid wall	left	diagonal	nil	vanity area	4.0
<i>(N = 30)</i>						
Total scores:	29/30	29/30	28/30	21/30	17/30	124/150
Mean score:	0.97	0.97	0.93	0.7	0.57	4.13
Std. Dev.:	0.18	0.18	0.25	0.47	0.50	

Table 3. The relationships between architects' demographic and Feng Shui design criteria for bed arrangement.

Fisher's Exact test was carried out to conclude the inferential relationship between architects' background and the Feng Shui criteria for bed arrangement. The results showed all p-values were much greater than 0.05 (see Table 3), implying that there were negative inferential relationship between the five Feng Shui design criteria for bed arrangement and the race, religion and gender of architects. The architects' proposed bed arrangements were predominantly not affected by demographic variables and supportive to bedroom Feng Shui rules.

Table 3: The relationships between architects' demographic and Feng Shui design criteria for bed arrangement.

5.0 Conclusion

The research findings showed a proper record of design procedures in bedroom interior arrangement and verified the common design criteria in bed arrangement. It seems that most of the architects have subconsciously practised Feng Shui principles in bed arrangement particularly on the practices dealing with Yin and Yang energy. The architects have mutual perspectives in design procedures for bedroom interior arrangement, which are corresponding to the bedroom Feng Shui conception. Every respondent emphasized the importance of bed placement ahead other furniture. Majority also divided the irregular room shapes into smaller quadrilateral form for better sense of balance as what is required in Feng Shui. Despite each of the proposed bedroom layout structure, form and size were different in nature, the architects shared the common design criteria in bed arrangement, which are in compliance with the five main Feng Shui rules. Majority of the beds are backed by solid wall, not in line with door and having windows at the side. Besides, keeping the bed away from sharp angle and mirror threats were also verified as important design considerations for the architects.

Considering the architects were not informed about the study is regarding bedroom Feng Shui, and the relationships between the bedroom design criteria and the architects' demographic information were insignificant; the authors strongly believed the research findings from a more scientific viewpoint from the architects are undeniably reinforcing the bedroom Feng Shui theories to a higher extent. The Feng Shui rules regarding bed head supports, door and window direction were apparently an important reference for bedroom interior arrangement to the architects; as they are more scientific in terms of visual implication and psychological explanation. Instead of investigating various architects' perceptions on the design procedures and design criteria for bedroom interior arrangement, it is an alternative for the archi-

itects to adhere bedroom Feng Shui rules which have their scientific origin and not purely superstitious. Bedroom Feng Shui rules indeed an important reference for a healthy and comfortable bedroom interior planning. In view of these concepts may be supportive to human sleep quality and general well-being, the research findings formed a potent foundation for future research pertaining to experimental sleep quality measurement.

REFERENCES

- ANTUNES, B.M., CAMPOS, E.Z., PARMEZZANI, S.S., SANTOS, R.V., LIRA, F.S. (2017). Sleep quality and duration are associated with performance in maximal incremental test. *Physiology & Behavior*, 177(1), 252-256.
- CHOU, P.C., HUNG, C.C., CHIANG, C.M. (2007). Does Feng-Shui approach improve the indoor environment quality? The viewpoint of the room ventilation by CFD simulation. *International Conference in Sustainable Building 2007 (SB07)*, Taipei, Taiwan, A04, pp.1-6.
- FAWALE, M.B., ISMAILA, I.A., MUSTAPHA, A.F., KOMOLAFE, M.A., IBIGBAMI, O. (2017). Correlates of sleep quality and sleep duration in a sample of urban-dwelling elderly Nigerian women. *Sleep Health*, 3(4), 257-262.
- FRANCIS, B., KLEBANOFF, M., OZA-FRANK, R. (2017). Racial discrimination and perinatal sleep quality. *Sleep Health*, 3(4), 300-305.
- HO, S.H. (2012). Feng Shui and Regulatory Fit Theory. *International Journal of Sales, Retailing and Marketing*, 1(2), 3-17.
- HONG, W.T., ABDUL-RAHMAN, H., WANG, C. (2014). The relationship between human preferable bed arrangement and bedroom Feng Shui conception. *Global Academic Network International Conference*, Temple University, Tokyo, Japan.
- HONG, W. T., ABDUL-RAHMAN, H., WANG, C. (2016). The application of Form School Feng Shui model in a sleep environment: human preferences and subjective sleep quality evaluation. *Architectural Engineering and Design Management*, 12(6), 442-459.
- HU, XIAO. (2008). Boundaries and openings: spatial strategies in the Chinese dwelling. *Journal of Housing and the Built Environment*, 23(4), 353-366.
- LAN, L., TSUZUKI, K., LIU, Y.F., LIAN, Z.W. (2017). Thermal environment and sleep quality: A review. *Energy and Buildings*, 149, 101-113.
- LEYTEN, V. (2008). *Five Elements towards a Healthy Architecture*. Ottawa: Carleton University Press.
- LYNCH, E. (2003). *Feng Shui as a site design tool: Assessing conditions of human comfort in urban places*. Arizona: University of Arizona Press.

MAK, M.Y., SO, A.T.P. (2011). *Scientific Feng Shui for the built environment: Fundamentals and case studies*: HK: City University of HK Press.

MCMILLAN, K.K., MCMILLAN, P.H. (2011). *Home decorating for dummies* (2nd ed., Vol. 178). Hoboken, NJ: John Wiley & Sons.

MERRELL, P., SCHKUFZA, E., LI, Z., AGRAWALA, M., KOLTUN, V. (2011). Interactive furniture layout using interior design guidelines. *ACM Transactions on Graphics (TOG)*, 30(4), 1-10.

Ng, S. (2011). *Your head here*. Kuala Lumpur, Malaysia: JY Books Sdn. Bhd.

OHAYON, M., WICKWIRE, E.M., HIRSHKOWITZ, M., ALBERT, S.M., VITIELLO, M.V. (2017). National Sleep Foundation's sleep quality recommendations: first report. *Sleep Health*, 3(1), 6-19.

ONG, H.T. (2007). *Scientific Feng Shui for bedroom, love and marriage*. Kuala Lumpur: GUI management Centre.

OW, S.H., TEH, K.W., TEH, F.N., QUAH, C.N. (2006). An investigation on public opinion on the use of an interior design system that incorporates elements of Feng Shui. *CMU Journal*, 5(2), 283.

Shi, Q.Q. (2010). *Feng Shui tu wen bai shuo*. Xi'an: Shaanxi Normal University Press.

SPÖRRLE, M., STICH, J. (2010). Sleeping in safe places: An experimental investigation of human sleeping place preferences from an Evolutionary Perspective. *Evolutionary Psychology*, 8(3), 405-419.

TEATHER, E.K., CHOW, C.S. (2000). The Geographer and the Fengshui Practitioner: so close and yet so far apart? *Australian Geographer*, 31(3), 309-332.

TOO, L. (2010). *Feng Shui for interiors*. Kuala Lumpur: Konsep Lagenda Press.

Xu, P. (1998). Feng-shui models structured traditional Beijing courtyard houses. *Journal of Architectural and Planning Research*, 15(4), 271-282.

Yap, J. (2006). *Feng Shui for homebuyers: Interior*. Kuala Lumpur: JY Books Publishing.

Author(s):

Chen Wang

College of Civil Engineering, Huaqiao University,
361021 Xiamen, China

Wan Thing Hong,

Faculty of Built Environment, Heriot-Watt University,
Malaysia.

Hamzah Abdul-Rahman

Faculty of Built Environment, University of Malaya,
Malaysia.
987415@163.com